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FORECAST OF FUTURE CONDITIONS
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Prepared for
Exxon Minerals Company

by
Research and Planning Consultants, Inc.

October 1983

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OVERVIEW

CRANDON PROJECT DESCRIPTION

The Crandon ore deposit is a substantial deposit of zinc, copper, and lead. It is located in the Wolf River Basin, an area of rolling terrain and streams, one-quarter mile north of Little Sand Lake and one mile south of Swamp Creek (Figure 1). While the Crandon ore deposit has been estimated at 65.8 million tons, actual production may reveal more or less reserves. The actual size of the ore deposit and the rate of recovery will determine the length of the operating period for the Crandon Project, which is now estimated to be 21 years.

DEFINITION OF THE LOCAL STUDY AREA

The "local study area" as defined for the socioeconomic assessment (depicted in Figure 2) is that geographic area reasonably expected to be most impacted by the mining activity (NR 132.10(1)(e), Wisconsin Administrative Code). In addition to the vicinities immediately adjacent to the mine/mill complex, the local study area includes communities where new residents are expected to locate in response to jobs directly or indirectly created by the Project. It also includes locations with existing industries which may compete with the Project for workers.

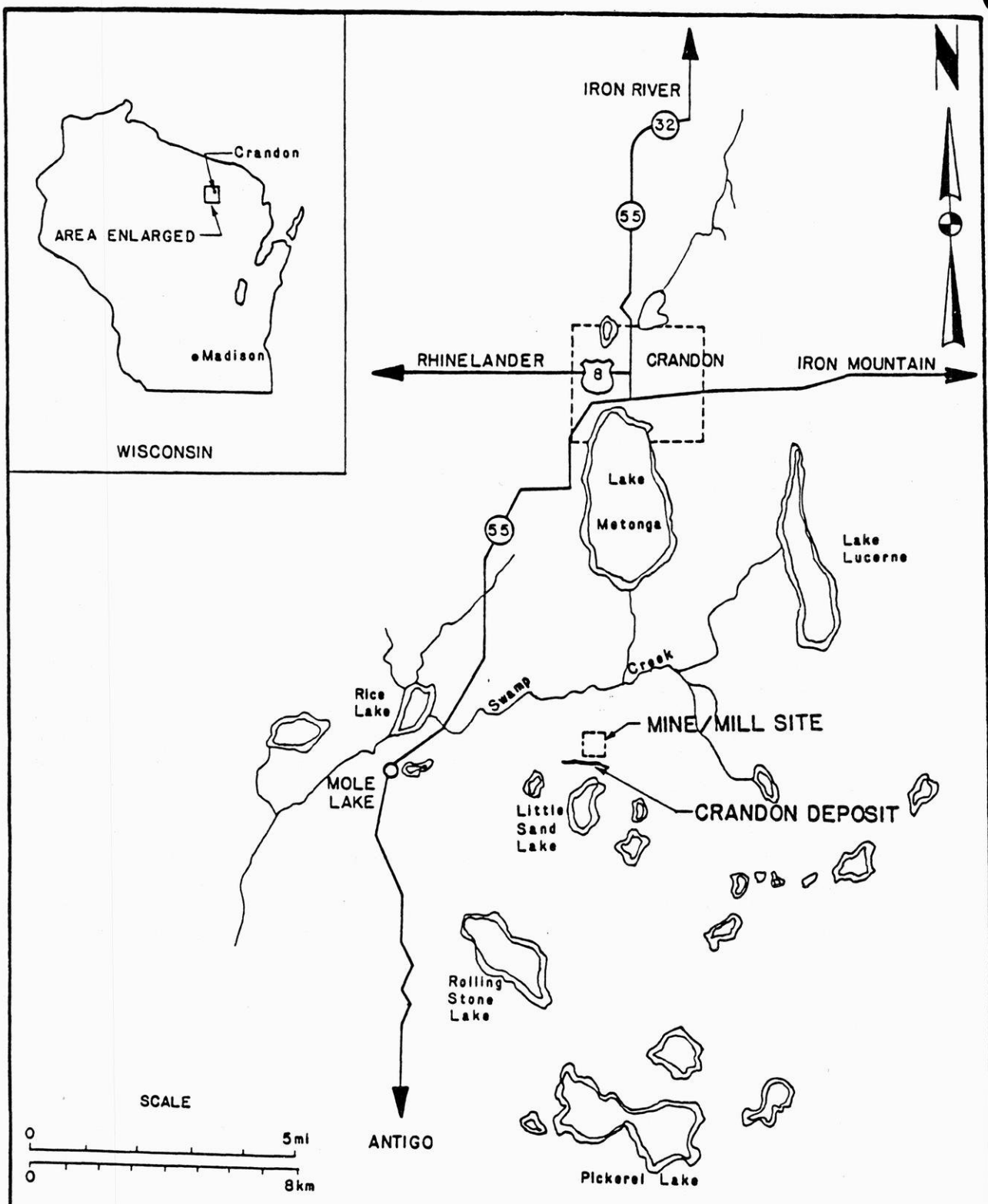
The local study area includes 40 towns and four incorporated areas encompassing most of Forest and Langlade counties, and about half of Oneida County in northern Wisconsin.

HIGHLIGHTS

- Development of the Crandon Project will result in substantial economic benefits to Northwood's residents within the local study area.

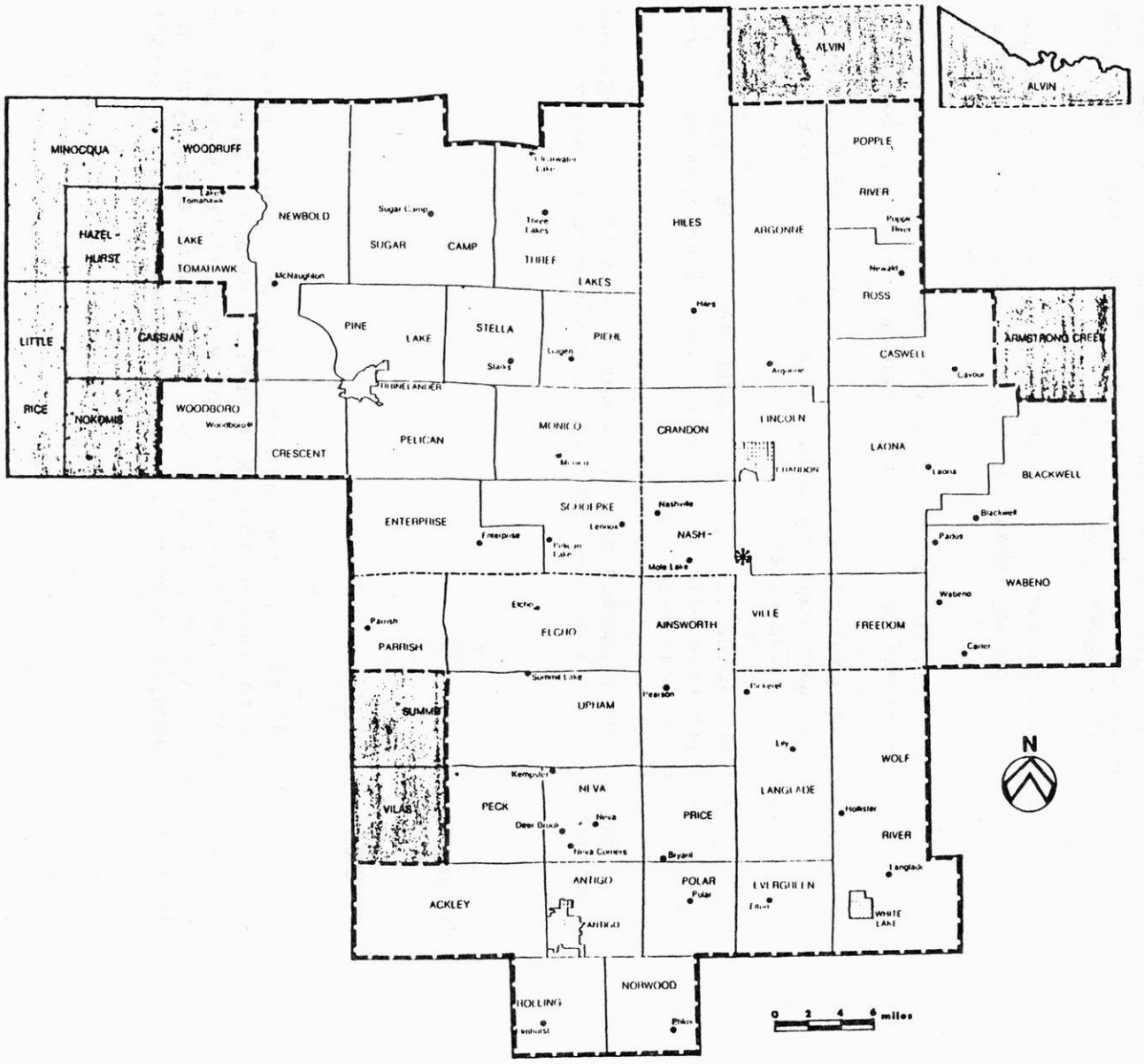
FIGURE 1

LOCATION OF CRANDON MINE/MILL SITE



SOURCE: Exxon Minerals Company. "Preliminary Project Description, Crandon Project." October, 1980.

FIGURE 2



LOCAL STUDY AREA

- County Boundaries
- Town Boundaries
- Incorporated Areas
- Unincorporated Areas
- Crandon Project Discovery Site
- Towns Not Included In Local Study Area

Source: *RPC, Inc., Definition of the Local Study Area.*

SOCIOECONOMIC ASSESSMENT
CRANDON PROJECT
EXXON MINERALS COMPANY
prepared by **rpc** inc. austin

- Many Project-related jobs can be filled by current residents of the local study area.

- Substantial employment-related migration to the local study area is not expected to occur.

- Exxon Minerals Crandon Project is projected to generate over $350 million in total taxes. About $180 million will come from net proceeds tax payments. An additional $260 million in tax revenues will be generated indirectly. These funds should be several times greater than needed to eliminate any negative fiscal effects associated with the Project.

- Crandon Project development will provide an improved economic climate for local study area communities, including the Native American communities.

- Boomtown conditions for the local study area will not occur during any phase of Project construction or operation.

- No shortages of housing or public facilities and services are projected to result from Crandon Project development.

- Existing public facilities, including school facilities, have adequate capacity to accommodate the Project-related population increases.

- On a statewide level, the Crandon Project is projected to have positive effects on employment, income, state revenues, and tax receipts.

The following pages provide a summary of the findings and conclusions of each of the mine major socioeconomic study elements.

FINDINGS

Economic Analysis

The local study area economy has higher unemployment and lower per capita income than Wisconsin overall. There is a history of substantial outmigration of young adults seeking employment and career opportunities. The present economy of the local study area is based upon forestry-related industry, retail

trade, recreation, and tourism. None of these sectors promise to grow sufficiently to close the local study area's unemployment or per capita income gap with the rest of the state or to provide employment and career opportunities which would allow many able young adults to remain in the area. Improved economic conditions in the local study area require the creation of new economic activities. One of the most important assets available to the local study area to attract new, higher-income jobs is its natural-resource base, including mineral resources such as the Crandon deposit.

The economic impact of the Crandon Project on the local study area and the state is expressed by its impact on employment, total personal income, per capita income, and disposable per capita income. Project impacts on disposable per capita income will be discussed in the fiscal section of this chapter.

The economic impacts of the Crandon Project are individually and collectively positive. Based on simulation modeling of without- and with-project scenarios, we find that the Project will cause local study area employment to be 4.0 to 6.2 percent higher, will cause unemployment rates to be up to 1.4 percentage points lower, will cause total personal income to be 4.2 to 6.7 percent higher, and will cause per capita income to be 1.1 to 2.9 percent higher than without the Project. Because of the existing and projected labor supply, these economic improvements should occur without harm to existing industries and without generating extensive employment-related migration. The amount of employment-related inmigration for Project construction and operation jobs would be constrained by Exxon Minerals announced policies on training and local hiring. The number of people inmigrating should be small enough to be readily assimilated into the local communities.

The economic impacts of closure of the Project at the end of its economic life will be to reduce employment, personal income and per capita income, and to increase unemployment slightly in comparison with the without-project scenario. However, the scheduled closure of the Project in 2011 is so far in the future that these impacts cannot be assessed reliably. The closure will come at a time when the general aging of the population will be shrinking the labor force and generally reducing unemployment rates. In the absense of appropriate planning before the mine/mill closes, economic adjustment and recovery could be slow. With proper planning, appropriate use of local impact funds and active pursuit of alternate economic development scenarios, negative economic impacts of Project closure can be reduced or eliminated.

The fact that the Project will eventually close when its mineral resources are exhausted does not make the mining project less desirable than a manufacturing project or other source of local economic growth. No mine, plant or even government installation can be guaranteed to continue forever. The eventual closure of the mine is not, per se, a negative economic impact of the Project. Closure is a planned part of the Project's operations which also must be planned for by the state and the local study area.

Demographic Analysis

The local study area population is proportionally more rural, more white, older, and has a smaller percentage of school-age children than the state. Its modest annual growth rate (1.2 percent) from 1970 to 1980 was a result, mainly, of migration into the area of older persons offsetting outmigration of younger-aged persons. Without the Project, this general pattern would continue, but with annual growth rates declining to 0.6 percent in the 1980s and to 0.2 in the 1990 to 2011 period as the advancing average age of the population causes natural increase to decline and eventually become natural decrease. Such planning is critical to the ultimate impact that might result from mine closure.

For the local study area as a whole, development of the Crandon Project is expected to have only limited impacts. Total population will be 8.0 to 10.6 percent higher than without-project population during construction and 4.7 to 5.6 percent higher during the operation phase. The annual growth rate for the 1980s would be 1.1 to 1.2 percent, about the same as in the 1970s. In the 1990 to 2011 period, the annual growth rate would be 0.1 to 0.2, slightly lower than without the Project. These lower percentages are due to a larger 1990 base population with the Project and similar absolute increases thereafter. After Project closure, the population will converge to essentially the same level as in the without-project scenario.

Without the Project, the portion of the local study area in Oneida County, particularly the towns around Rhinelander, grow at the fastest rate. In Forest County, population growth without the Project is centered in the City of Crandon and the towns of Laona and Wabeno. The City of Antigo is the fastest growing part of Langlade County.

Based on criteria of peak and sustained growth rates, the towns of Lincoln, Nashville, Crescent, Newbold, Pelican and Pine

Lake, and the City of Crandon will experience the greatest population impacts from the project. The cities of Rhinelander and Antigo receive substantial shares of the Project's total population impact, but the absolute numbers of additional people are a small percentage of the base population of each of these jurisdictions.

None of these jurisdictions receive percentage or absolute population increases as a result of the Project which would disrupt the orderly provision of housing and public services or would disrupt the social structure. The dispersion of Project-related population over more than 40 jurisdictions will dilute the impact and will prevent conditions sometimes associated with "boomtowns" in the western United States from developing.

Housing and Land Use Analysis

The local study area housing stock is characterized by low-density single-family houses. Much of the new residential construction employs modular systems installed in rural subdivisions which rely on water wells and septic tanks rather than a central water/wastewater system. Over a third of the total housing stock in the local study area is seasonal housing. Most recently-built seasonal housing is suitable for year-round occupancy. Additionally, the local study area has substantial short-term housing in numerous hotels, motels and resorts. Mobile homes are also widely used.

With or without the Project, the housing industry in the local study area will consist of small builder/developers. Subdivisions will be generally less than 50 lots and the only improvements will be a paved road and electrical connections. Speculative building should continue to be constrained tightly by local lenders and by the limited capitalization of local builders.

The Project will generate jobs allowing additional household formation which translates to additional demand for housing. The Project also will attract new households to the local study area temporarily or permanently. However, no housing shortages will result from the Crandon Project development. Those construction workers who are only temporary residents of the area will find rental housing in the current rental stock, in seasonal homes and in hotels. The peak demand for new home construction is within the demonstrated capacity of local builders. Delays experienced elsewhere in development of buildable lots will not be a problem

in this area because of the short lead time required for rural subdivisions.

Small increases in housing sales prices over without-project levels can be expected to occur during certain periods of Project construction and operation. Following Project closure, decreased housing demand brought on by employment-related outmigration may lead to a three- to five-year slowdown in construction of primary residences.

Project development affects the timing of land conversion from agriculture and forestry to residential, commercial, and industrial uses, but does not affect substantially the total amount of land converted from undeveloped to developed uses. With the Crandon Project, land is converted to developed uses at an accelerated pace throughout Project construction and operation. The amount of land required for residential, commercial and manufacturing purposes is not sufficient to create pressures for development of prime agricultural or forest land.

Public Facilities and Services Analysis

The local study area is comprised of small cities and rural areas which provide limited public facilities and services. Few of these jurisdictions provide centralized water and wastewater services or paid fire and police services. Surveys of residents indicate they are generally very satisfied with current service standards. In these circumstances, it is appropriate in most cases to use current per capita service standards as a measure of future per capita service demands.

It would be necessary to depart from current standards if jurisdictions grow past threshholds at which more intensive services are required. Most jurisdictions do not reach such threshholds in without- or with-project scenarios. Those jurisdictions which do reach threshholds for centralized or paid services do so in all scenarios. Thus, the impact of the Project on service standards is reflected only by changes in the time at which jurisdictions may need to institute centralized or paid services.

Given constant per capita service standards, population increases caused by the Project will increase total demands on local study area public facilities and services and will increase operation, maintenance, and capital costs. Development of the Crandon Project accelerates the timing of personnel additions and capital expansions forecast in the without-project scenario. The absolute requirements for additional personnel are sufficiently

small that no manpower shortages should be encountered in filling them.

Some additional capital expansions are required by development of the Crandon Project. These expansions are limited, for the most part, to small capital expenditures for general government and general operations.

Though the public facilities and services model predicts that the towns of Crescent, Pelican, and Pine Lake will reach the population thresholds which would indicate the possibility of initiating centralized water and wastewater services, other factors such as density and type of development lead to the possibility that these towns may not institute such services. If these towns decide to build centralized water and wastewater systems, they probably will finance the new systems through user fees or other revenue sources. However, computer printouts for the three towns in the "Forecast of Future Conditions Data Summary" retain the cost calculations for financing centralized water and wastewater services through the property tax system so that readers may see what those costs would be if the services were built and financed through property taxes rather than user fees.

In several categories, including schools, most jurisdictions have sufficient excess capacity that no expansions are needed throughout the forecast period. The local study area has sufficient infrastructure to accommodate Project-related population increases without requiring capital expansion in advance of Project construction.

Transportation Analysis

Development of the Crandon Project is expected to increase traffic levels substantially along roadways providing relatively direct access routes from the Crandon Project site to the principal employee residential locations. These increased traffic levels, however, will not be great enough to warrant construction of new highway facilities or major expansion of existing highways. Most traffic increases will coincide with shift changes at the mine/mill complex. Two locations expected to experience the greatest increase in Project-related congestion are the highways passing through the City of Crandon, and the intersection of State Highway 55 and the Crandon Project proposed main access road. Construction of turning lanes and installation of traffic control devices would reduce congestion effects at these locations.

Development of the Crandon Project also is expected to substantially increase passenger traffic at the Rhinelander/ Oneida County Airport throughout the life of the Crandon Project. However, these increases are not expected to create substantial operational problems at the airport.

The Crandon Project will not increase substantially the railway activity over the Soo Line's Argonne mainline. The number of trains should not increase, but the average train lengths will increase due to Project-associated rail shipments. Increased motorist delays may occur at major roadway crossings located south of the Crandon Project. The issue of motorist safety at railroad crossings should not be affected by the Crandon Project.

Sociocultural Analysis

Surveys of local study area residents indicate that residents perceive the local study area as a good place to live or visit. They also indicate that they want the benefits of development but feel developers should proceed cautiously in order to reduce any environmental damage. Local study area residents most likely will continue to favor economic development during the predevelopment stage of the Crandon Project. If experience elsewhere holds true, as Project construction peaks, local study area residents' sentiments regarding the Crandon Project are likely to become somewhat less positive. The previous supportive attitudes toward the Project most likely will return during completion of construction. These feelings most likely will again be more positive as they see local study area residents filling a high proportion of Project jobs, and as they see that negative housing and fiscal effects are not occurring. The rural nature of the local study area is not likely to change due to the Crandon Project, and the low level of Project-related inmigration is not expected to create leadership changes in community organizations, although Exxon Minerals Company personnel and the Crandon Project may have an important role in community affairs.

Native American Communities Analysis

The Mole Lake Sokaogon Chippewa and the Forest County Potowatomi communities hold small reservations in the local study area. The total memberships of the communities living on or near the reservations in 1980 are 312 and 316, respectively. Both

communities have birth, death, and unemployment rates which are substantially higher than in the surrounding area. Personal and household incomes are much lower. Economically, both communities are largely dependent on government support programs.

The Crandon Project should have more positive than negative impacts on the two Native American communities in the local study area. Development of the Crandon Project will increase the employment opportunities for Native Americans and may make feasible the development of tribal enterprises. The Wisconsin Mining Impact Fund Board's annual guaranteed payments of $100,000 (indexed) for each reservation will improve substantially the opportunities for these reservations to provide much-needed infrastructure and to expand or initiate tribal enterprises.

Reverse migration resulting from Project development is likely to increase the population living on reservations. Long-range planning by Native American communities for effective uses of Mining Impact Board payments, coupled with Exxon Minerals expressed desire to hire and train Native Americans, will minimize chances of Project-related negative effects.

Fiscal Analysis

The Crandon Project will have an overall strong positive fiscal effect for the local study area and for the state. Other revenue sources such as employee income and sales taxes, although not specifically analyzed per jurisdiction, are an additional benefit to the state's economy. The fiscal analysis further indicates that Project development is most beneficial to those jurisdictions forecast to have the most impacts as a result of mining-related changes.

Simulated property tax mill rates for the jurisdictions within the local study area generally indicate increases for several municipalities during the construction phase but most have no substantial effect. There are mainly mill-rate decreases resulting from mining during the operation phase. Simulated tax rates for Forest County, the towns of Lincoln and Nashville and the Crandon School District indicate consistent decreases throughout the operation phase. No consistent patterns are indicated for most of the other jurisdictions within the local study area. The most positive property tax effects are in those jurisdictions with the Project-related facilities: Lincoln and Nashville towns, Forest County, and Crandon School District.

The net proceeds tax law was established by the Wisconsin Legislature to provide funds to municipalities for costs associated with social, educational, environmental, and economic impacts of metaliforous mineral mining. Annual net proceeds tax payments from the Project are forecast to average approximately $10 million (1982 constant dollars) during the operation phase. As a result, the net proceeds tax payments available to municipalities are over five times higher than required to mitigate the forecast costs related to the Project.

State and federal income taxes paid by the Project are forecast to average approximately $9 million and $30 million (1982 constant dollars) annually, respectively, during the operation phase. In addition to these revenues, the State of Wisconsin will receive benefits from income and sales taxes paid by employees and other Project-related job creations. For every Project job, an estimated 3.4 jobs are required throughout the state. As such, the total Project-related employment (direct and indirect) is approximately 2,800 jobs. The indirect taxes from these jobs are projected to average approximately $29 million (current dollars) during the operation phase. The Project fiscal benefits, therefore, will enhance the local study area and the general State of Wisconsin economies.

CONCLUSIONS

The Crandon Project will increase local study area and overall state employment, personal income, per capita income, disposable per capita income and business activity levels. Due to unemployment levels in the local study area, Project development should not result in substantial employment-related migration to the local study area or harm existing industries.

The Crandon Project will have only limited effects on local study area population levels. "Boomtown" conditions should not occur in any jurisdiction during any phase of the Project.

No housing shortages are projected for the local study area. Housing prices will increase slightly because of the Project. Slowdowns in new housing construction can be expected following mine/mill complex closure.

Crandon Project development will accelerate land development. The overall land use patterns in the local study area will not change. The Project will not require development of prime agricultural or forest land.

The local study area has a well-developed infrastructure. Few additional public facilities are needed as a result of Project development. Population growth will accelerate the need for some capital improvements and will increase public expenditures and the number of public employees. There will be no difficulty in securing additional employees.

Project development will increase traffic on local study area highways, but no major highway expansions are projected to be required to handle this traffic. Providers of rail and air services will benefit from the Project.

Both seasonal and permanent residents of the local study area believe the effects of the Project, on the whole, will be beneficial. The Project will not materially disrupt or alter the existing social structure of the local study area.

Native American communities should receive more positive than negative impacts from the Project. Development of the Crandon Project will increase the employment opportunities for Native Americans and may make feasible the development of tribal enterprises.

Over the life of the Project and especially during the operation phase, the fiscal impact on state and local study area governments should be highly positive. The total amount deposited in the Investment and Local Impact Fund through the Project's net proceeds tax payments should be more than sufficient to maintain current service standards without increased property tax rates for residents or deficits for jurisdictions. Increases in per capita income will not be offset by increased taxes as a result of the Project.

Mill rate increases are projected for some jurisdictions over rates without the Project as a result of delays in bringing properties of the Project and the homes of the new area residents onto the tax rolls and resulting from earlier needs for capital improvements. The total amounts to be paid by Exxon Minerals Company into the Investment and Local Impact Fund are sufficient to make discretionary payments to these jurisdictions and eliminate the need for any Project-related increases in the property tax rate.

During the construction phase, the Mining Investment and Local Impact Fund may develop a cash flow shortage, even though the net proceeds tax payments generated during the life of the Project will be more than sufficient to mitigate any impacts which occur. The cash flow problem may arise if receipts from other than Project sources including tax payments and state loans are insufficient to cover the impacts which the Mining Investment

and Local Impact Fund Board determines should be appropriately funded by grants from the fund.

No matter how much money is paid into the local impact fund during the construction phase, criteria as to what constitutes a negative impact eligible for mitigation must be developed by the state. There are many desirable public improvements that are not and will not be needed because of any impact of the Project. In these times of limited public funds, it is tempting to try to develop a rationale to draw on whatever pool of money is available.

Based on the findings of this study, few capital improvements will be needed during the construction phase. The negative fiscal impacts are due largely to increased operating expenses in advance of increased property tax collections. Construction-phase mitigation payments should primarily be to offset population-related increases in operating expenses. Further, this study indicates that population distribution in the construction and operation phases will differ. Where capital improvements are not required for public health and safety, it is more prudent to defer major capital projects until the operation phase.

Finally, on the basis of the data and analysis included in this study and supporting documentation, it is RPC's professional opinion that the proposed Crandon Project should have no net adverse economic impact on the local study area, that geographic area which RPC expects to be most affected by the proposed Project.

HOW TO USE THIS REPORT

This report is part of a comprehensive study commissioned by Exxon Minerals Company to determine the potential socioeconomic effects of a proposed mine/mill complex in northern Wisconsin. This report presents forecasts of future conditions both with and without the proposed Crandon Project (also referred to as the "Project") as projected to occur in the local study area. The local study area has been defined in previous reports (RPC, 1981e; 1980a) as parts of Forest, Langlade, and Oneida counties.

Part of the intent of Exxon Minerals Company in commissioning this socioeconomic assessment is to give everyone with an interest in the proposed Project access to reports concerning the socioeconomic effects that might result from Project development. However, this intended readership covers a wide spectrum of interests and technical backgrounds. In an effort to provide information for those with nontechnical interests, as well as for readers who want all the statistical and technical details.

The analyses presented assess the effects of the Project on local study area economics, demographics, housing, land use, public facilities and services, transportation systems, sociocultural conditions, and Native American communities. In support of these analyses, three appendices are provided in this report, one relating to demographics, one relating to transportation, and one serving as a methodology document for the Fiscal Analysis. Other statistical data are provided in two appendices published separately from this volume: the technical appendix to the Public Facilities and Services Analysis and the technical appendix to the Housing and Land Use Analysis. These appendices provide detailed projections on changes in public facilities and services by jurisdiction and on changes in land use by jurisdiction for the forecast period of 1980 to 2016.

The findings and conclusions from each analysis chapter are provided in a separate chapter at the end of this report. This is followed by a list of references.

In this report, several previous publications by Research and Planning Consultants, Inc. (RPC) are referred to frequently. These include the "Report on Current Conditions" (RPC, 1981e), "Results of Survey on Baseline Conditions" (RPC, 1982b), "Defini-

tion of the Local Study Area" (RPC, 1980a), "Study Plan" (RPC, 1980d), and several methodology documents (RPC, 1982a; 1981a,b,c,d; 1980b,c,d).

The technical discussion in this report is organized as follows:

1. Introduction
2. Economic Analysis
3. Demographic Analysis
4. Housing and Land Use Analysis
5. Public Facilities and Services Analysis
6. Transportation Analysis
7. Sociocultural Analysis
8. Native American Communities Analysis
9. Fiscal Analysis
10. Findings and Conclusions

TABLE OF CONTENTS

	Page
HOW TO USE THIS REPORT	xv
LIST OF TABLES	xxiii
LIST OF FIGURES	xxxi
1. INTRODUCTION	1
Definition of the Local Study Area	4
Assessment Methodology	8
The Nature of Computer Modeling	13
Assumptions Used in the Computer Models	16
2. ECONOMIC ANALYSIS	27
Without-Project Forecast (1980-2016)	35
Economic Conditions	35
Special Industry Studies	43
Agriculture	45
Forestry and Wood Products	45
Mining	48
Trade	48
Recreation	51
With-Project Forecast, Construction Phase (1985-1989)	51
Economic Conditions	51
Special Industry Studies	67
Agriculture	67
Forestry and Wood Products	71
Mining	72
Trade	72
Recreation	73
Operation Phase (1990-2011)	78
Economic Conditions	78
Special Industry Studies	82
Agriculture	82
Forestry and Wood Products	83
Mining	83
Trade	85
Recreation	85
Post-Operation Phase (2011-2016))	86
Economic Conditions	86

TABLE OF CONTENTS (continued)

		Page
3.	DEMOGRAPHIC ANALYSIS	89
	Without-Project Forecast (1980-2016)	99
	Population Characteristics	99
	Population Distribution	106
	With-Project Forecast, Construction Phase (1985-1989)	109
	Population Characteristics	109
	Population Distribution	118
	Operation Phase (1990-2011)	125
	Population Characteristics	125
	Population Distribution	128
	Post-Operation Phase (2011-2016)	131
	Population Characteristics	131
	Population Distribution	132
4.	HOUSING AND LAND USE ANALYSIS	135
	Without-Project Forecast (1980-2016)	147
	With-Project Forecast, Construction Phase (1985-1989)	155
	Operation Phase (1990-2011)	160
	Post-Operation Phase (2011-2016)	161
5.	PUBLIC FACILITIES AND SERVICES ANALYSIS	165
	Without-Project Forecast (1980-2016)	175
	Police Protection	178
	Fire Protection	179
	Streets and Roads	183
	Water Supply and Wastewater Treatment	184
	Solid Waste Disposal	187
	Library Services	188
	Recreation	188
	General Government	189
	Public Education	190
	General Operations and Other Services	193
	Utilities	193
	With-Project Forecast, Construction Phase (1985-1989)	194
	Police Protection and Fire Protection	194
	Streets and Roads	196
	Water Supply and Wastewater Treatment	196
	Solid Waste Disposal, Library Services, and Recreation	197
	General Government	197
	General Operations and Other Services	198
	Operation Phase (1990-2011)	200
	Police Protection	200
	Fire Protection	213
	Water Supply and Wastewater Treatment	213
	Public Education	214

TABLE OF CONTENTS (continued)

		Page
	General Operations and Other Services	215
	Post-Operation Phase (2011-2016)	216
6.	TRANSPORTATION ANALYSIS	217
	Methodology	219
	Road Analysis	219
	Rail Analysis	227
	Air Analysis	228
	Without-Project Forecast (1980-2016)	229
	Road Analysis	229
	Rail Analysis	230
	Air Analysis	232
	With-Project Forecast, Construction Phase (1985-1989)	234
	Road Analysis	234
	Rail Analysis	241
	Air Analysis	242
	Operation Phase (1990-2011)	242
	Road Analysis	242
	Rail Analysis	243
	Air Analysis	249
	Post-Operation Phase (2011-2016)	249
7.	SOCIOCULTURAL ANALYSIS	251
	Sociocultural Systems	252
	Conditioning Characteristics	256
	Without-Project Forecast (1980-2016)	262
	Social Organization	264
	Values, Attitudes, and Perceptions	267
	With-Project Forecast, Construction Phase (1985-1989)	269
	Social Organization	271
	Values, Attitudes, and Perceptions	273
	Operation Phase (1990-2011)	274
	Social Organization	274
	Values, Attitudes, and Perceptions	277
	Post-Operation Phase (2011-2016)	278
8.	NATIVE AMERICAN COMMUNITIES ANALYSIS	281
	Without-Project Forecast (1980-2016)	288
	With-Project Forecast, Construction Phase (1985-1989)	317
	Operation Phase (1990-2011)	320
	Post-Operation Phase (2011-2016)	321
9.	FISCAL ANALYSIS	323
	Net Proceeds Analysis	332
	Calculation of Net Proceeds Tax (NPT)	333
	Without-Project Forecast	338

Page

With-Project Forecast, Construction Phase (1985-1989) 338
Operation Phase (1990-2011) 338
Post-Operation Phase (2011-2015) 341
Property Tax Analysis 341
Example of Wisconsin Tax Calculation 342
Dynamic Analysis 356
Without-Project Forecast (1980-2016) 358
With-Project Forecast 359
Construction Phase (1985-1989) 360
Property Owner Taxpayer 360
Municipalities 363
Cities 367
Counties 368
School Districts 368
Operation Phase (1990-2010) 368
Property Owner Taxpayer 374
Municipalities 374
Cities 375
Counties 375
School District 376
Post-Operation Phase (2011-2015) 377
Property Owner Taxpayer 377
Municipalities 377
Cities 383
Counties 383
School Districts 383
Aggregate Effects 383
State Income Tax Analysis 387
Calculation of State Income Taxes 387
Without-Project Forecast 389
With-Project Forecast, Construction Phase (1985-1989) 389
Operation Phase (1990-2011) 389
Post-Operation Phase (2011-2015) 392
Federal Income Tax Analysis 392
Calculation of Federal Income Taxes 393
Without-Project Forecast 393
With-Project Forecast, Construction Phase (1985-1989) 393
Operation Phase (1990-2010) 393
Post-Operation Phase (2011-2015) 395
State Economic and Fiscal Analysis 395
Forecast of State Economic Effects 397
Forecast of State Employment Effects 399
Forecast of State Population Effects 401

TABLE OF CONTENTS (continued)

	Page
Forecast of State Income Effects	402
Forecast of State Tax Effects	403
10. FINDINGS AND CONCLUSIONS	409
Findings	409
Economic Analysis	409
Demographic Analysis	413
Housing and Land Use Analysis	415
Public Facilities and Services Analysis	417
Transportation Analysis	419
Sociocultural Analysis	420
Native American Communities Analysis	421
Fiscal Analysis	422
Conclusions	424
LIST OF REFERENCES	427
APPENDIX A - DETAILED DEMOGRAPHIC PROJECTIONS	A-1
APPENDIX B - DETAILED TRANSPORTATION PROJECTIONS	B-1
APPENDIX C - PROPERTY TAX AND STATE EQUALIZATION AID METHODOLOGY	C-1

LIST OF TABLES

Table	Title	Page
1-1	Local Study Area Jurisdictions	5
1-2	Models Used in Assessment	9
1-3	Assumptions of Basic With-Project Scenarios	17
1-4	Major Assumptions Common to All Scenarios	19
1-5	Crandon Project Direct Purchases Within Local Study Area, Construction Phase and Sample Operation Year	24
1-6	Crandon Project Direct Purchases Within State of Wisconsin, Construction Phase and Sample Operation Year, Scenario 2	25
2-1	Definitions of Business Activity	30
2-2	Business Activity, Employment and Productivity Annual Percentage Growth Rates, Without-Project Scenario, 1980 to 2016	38
2-3	Economic Activity Report	39
2-4	Without-Project Scenario, Projected Employment	41
2-5	Without-Project Scenario, Labor Force Statistics Table, Civilian Labor Force, Employment, and Unemployment	42
2-6	Agriculture, Without-Project Scenario	46
2-7	Forestry and Wood Products, Without-Project Scenario	47
2-8	Mining, Without-Project Scenario	49
2-9	Trade, Without-Project Scenario	50

LIST OF TABLES (continued)

Table	Title	Page
2-10	Recreation, Without-Project Scenario	52
2-11	Scenario 1, Population and Employment Summary Report	55
2-12	Scenario 2, Population and Employment Summary Report	56
2-13	Scenario 3, Population and Employment Summary Report	57
2-14	Local Study Area, Construction Phase, Project-Related Jobs by Sector, 1989	60
2-15	Local Study Area, Construction Phase, Annual Percentage Difference in Business Activity, 1989	61
2-16	Local Study Area Unemployment	63
2-17	Employment Difference Table	65
2-18	Personal Income Difference Table	66
2-19	Per Capita Personal Income Difference Table . . .	68
2-20	Crandon Project Direct Construction Purchases Within Local Study Area, 1985-1989	69
2-21	Effect of Crandon Project on Recreation Sector, Survey Results - Tourists	74
2-22	Effect of Crandon Project on Recreation Sector, Survey Results - Seasonal Residents . .	75
2-23	Effect of Crandon Project on Recreation Sector, Survey Results - Permanent Residents . .	76
2-24	Local Study Area, Operation Phase, Project-Related Jobs by Sector, 1999	79
2-25	Crandon Project Direct Operation Purchases Within Local Study Area, 1999	81

LIST OF TABLES (continued)

Table	Title	Page
2-26	Local Study Area, Operation Phase, Annual Percentage Difference in Business Activity, 1999	84
3-1	Without-Project Scenario, Components of Population Change	102
3-2	Local Study Area, Percent of Population by Age Group and Sex, Without-Project Scenario	105
3-3	Population Difference Table	107
3-4	Scenario 1, Components of Population Change	111
3-5	Scenario 2, Components of Population Change	112
3-6	Scenario 3, Components of Population Change	113
3-7	Construction Phase, 1989, Percent and Percent Difference in Population by Age and Sex Under Different Scenarios	119
3-8	Peak Population Impact by Jurisdiction, 1989 Most-Likely Impact Scenario (Scenario 2)	121
3-9	Operation Phase, 1999, Percent and Percent Difference in Population by Age and Sex Under Different Scenarios	127
4-1	Without-Project Scenario, Annual Additions to Housing Stock by Housing Type	154
4-2	Without-Project Scenario, Acreage by Property Category, Local Study Area	157
4-3	Scenario 2, Annual Additions to Housing Stock by Housing Type	159
4-4	Scenario 2, Acreage by Property Category, Local Study Area	162
5-1	Local Study Area Jurisdictions	167
5-2	Population Thresholds by Service and Jurisdiction	172

LIST OF TABLES (continued)

Table	Title	Page
6-1	Traffic Volume Impact by Highway Segment: Construction Phase Peak (1989)	236
6-2	Traffic Volume Impact by Highway Segment: Operation Phase (1999)	244
6-3	Crandon Project Rail Transportation Assessment: Annual Railcar Movements	247
6-4	Crandon Project Rail Transportation Assessment: Average Daily Railcar Movements . .	248
8-1	Bemidji Area Selected Vital Statistics	290
8-2	Total Population, 1980	291
8-3	Forest County Potawatomi Population Characteristics, 1980	292
8-4	Mole Lake Sokaogon Chippewa Population Characteristics, 1980	294
8-5	Mole Lake Sokaogon Chippewa and Forest County Potawatomi Births, 1973-1975	297
8-6	Forest County Potawatomi Labor Force, Employment, Unemployment and Income, 1980 . . .	299
8-7	Mole Lake Sokaogon Chippewa Labor Force, Employment, Unemployment and Income, 1980 . . .	301
8-8	Mole Lake Sokaogon Chippewa, Types of Employment, 1976	302
8-9	Forest County Potawatomi, Sources of Income Other Than Employment, 1976	305
8-10	Mole Lake Sokaogon Chippewa, Sources of Income Other Than Employment, 1976	306
8-11	Housing, 1980	310
9-1	Wisconsin Net Proceeds Mine Occupation Tax Rates .	334
9-2	Net Proceeds Tax Distribution	335

LIST OF TABLES (continued)

Table	Title	Page
9-3	Crandon Project Simulated Net Proceeds Taxes . . .	337
9-4	Steps to Determine State Equalization Aids Estimate for the 1981-1982 Crandon School District Budget	348
9-5	Steps to Determine Equalization Aid Estimate for the 1982 Forest County Budget	352
9-6	Steps to Determine State Equalization Aid Estimate for the 1981-1982 Nicolet VTAE District Budget	353
9-7	Steps to Determine Equalization Aid for the 1982 Town of Lincoln Budget	354
9-8	Property Owner Taxpayer Simulated Property Tax Mill Rate Differences, Crandon Project Construction Phase (1985-1989)	361
9-9	Jurisdictional Simulated Property Tax Mill Rate Differences, Crandon Project Construction Phase (1985-1989)	364
9-10	Property Owner Taxpayer Simulated Property Tax Mill Rate Differences, Crandon Project Operation Phase (1990-2010)	369
9-11	Jurisdictional Simulated Property Tax Mill Differences, Crandon Project Operation Phase (1990-2010)	370
9-12	Taxpayer Simulated Property Tax Mill Rate Differences, Crandon Project Post-Operation Phase (2011-2015)	378
9-13	Jurisdictions Simulated Property Tax Mill Rate Differences, Crandon Project Post-Operation Phase (2011-2015)	380
9-14	Comparison of Demand for Public Facilities and Services Funding With Net Proceeds Tax Revenue .	385
9-15	Major Assumptions for State and Federal Tax Calculations	388

LIST OF TABLES (continued)

Table	Title	Page
9-16	Depreciation Schedule Based on New Tax Law	390
9-17	Crandon Project Simulated State Income Taxes . . .	391
9-18	Crandon Project Federal Income Taxes	394
9-19	Crandon Project Direct Purchases Within State of Wisconsin, Construction Phase and Sample Operation Year, Scenario 2	398
9-20	State of Wisconsin Projected Statewide Employment, 1980 to 2016	400
9-21	State of Wisconsin Projected Statewide Income, 1980 to 2016	404
9-22	State of Wisconsin Projected State Tax Collections, 1980 to 2016	405
9-23	Comparison of Tax Revenues, Without- and With-Project	407
A-1	Total Population	A- 1
A-2	Population as a Percentage of Total Local Study Area Population	A-17
B-1	Traffic Forecast for US 8 Between Rhinelander and Monico	B- 2
B-2	Traffic Forecast for US 8 Between Monico and Forest County Road S	B- 5
B-3	Traffic Forecast for US 8 Between Forest County Road S and Crandon	B- 8
B-4	Traffic Forecast for US 8 Between Crandon and Laona	B-11
B-5	Traffic Forecast for US 45 Between Three Lakes and Monico	B-14
B-6	Traffic Forecast for US 45 Between Monico and Elcho	B-17

LIST OF TABLES (continued)

Table	Title	Page
B-7	Traffic Forecast for US 45 Between Elcho and Neva Corners	B-20
B-8	Traffic Forecast for US 45 Between Neva Corners and Antigo	B-23
B-9	Traffic Forecast for Langlade County Road K Between Elcho and SH 55	B-26
B-10	Traffic Forecast for Langlade County Road A-TT-T Between US 45 and SH 55	B-29
B-11	Traffic Forecast for SH 55 Between Jones Creek and Argonne	B-32
B-12	Traffic Forecast for SH 55 and 32 Between Argonne and Crandon	B-35
B-13	Traffic Forecast for SH 55 Between Crandon and Forest County Road S	B-38
B-14	Traffic Forecast for SH 55 Between Forest County Road S and Forest County Road B	B-41
B-15	Traffic Forecast for SH 55 Between Forest County Road B and Project Access Road	B-44
B-16	Traffic Forecast for SH 55 Between Project Access Road and Langlade County Road K	B-47
B-17	Traffic Forecast for SH 55 Between Langlade County Road K and Langlade County Road T	B-50
B-18	Traffic Forecast for SH 55 Between Langlade County Road T and Langlade	B-53
B-19	Traffic Forecast for Forest County Road S Between US 8 and SH 55	B-56
B-20	Traffic Forecast for Oneida/Forest Counties Road B Between US 45 and SH 55	B-59
B-21	Traffic Forecast for Project Access Road Between SH 55 and Mine/Mill Complex	B-62

LIST OF TABLES (continued)

Table	Title	Page
B-22	Forecast of Passenger Enplanements for Rhinelander/Oneida County Airport	B-64
C-1	Example of Procedures Used in Deriving Tax Rates for the Town of Caswell: 1990 Tax Rate for 1991 Budget Under With-Project Scenario 2 Conditions	C- 7
C-2	Example of Procedures Used in Deriving Tax Rates for Forest County: 1990 Tax Rate for 1991 Budget Under With-Project Scenario 2 Conditions	C-12
C-3	Example of Procedures Used in Deriving Tax Rates for the Laona School District: 1990 Tax Rate for 1990-1991 Budget Under With-Project Scenario 2 Conditions	C-16

LIST OF FIGURES

Figure	Title	Page
1-1	Project Model System (Interrelationship of Models and Analyses)	3
1-2	Local Study Area	6
2-1	Project Model System (Interrelationship of Models and Analyses)	32
2-2	Population Growth, 1980-2016, Local Study Area . .	34
2-3	Crandon Project Total Jobs, Scenario 2	54
2-4	Employment Growth, 1980-2016, Local Study Area . .	58
3-1	Project Model System (Interrelationship of Models and Analyses)	90
3-2	Labor Market Model Flowchart	92
3-3	Spatial Allocation Model for New Population . . .	98
3-4	Projected Population, 1980-2016, Local Study Area	103
3-5	Population Growth, 1980-2016, Local Study Area . .	110
3-6	Crandon Project Total Jobs	117
4-1	Project Model System (Interrelationship of Models and Analyses)	137
4-2	General Approach to Housing and Land Use Analysis	138
4-3	Housing Market Model Relationships	139
4-4	Land Use Model	140
4-5	Cumulative Additions to Housing Stock, Scenario 2	153

LIST OF FIGURES (continued)

Figure	Title	Page
4-6	Cumulative Acreage Converted to Developed Uses, Scenario 2	156
5-1	Project Model System (Interrelationship of Models and Analyses)	168
5-2	City of Crandon Police Protection Paid Personnel	180
5-3	Newbold Town Police Protection Paid Personnel	181
5-4	Pelican Town Police Protection Paid Personnel	182
5-5	Crandon School District Enrollment	191
5-6	Rhinelander School District Enrollment	192
5-7	Forest County Police Protection Paid Personnel	195
5-8	Rhinelander School District Total Expenditures	201
5-9	Rhinelander School District Professional and Administrative Personnel	202
5-10	City of Crandon Total Expenditures	203
5-11	Crandon School District Total Expenditures	204
5-12	Crandon School District Professional and Administrative Personnel	205
5-13	Lincoln Town Total Expenditures	206
5-14	Nashville Town Total Expenditures	207
5-15	Crescent Town Total Expenditures	208
5-16	Newbold Town Total Expenditures	209
5-17	Pelican Town Total Expenditures	210
5-18	Pine Lake Town Total Expenditures	211
5-19	Forest County Total Expenditures	212
6-1	Transportation	218

LIST OF FIGURES (continued)

Figure	Title	Page
6-2	Project Model System (Interrelationship of Models and Analyses)	219
6-3	Highway Corridors and Segments	222
6-4	Passenger Enplanements at Rhinelander/ Oneida County Airport	233
7-1	Project Model System (Interrelationship of Models and Analyses)	253
7-2	Key Conditioning Characteristics and Impact Dimensions of the Sociocultural System	254
8-1	Project Model System (Interrelationship of Models and Analyses)	282
8-2	Native American Lands in the Local Study Area	285
9-1	Project Model System (Interrelationship of Models and Analyses)	329
9-2	Flowchart of Fiscal Analysis for Without-Project and With-Project Futures	330
B-1	Traffic Forecast for US 8 Between Rhinelander and Monico	B- 1
B-2	Traffic Forecast for US 8 Between Monico and Forest County Road S	B- 4
B-3	Traffic Forecast for US 8 Between Forest County Road S and Crandon	B- 7
B-4	Traffic Forecast for US 8 Between Crandon and Laona	B-10
B-5	Traffic Forecast for US 45 Between Three Lakes and Monico	B-13
B-6	Traffic Forecast for US 45 Between Monico and Elcho	B-16
B-7	Traffic Forecast for US 45 Between Elcho and Neva Corners	B-19

LIST OF FIGURES (continued)

Figure	Title	Page
B-8	Traffic Forecast for US 45 Between Neva Corners and Antigo	B-22
B-9	Traffic Forecast for Langlade County Road K Between Elcho and SH 55	B-25
B-10	Traffic Forecast for Langlade County Road A-TT-T Between US 45 and SH 55	B-28
B-11	Traffic Forecast for SH 55 Between Jones Creek and Argonne	B-31
B-12	Traffic Forecast for SH 55 and 32 Between Argonne and Crandon	B-34
B-13	Traffic Forecast for SH 55 Between Crandon and Forest County Road S	B-37
B-14	Traffic Forecast for SH 55 Between Forest County Road S and Forest County Road B	B-40
B-15	Traffic Forecast for SH 55 Between Forest County Road B and Project Access Road	B-43
B-16	Traffic Forecast for SH 55 Between Project Access Road and Langlade County Road K	B-46
B-17	Traffic Forecast for SH 55 Between Langlade County Road K and Langlade County Road T	B-49
B-18	Traffic Forecast for SH 55 Between Langlade County Road T and Langlade	B-52
B-19	Traffic Forecast for Forest County Road S Between US 8 and SH 55	B-55
B-20	Traffic Forecast for Oneida/Forest Counties Road B Between US 45 and SH 55	B-58
B-21	Traffic Forecast for Project Access Road Between SH 55 and Mine/Mill Complex	B-61

1. INTRODUCTION

Exxon Minerals Company (EMC), a division of Exxon Corporation, has studied, planned, engineered, and is seeking permits for establishing a mine/mill complex near Crandon, Wisconsin. The Crandon Project (also referred to as the "Project") would be based on a large ore deposit containing commercial quantities of zinc, copper, and lead. EMC estimates that construction and operation phases of the Project together will employ approximately 1,600 people in the peak year of Project activity (1989). Engineering and economic feasibility studies for the Project are underway, and environmental studies are in progress to satisfy local, state, and federal regulatory requirements.

EMC contracted with Research and Planning Consultants, Inc. (RPC) to prepare a comprehensive assessment of the potential socioeconomic effects of the Crandon Project. The overall assessment includes a study plan (RPC, 1980d), methodology descriptions (RPC, 1982a; 1981a,b,c,d; 1980b,c,e), a profile of current conditions in the geographic area of the Crandon Project ore deposit (RPC, 1981e), and statistical surveys of public attitudes in the vicinity of the proposed Project site (RPC, 1982b).

The socioeconomic assessment identifies the effects of Project development for several socioeconomic categories. These are as follows:

- Economic;
- Demographic;
- Housing and Land Use;
- Public Facilities and Services;
- Transportation;
- Sociocultural;
- Native American Communities; and
- Fiscal.

In order to assess the effects on the local communities, RPC has assembled an integrated series of computer models. This report presents and analyzes the results of the computer models. The analytical combination of the component models is what we call our "Project" model and includes all adaptations that were completed on these models (Figure 1-1). In addition to these models, qualitative techniques were used to analyze sociocultural effects and effects of the Project on Native American Communities.

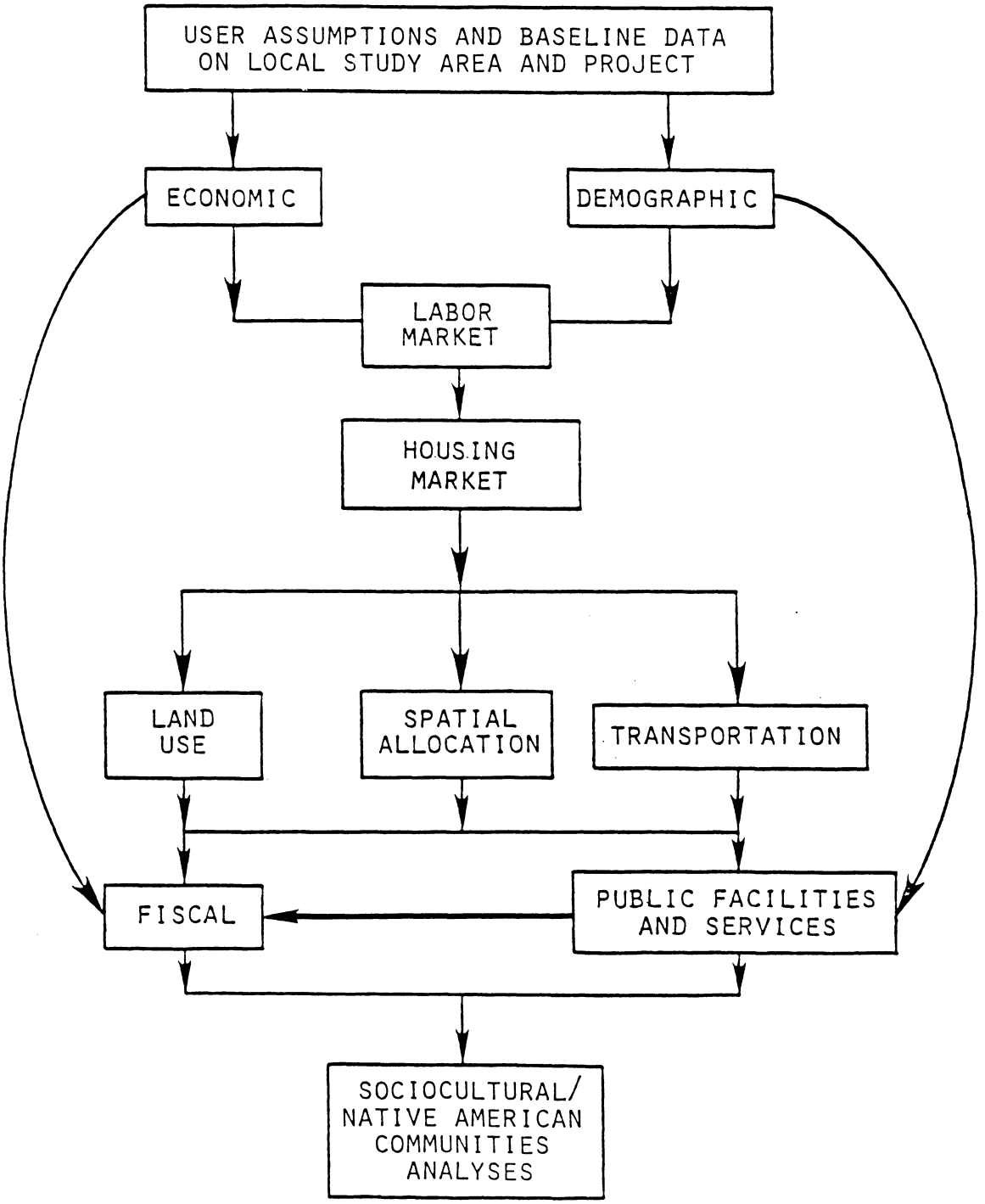
Before presenting these results, some background information critical to an understanding of the studies is provided.

First, the geographic area under consideration in this socioeconomic assessment is defined. Second, the basic structure of the assessment methodology in this report is considered. Third, a statement on the status of computer modeling, including a discussion of the advantages and limitations inherent in the use of models is provided. Finally, the assumptions used in this analysis are stated, including those that are common to all

FIGURE 1-1

PROJECT MODEL SYSTEM

(INTERRELATIONSHIP OF MODELS AND ANALYSES)



SOURCE: Research and Planning Consultants, Inc.

scenarios employed as well as those assumptions which distinguish the scenarios.

DEFINITION OF THE LOCAL STUDY AREA

The "local study area" as defined for the socioeconomic assessment is that geographic area reasonably expected to be most affected by the mining activity (Wis. Stats. 144.85(5)(a)i.e.). In addition to the communities immediately adjacent to the proposed mine/mill complex, the local study area (LSA) includes areas where new residents are expected to locate in response to employment directly or indirectly created by the Project. It also includes existing communities with current employment conditions which might compete with the Project for workers.

Defined on the basis of an analysis of area housing markets and the factors affecting residential location decisions (RPC, 1980a), the local study area includes 40 towns and four incorporated communities in Forest, Langlade, and Oneida counties (Table 1-1). The four incorporated communities are White Lake Village and the cities of Crandon, Antigo, and Rhinelander. Mole Lake Sokaogon Chippewa and Forest County Potawatomi Native American communities also are located within the local study area. Figure 1-2 provides a map of the local study area.

Though the local study area consists of the vast majority of Forest, Langlade and Oneida counties, certain towns within those counties were excluded from the local study area because of

TABLE 1-1

LOCAL STUDY AREA JURISDICTIONS

COUNTIES	Forest[a]	Langlade[b]	Oneida[c]
CITIES	Crandon	Antigo	Rhinelander
SECONDARY SERVICE CENTERS	Laona Wabeno	Elcho White Lake Village	Three Lakes
TOWNS	Argonne Blackwell Caswell Crandon Freedom Hiles Lincoln Nashville Popple River Ross	Ackley Ainsworth Antigo Evergreen Langlade Neva Norwood Parrish Peck Polar Price Rolling Upham Wolf River	Crescent Enterprise Lake Tomahawk Monico Newbold Pelican Piehl Pine Lake Schoepke Stella Sugar Camp Woodboro
SCHOOL DISTRICTS	Crandon Laona Wabeno	Antigo Elcho White Lake	Rhinelander Three Lakes

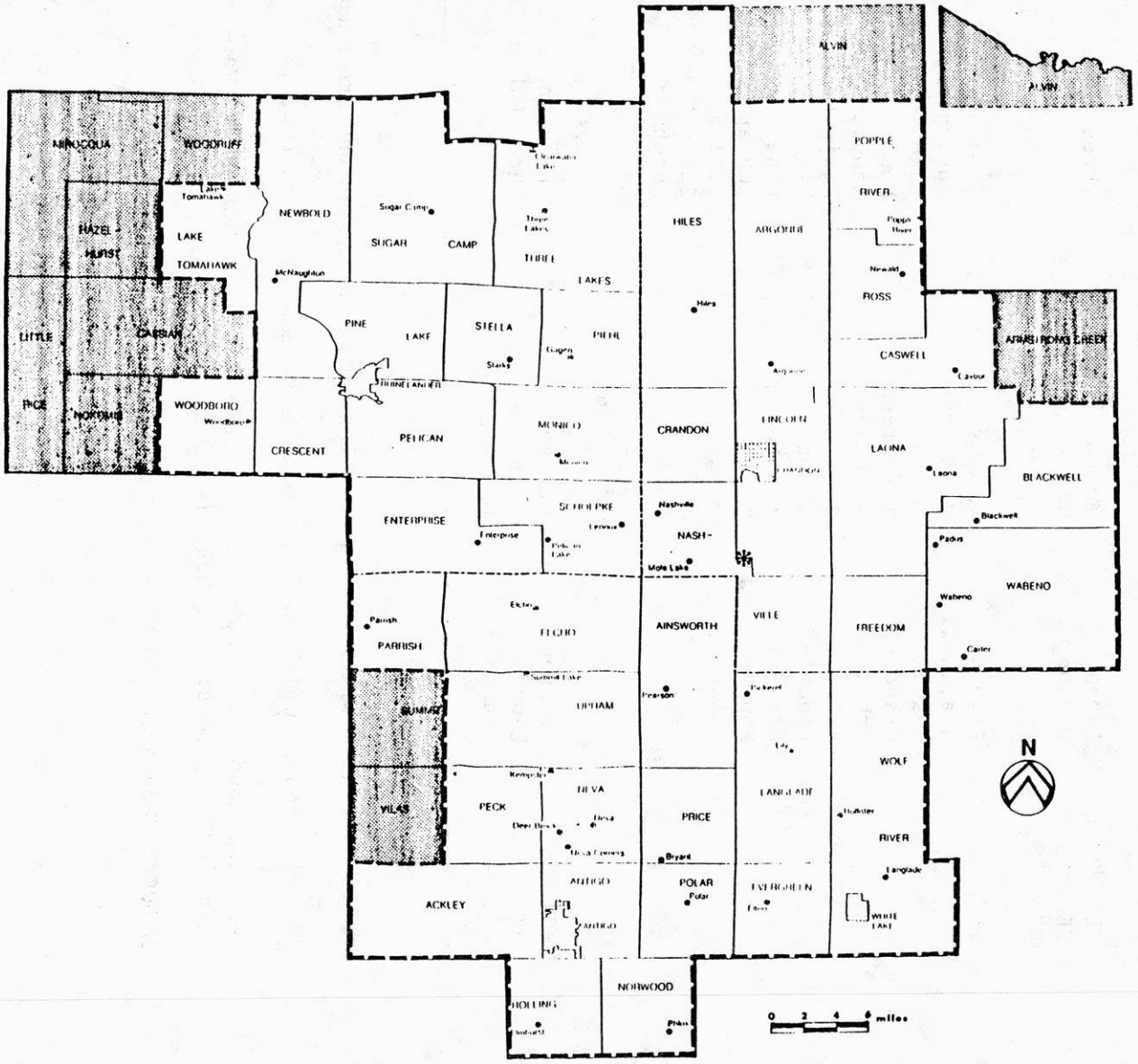
[a]Partial county which does not include Alvin or Armstrong Creek towns.

[b]Partial county which does not include Summit or Vilas towns.

[c]Partial county which does not include Minocqua, Woodruff, Hazelhurst, Little Rice, Cassion or Nokomis towns.

SOURCE: Research and Planning Consultants, Inc.

FIGURE 1-2



LOCAL STUDY AREA

- Area Boundaries
- County Boundaries
- Town Boundaries
- Incorporated Areas
- Unincorporated Areas
- Crandon Project Discovery Site
- Towns Not Included In Local Study Area

Source: *RPC, Inc., Definition of the Local Study Area.*

SOCIOECONOMIC ASSESSMENT
CRANDON PROJECT
EXXON MINERALS COMPANY

prepared by rpc inc. austin

excessive commuting distance, lack of land suitable for development or the orientation of a town to a trade center in the region other than Rhinelander. On this basis, the local study area includes all of Forest County except for Alvin and Armstrong Creek towns, all of Langlade County except Summit and Vilas towns and all of Oneida County except Minocqua, Woodruff, Hazelhurst, Little Rice, Cassian and Nokomis towns.

For the purposes of this socioeconomic assessment, these towns and incorporated communities constitute part of the definition of "jurisdiction," a term also used to describe the three counties (Forest, Langlade, and Oneida) composing the local study area, as well as school districts and secondary service centers within the three counties. "Secondary service centers" are distinguished from other towns in the local study area by their larger populations (particularly, population concentrations within a single center in a town) and by their greater variety of available services made possible by a centralized population (Table 1-1).

Though the Crandon Project may have socioeconomic effects outside the local study area, most effects are likely to occur within its boundaries. Any socioeconomic effects which might occur outside the local study area are likely to be negligible. However, for informational purposes, the effects of the proposed Project on the state's economy, population, and fiscal condition are presented also.

ASSESSMENT METHODOLOGY

A number of computer models, as well as other impact assessment techniques, have been employed to assess the effects of the mine/mill complex on communities in the local study area. This section briefly summarizes the methodology. A more detailed description of the methodologies is available in a series of previously-published reports (RPC, 1982a; 1981a,b,c,d; 1980b,c,e). In some cases, refinements to the models were made after publication of the methodology papers. In addition, each chapter of this report contains a description of the models employed in that chapter, as well as the assumptions specific to each model discussed.

The use of computer models is widespread in impact assessment (Murdock and Leistritz, 1979). Portions of the study employ models previously used in other assessment efforts, but which now have been adapted to the local study area (e.g. the economic, demographic, housing market, land use, and spatial allocation models). In other cases, because of unique institutional considerations in the local study area, new models have been developed (e.g. the fiscal model and the public facilities and services model). A short description of the models used in the assessment is contained in Table 1-2.

Table 1-2 does not include models related to the Sociocultural Analysis or Native American Communities Analysis, since

TABLE 1-2

MODELS USED IN ASSESSMENT

MODELS	OUTPUT
Economic Model	Household Income Business Activity by Sector Employment by Sector
Demographic Model	Population by Age and Sex Net Migration by Age and Sex
Labor Market Model	Work Force by Age and Sex Employment-Related Migration by Age and Sex
Spatial Allocation Model	Distribution of Employment and Population to Counties and Municipalities
Housing Market Model	Number of New Housing Units by Type Housing Prices Housing Shortages
Land Use Model	Acres of Developed Land by Jurisdiction Acres of Undeveloped Land by Jurisdiction
Public Facilities and Services Model	Staffing Requirements by Service Reserve Capacity of Facility Operating Cost for Service or Facility Capital Expansion by Service or Facility Construction Start Dates to Prevent Capacity Shortfall
Transportation Model	Average Daily Traffic Levels Truck Traffic Nontruck Traffic
Fiscal Model	Intergovernmental Transfers by Source and Recipient Property Tax Rates Project Tax Payments

SOURCE: Research and Planning Consultants, Inc.

these chapters rely more on qualitative analysis than on quantitative data.

In addition, the published methodology reports for the Sociocultural Analysis (RPC, 1980c) and for the Native American Communities Analysis (RPC, 1980b) are no longer applicable to those two analyses as published here. However, each of those chapters begins with an explanation of what methodology was employed and describes the uses and sources of qualitative and quantitative information used in each chapter. The Sociocultural and Native American analyses derive considerable quantitative data and other information from the other analyses in this socioeconomic report.

The methodology used in the Fiscal Analysis is described in detail in Appendix C. That methodology explains how property tax rates and payments were calculated for each local study area jurisdiction.

The Project modeling system depicted in Figure 1-1 indicates how analyses in this socioeconomic assessment are interrelated. For example, the land use, housing market, and transportation models all derive their projections partially from data generated by the spatial allocation and labor market (employment and population distribution) models, which, in turn, rely upon the economic and demographic models. In addition, the fiscal model and the public facilities and services model are affected by the projections of the housing market, land use, and transportation

models, as well as by data provided directly by the economic model (in the instance of the fiscal model) or by the demographic model (for the public facilities and services model).

Consequently, changes in the assumptions relating to a particular model are likely to produce data changes in that model as well as to create changes which would "ripple" through other connected models.

Each subject analyzed in this assessment is structured in the same basic format:

1. A description of the particular methodology applied.
2. A discussion of current conditions.
3. A forecast of probable conditions if the Project is not developed.
4. Forecasts of probable conditions with the Project during the construction phase, the operation phase, and, finally, the post-operation phase.

The differences between the without-project forecast and the with-project forecasts for each of the three phases (construction, operation, and post-operation) provide the projected net effect of the Crandon Project on the local study area. The construction phase covers the years 1985 through 1989, the operation phase spans 1990 to 2011 and the post-operation phase includes 2011 to 2016.

Each chapter includes references, which are presented in greater detail in our list of references near the end of this report. In addition, the closing pages of this socioeconomic assessment include Appendices A, B, and C, which, respectively,

provide additional data and other information in support of the demographic, transportation, and fiscal analyses.

Appendix A contains tables which provide data on demographic impacts by jurisdiction. Table A-1 reflects changes in annual population levels for each jurisdiction under the without-project scenario and the with-project scenarios. Table A-2 shows annual changes in each jurisdiction's share of the total local study area population.

Appendix B supports the Transportation Analysis. Figures B-1 through B-21 depict Project-related changes in road congestion for highway segments considered in this analysis. Tables B-1 through B-21 provide the data on projected changes in average daily traffic counts for each analyzed road segment for both the without-project and with-project scenarios. The data in Tables B-1 through B-21 were used to plot Figures B-1 through B-21. Appendix B also includes Table B-22, which is the forecast of annual passenger enplanements at Rhinelander/Oneida County Airport under all four scenarios.

Appendix C provides a detailed discussion of the methodology employed in developing the property tax projections in the Fiscal Analysis. For a complete understanding of how the property tax calculations are computed, it may be necessary to study the worksheet examples included with the narrative in this appendix.

More extensive data tables are available in a volume published separately from this report. The "Forecast of Future

Conditions Data Summary" volume (EMC, 1983c) includes not only most of the economic, demographic and other tables included in this document, but also the technical appendix to the Public Facilities and Services Analysis and the technical appendix to the Housing and Land Use Analysis.

The technical appendix to the Public Facilities and Services Analysis provides tables, by jurisdiction, on projected annual changes in total expenditures, paid police protection, paid fire protection, and new capital expenditures for the communities in the local study area, as well as projected annual changes in total expenditures, enrollment, and administrative and professional personnel for the school districts in the local study area.

The technical appendix to the Housing and Land Use Analysis includes tables showing our forecasts of annual changes in local study area housing stock by type of housing for all four scenarios. This appendix also provides tables documenting annual changes in local study area land use by jurisdiction and by acreage for each type of land use.

THE NATURE OF COMPUTER MODELING

Every effort has been made in developing this assessment's modeling system to insure the reasonableness and validity of the projections. Still, even the best modeling effort has limited precision. For example, we project increased activity in the

local study area economy as the Project is developed. As a result, the local study area should have a lower unemployment rate in the with-project future than it currently has. Thus, the unemployed labor pool is projected to be smaller than it would be if unemployment is higher. As a result, the local study area is projected to have higher inmigration of Project-related workers than it would if unemployment rates were higher than projected. On the other hand, if the unemployment rate is higher than projected while the Project is developed, more indigenous residents of the local study area will be available for Project jobs and inmigration will be limited.

In addition, no model can incorporate all the factors which influence the forecast variables. For example, we determine the residential location of Project workers using a systematic procedure based on two factors: attractiveness (as established by total primary housing units and total retail and services employment) and the driving time from each community to the Crandon mine/mill site. Actually, residential location may be influenced by other factors, such as the perceived quality of schools, local tax rates, or individual tastes and preferences. There is no practical way to model the influence of these factors.

The computer models used in this assessment are only one of the tools used in the analyses presented. To make our forecasts as reasonable as possible, we also based our findings and conclu-

sions on a broad collection of literature, attitudinal surveys conducted in the local study area, and direct observation.

The computer modeling tools employed by RPC are widely used in socioeconomic assessments of this sort. Still, they are best thought of as simulation tools, not prediction tools.

For instance, an input/output model employed in the Economic Analysis projected increased employment by sector. A review of the data from the Housing and Land Use Analysis and from the Public Facilities and Services Analysis indicated that the input/output model's jobs projections in the construction and government sectors would be reflected more accurately if data from other models also were considered. The value of professional analysis of data from more than one model is measured in the increased reasonableness and accuracy of the projections, findings, and conclusions.

Because modeling does have certain limitations, the outputs from the models must be subject to interpretation. This report represents the results of the modeling process and the professional interpretations of the consultants. Again, the computer models are but one tool used to identify potential impacts. The results are not statements of facts or promises, nor are they commitments on the part of EMC. Instead, they are what the consultants feel to be a reasonable reflection of the future of the local study area if certain assumed conditions hold true.

ASSUMPTIONS USED IN THE COMPUTER MODELS

The socioeconomic effects of the Crandon Project during the construction, operation, and post-operation phases are calculated by comparing three separate forecasts of future conditions which assume the Project is implemented (with-project scenarios) with a forecast of future conditions if the Project is not implemented (without-project scenario). Each scenario is based on a set of input assumptions for the forecast (Tables 1-3 and 1-4). The assumptions used in this assessment come from an analysis of current conditions and trends, examinations of comparable projects, and information on the proposed Project supplied by EMC.

The assumptions for each with-project scenario are shown in Table 1-3 and assumptions common to all without-project and with-project scenarios are presented in Table 1-4. Three sets of with-project forecasts have been prepared in order to examine the sensitivity of the Crandon Project's socioeconomic effects to variations in current estimates of Project cost and staffing.

The three with-project scenarios were derived by applying a 10 percent variation, plus (maximum impact) or minus (minimum impact), to the 1982 EMC (most-likely impact) estimates of construction and operating manpower, capital costs, and operating costs (Table 1-3). All of the with-project scenarios assume no variation in production rate, ore grade, mine/mill complex life, specific-year metals prices, the percent of purchases or employment from the local study area, or in Project schedule.

TABLE 1-3

ASSUMPTIONS OF BASIC WITH-PROJECT SCENARIOS

VARIABLE	SCENARIO 1 (MINIMUM IMPACT)	SCENARIO 2 (MOST-LIKELY IMPACT)	SCENARIO 3 (MAXIMUM IMPACT)
Demographic Assumptions			
1. Population characteristics of inmigrant workers	Construction: 2.014 members per family Operation: 3.286 members per family	2.278 members per family 3.286 members per family	2.335 members per family 3.527 members per family
Economic Assumptions			
1. Life of mine	21 years	21 years	21 years
2. Number of construction workers - 1985	435	485	535
1986	790	875	960
1987	465	515	565
1988	930	1,035	1,140
1989	970	1,080	1,190
3. Source of construction workers by percent:			
Local	50	35	25
Inmigrants	40	55	65
Daily commuters	10	10	10
4. Number of operation workers - 1985	45	45	45
1986	90	100	110
1987	290	320	350
1988	380	425	470
1989	520	580	640
1990	660	735	810
1991	685	760	835
1992-2011	700	780	860
2012	325	360	395
5. Percent of locally hired operation workers	60.0 percent	60.0 percent	60.0 percent
6. Project expenditures	10 percent less than most-likely estimate	EMC most-likely estimate	10 percent more than most-likely estimate

SOURCE: Research and Planning Consultants, Inc.

TABLE 1-3 (continued)

VARIABLE	SCENARIO 1 (MINIMUM IMPACT)	SCENARIO 2 (MOST-LIKELY IMPACT)	SCENARIO 3 (MAXIMUM IMPACT)
Interest Rate Assumptions			
1. Mortgage financing -			
1980	14.5 percent	14.5 percent	14.5 percent
1981	16.0 percent	16.0 percent	16.0 percent
1982	17.5 percent	17.5 percent	17.5 percent
1983-2016	13.0 percent	13.0 percent	13.0 percent
2. Mobile home financing -			
1980	15.5 percent	15.5 percent	15.5 percent
1981	17.0 percent	17.0 percent	17.0 percent
1982	18.5 percent	18.5 percent	18.5 percent
1983-2016	14.0 percent	14.0 percent	14.0 percent
3. Development/construction -			
1980	13.5 percent	13.5 percent	13.5 percent
1981	15.0 percent	15.0 percent	15.0 percent
1982	16.5 percent	16.5 percent	16.5 percent
1983-2016	12.0 percent	12.0 percent	12.0 percent
4. Bond interest rate	9.0 percent	9.0 percent	9.0 percent

SOURCE: Research and Planning Consultants, Inc.

TABLE 1-4

MAJOR ASSUMPTIONS COMMON TO ALL SCENARIOS

ASSUMPTIONS	EXPLANATION
Economic	
Export Final Demand	Will change at same rate of economic growth as shown in national output
Investment Final Demand	Change in investment final demand from previous year equals change in output from previous year times ratio of investment final demand lagged one year to output lagged two years
Transfer Payments Final Demand	Change in transfer payments final demand from previous year equals change in population aged 65+ from previous year times ratio of transfer payments lagged one year to population 65+ lagged two years
Government Final Demand	Change in government final demand from previous year equals change in personal income from previous year times ratio of government final demand lagged one year to personal income lagged two years
I/O Technical Coefficients	Will change at same rates as national technical coefficients (from INFORUM Model) (Almon, et al, 1974)
Employment-Output Ratios	Will change at same rates as national employment-output ratios (from INFORUM Model) (Almon, et al, 1974)
Residence Adjustment Factor	0.59 percent of the jobs held by local study area residents are at places of work outside the local study area
Constant Dollars	Forecast stated in constant 1982 dollars
Indirect Effects	Lagged over a three-year period by assuming that a third of the effects are felt the first year and in each of the subsequent years

SOURCE: Research and Planning Consultants, Inc.

TABLE 1-4 (continued)

ASSUMPTIONS	EXPLANATION
Demographic	
Fertility Rates	Calculated rates for local study area for 1979-1981 and trended these rates to national forecasts from the Census Bureau which assume ultimate completed fertility level of 2.1 (replacement fertility)
Survival Rates	Adjusted 1970-1975 survival rates for the state to the local study area in 1980. These were trended to national rates projected by the Census Bureau.
Migration Rates for Population 65+	Derived three-county area migration rates from data for 1970-1980 from University of Wisconsin-Extension Applied Population Laboratory and held the rates constant over the projection period
Baseline Population Labor Availability Rates	Adjusted 1980 local rates to national rates projected by U.S. Department of Labor, Bureau of Labor Statistics for period 1980-2000; assumed constant rates for period 2000-2035
Population Characteristics of Migrating Baseline Workers	Family size of 3.527 members per family, based on results of a 1979 survey by Paul Voss and Glenn Fuguitt at University of Wisconsin-Extension Applied Population Laboratory of migrants to northern Wisconsin counties
Population Characteristics of Indirect Workers	Same as assumed for baseline workers
Unemployment Limits for Employment-Related Migration	Assumed that inmigration will occur when the premigration unemployment rate is less than 7.0 percent, and outmigration will occur when the premigration unemployment rate is greater than 13.0 percent
Spatial Allocation	Commuting time and attractiveness are assumed to have an equal weighting in determining residential location

SOURCE: Research and Planning Consultants, Inc.

TABLE 1-4 (continued)

ASSUMPTIONS	EXPLANATION
Housing and Land Use	
Household Formation	Formation of households headed by persons under 65 years of age is constrained by availability of jobs
Construction Cost	Minimum costs of new construction are established by estimated manufactured housing and mobile home prices held constant in 1982 dollars
Permissibility of Mobile Homes	Permitted in all local study area jurisdictions
Public Facilities and Services	
Service Levels	Operating expenditure levels for 1977-1981 average held constant on a per capita basis
Water and Wastewater	Private wells and septic systems used in areas currently without central systems until population thresholds reached
Federal Share of Capital Cost of New Wastewater Treatment	55.0 percent
Finance of Small Capital Purchases	Shown as bond financing, but may be bank note, seller financing, lease/purchase or other time payment, or cash outlay at local option
Size of Increments to Facilities	Made on modular basis based on engineering standards and population forecasts
Fiscal	
Constant Dollars	Forecast stated in constant 1982 dollars
Revenue Formulas	Assumed that current institutional arrangements will continue. For revenues estimated through per capita techniques, average 1979-1981 levels of revenues per capita in constant dollars are assumed to continue. For revenues estimated through application of formulas, 1981 formulas are assumed to continue.

SOURCE: Research and Planning Consultants, Inc.

TABLE 1-4 (continued)

ASSUMPTIONS	EXPLANATION
Metals Prices	Prices forecast by Chase Econometrics dated July 1982
State and Federal	Calculated based on methods described in the Income Taxes memo of March 31, 1983 by Ann Orzech of RPC (RPC, 1983c)
Depreciation	Used schedules reflecting 1981 changes to tax law. Accelerated depreciation of asset over entire life according to schedule in effect in year asset is put in service.
Calculation of Net Proceeds Tax	Chapter 70, 395, Wis. Stats. 1981
Distribution of Net Proceeds Tax Payments	Chapter 70, 395, Wis. Stats. 1981

SOURCE: Research and Planning Consultants, Inc.

Table 1-5 provides the assumptions for EMC direct purchases within the local study area both during the construction phase (1985 to 1989) and for a sample operation year (1999). Table 1-5 is based on information provided by EMC (EMC, 1981). The EMC purchases within the local study area are divided into the same economic sectors considered at length in the Economic Analysis. Table 1-6 sets EMC assumed purchases statewide (EMC, 1982c), divided into categories that are more specific about the types of purchases than in the economic-sector approach used in Table 1-5. Like Table 1-5, Table 1-6 considers the statewide purchases for the construction phase (1985 to 1989) and for the same sample year (1999) of the operation phase.

TABLE 1-5

CRANDON PROJECT
DIRECT PURCHASES WITHIN LOCAL STUDY AREA[a]
CONSTRUCTION PHASE AND SAMPLE OPERATION YEAR

	Construction (1985 to 1989)			Operation (1999)		
	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
Agriculture	0.0	0.0	0.0	0.0	0.0	0.0
Forestry	7,412.4	8,236.0	9,059.6	599.7	666.3	732.9
Mining	48.8	54.2	59.7	189.1	210.1	231.1
Construction	6.2	6.9	7.5	18.1	20.1	22.1
Food Processing	0.0	0.0	0.0	0.0	0.0	0.0
Other Manufacturing	0.0	0.0	0.0	0.0	0.0	0.0
T.C.P.U.[b]	2,614.0	2,904.4	3,194.9	992.7	1,025.2	1,127.0
Trade	0.0	0.0	0.0	0.0	0.0	0.0
F.I.R.E.[c]	0.0	0.0	0.0	0.0	0.0	0.0
Recreation	23.2	25.8	28.4	100.6	111.8	123.0
Other Services	22.8	25.3	27.9	101.6	112.9	124.0
Government	0.0	0.0	0.0	0.0	0.0	0.0
Households	116,211.2	140,766.0	151,924.8	14,784.0	18,320.6	22,236.2

[a]Based on thousands of 1982 constant dollars.

[b]Transportation, Communication, and Public Utilities.

[c]Finance, Insurance, and Real Estate.

SOURCE: Research and Planning Consultants, Inc.

TABLE 1-6

CRANDON PROJECT
DIRECT PURCHASES WITHIN STATE OF WISCONSIN[a]
CONSTRUCTION PHASE AND SAMPLE OPERATION YEAR
SCENARIO 2

	Construction (1985 to 1989)	Operation (1999)
Agriculture	0.0	0.0
Metal Mining	0.0	0.0
Nonmetal, Nonfuel Mining	54.2	210.1
Construction	19.8	57.6
Food Products	0.0	0.0
Textile Mill Products	0.0	0.0
Apparel	0.0	0.0
Lumber and Wood Products	12,204.9	877.1
Furniture and Fixtures	4,448.3	274.8
Paper and Allied Products	41.6	207.9
Printing and Publishing	0.0	0.0
Chemicals	1,835.2	1,798.5
Petroleum and Coal	15,804.1	2,461.4
Rubber and Plastics	0.0	598.6
Leather Products	0.0	0.0
Stone, Clay, and Glass	11,950.0	5,261.5
Primary Metal Products	10,479.5	436.4
Fabricated Metals	97,803.4	942.8
Nonelectrical Machinery	37,112.7	6,321.2
Electric and Electronics	1,360.7	39.2
Transportation Equipment	1,915.6	182.1
Instruments Manufacturing	51.0	57.5
Miscellaneous Manufacturing	5,589.4	40.1
T.C.P.U.[b]	25,955.5	16,143.8
Wholesale Trade	19,979.8	2,565.2
Retail Trade	0.0	0.0
F.I.R.E.[c]	0.0	0.0
Recreation	24.8	124.2
Other Services	128.3	641.5
Government	0.0	0.0
Labor	156,406.7	18,320.6

[a]Based on thousands of 1982 constant dollars.

[b]Transportation, Communication, and Public Utilities.

[c]Finance, Insurance, and Real Estate.

SOURCE: Research and Planning Consultants, Inc.

2. ECONOMIC ANALYSIS

Presented in this chapter are forecasts of economic conditions for four scenarios of development in the local study area. The without-project scenario presents forecasts of conditions assuming that EMC does not develop the mine/mill complex.

Three scenarios of development are presented for with-project futures. The assumptions associated with each of these scenarios are presented in Tables 1-3 through 1-6 of the Introduction. Effects of the Crandon Project (also referred to as the "Project") are identified by comparing conditions in the with-project scenarios to those of the without-project. Business activity, employment, unemployment, and personal income variables are examined in this analysis.

We also examined five industries which may be affected by the Project. These industries are agriculture, forestry and wood products, mining, trade, and recreation.

The economic model (RPC, 1981a) is based on an input/output (I/O) model. The economic model used in this study was adapted from a larger state-of-the-art national model (the INFORUM model) maintained by the University of Maryland (Almon, et al, 1978). The national model was adapted to the local study area through use of a biproportional matrix technique (Bacharach, 1970), which

included a survey of local employers. A major problem with such surveys related to I/O models, however, is that results are often incomplete or inadequate for certain sectors. In such cases, the location-quotient technique (Mustafa and Jones, 1971) was used to adapt the national model. This adapted I/O model was used to forecast employment, income, and business activity (output) for the local economy.

A major purpose of the economic analysis is to calculate the net economic effect of the proposed Crandon Project on the local study area (RPC, 1981a). In our analysis, we describe current economic conditions and forecast future levels of business activity, employment, and income without and with the Project for the state and local study area economies. We then compare the two types of forecasts. The differences in business activity, employment, and income without and with the Crandon Project determine in part the net economic effects of the Crandon Project on an annual basis. We measure "net effect" in this manner since no single number exists which alone adequately defines net economic effect.

In this analysis, projected employment equals total employment by place of residence. These projections are adjusted by residence factors to measure employment for each sector by place of work and to measure the number of commuters who live within but work outside the local study area. This definition of employment includes workers covered by the Wisconsin unemployment

compensation laws, farm proprietors, part-time workers, and other working persons not covered by unemployment compensation laws. Our definition of unemployment consists of all unemployed persons who are seeking work, whether they are covered by the unemployment compensation laws or not. Personal income is defined as wage earnings, transfer payments, and unearned income. Business activity is based on the gross output for each sector, except for trade, which includes only trade markup. A more complete definition of business activity for each of the 14 sectors of the economic model is presented in Table 2-1. All dollar values presented in this report are adjusted to constant 1982 dollars unless otherwise specified. This means that all dollar figures in this report do not include possible inflation factors beyond 1982. Full descriptions of current conditions for employment, personal income, and business activity as provided in the "Report on Current Conditions" (RPC, 1981e) were in 1979 dollars.

The Economic Analysis is integrated with the Demographic Analysis (Figure 2-1). The demographic projections of population are used to determine the size of the civilian labor force. Next, the civilian labor force numbers are used with the projections of employment to forecast the unemployment rate in the local study area. This rate, in turn, determines the direction and volume of employment-related migration. In addition, the model assumes that some of the Project jobs created will require skills not available from the local study area labor force.

TABLE 2-1

DEFINITIONS OF BUSINESS ACTIVITY

SECTOR	BUSINESS ACTIVITY
Agriculture	Cash receipts from farm marketing; government payments; gross output of agricultural service industries
Forestry, wood, and paper products (Forestry)	Value of forestry output and gross output of wood and paper products manufacturing (value of shipments)
Mining	Total value of local study area non-Project mining operations
Construction	Value of new structures and value of highway and road construction, excluding Crandon Project construction
Food processing	Value of shipments of food processing manufacturing
Other manufacturing	Value of all manufacturing shipments not included in wood and paper products or food processing
Transportation, communication, and public utilities (T.C.P.U.)	Gross output
Wholesale and retail trade (Trade)	Trade margin, or markup, on merchandise purchased for resale minus transportation costs for shipping to the receiving point
Finance, insurance, and real estate (F.I.R.E.)	Gross output
Recreation, tourism, and hospitality (Recreation)	Gross sales totals
Other services	Gross output of all service firms excluding lodging, amusement and recreation services, and all government employment

SOURCE: Research and Planning Consultants, Inc.

TABLE 2-1 (continued)

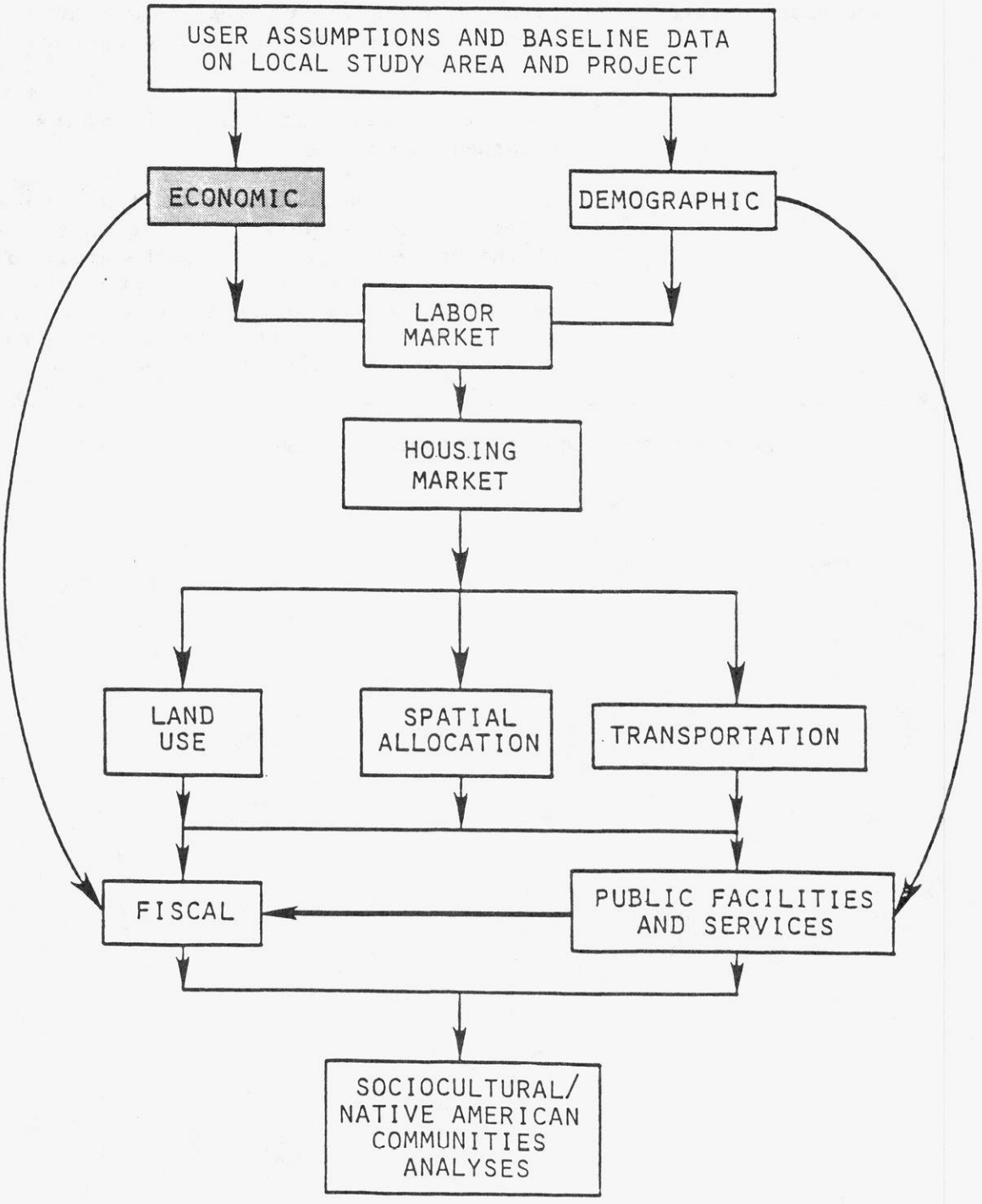
SECTOR	BUSINESS ACTIVITY
Government enterprises	Direct charges to customers of any government operation a jurisdiction may operate as a service
Households	Wage earnings, transfer payments, and unearned income.
Crandon Project	Before 1990, the dollar value of all expenditures related to operation and construction of the Project. After 1990, the gross dollar value of the refined metal products less smelting and transportation costs. (It is assumed that output from the Crandon Project is exported from the local study area.)

SOURCE: Research and Planning Consultants, Inc.

FIGURE 2-1

PROJECT MODEL SYSTEM

(INTERRELATIONSHIP OF MODELS AND ANALYSES)



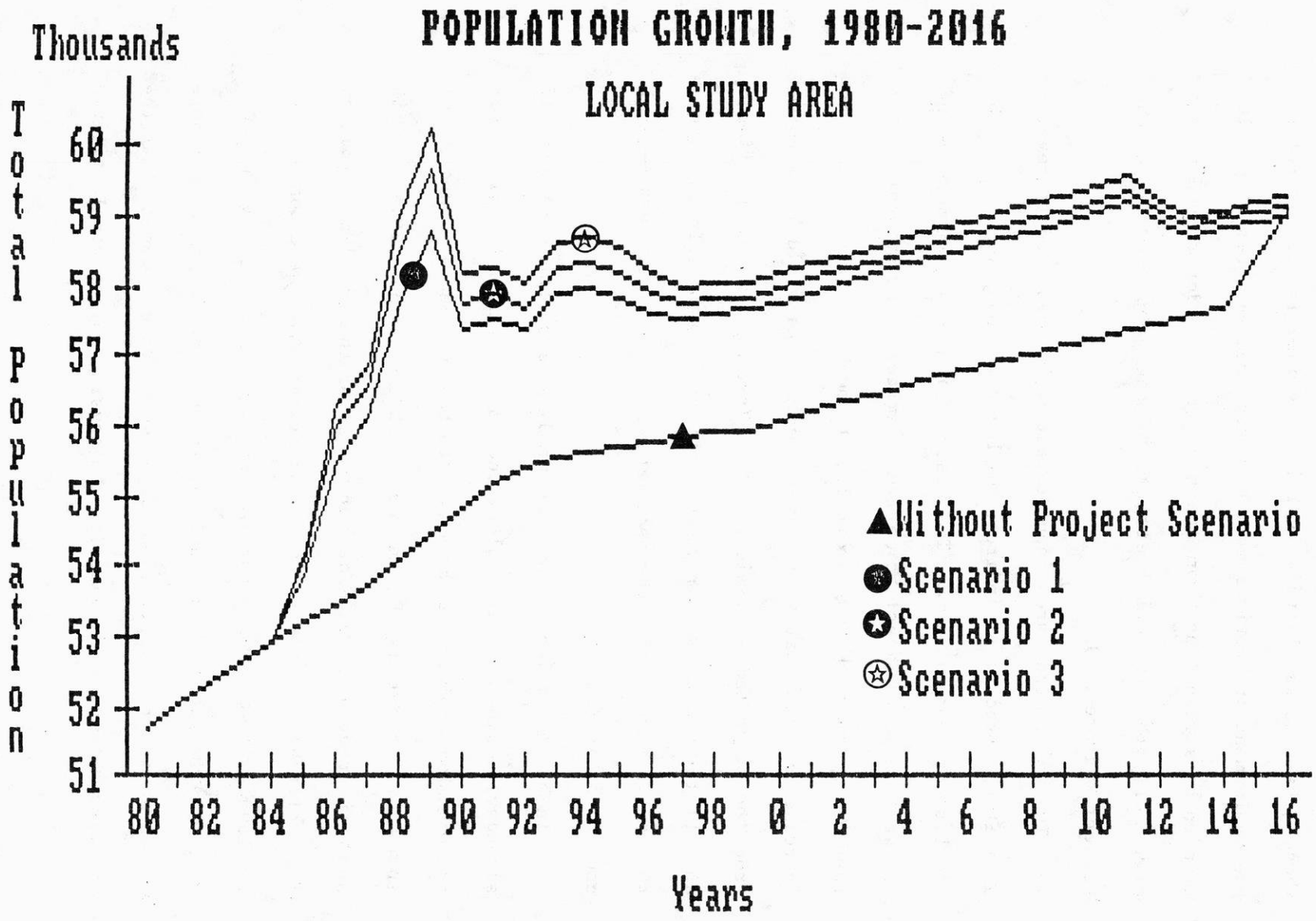
SOURCE: Research and Planning Consultants, Inc.

These jobs necessarily will be filled by inmigrants. Therefore, the employment projections must be considered in terms of population changes resulting from the new jobs in order to understand more fully the potential effects of the jobs created by the Project (Figure 2-2).

The local study area input/output model was used to develop an initial forecast of indirect employment among sectors of the local study area economy. The distribution of employment among the sectors was subject to certain limitations inherent in the input/output model. For example, the model did not reflect an increase in retail sales per retail employee as would be expected from the projected economic growth. Instead, the model offered an inflated estimate of retail trade employment. In contrast, the model tended to underestimate the number of residential construction workers.

In order to judge the reasonableness of the forecasts of secondary employment, the calculated employment multiplier for the Crandon Project was compared to those found at other major industrial projects (Denver Research Institute, 1979). This analysis revealed the reasonableness of the total multiplier. The sector-by-sector employment multipliers then were compared to employment estimates from other parts of the analysis. For example, the public facilities and services model provided a more detailed approach to estimating government employment than the input/output model. Similarly, the housing market model utilized

FIGURE 2-2



SOURCE: Research and Planning Consultants, Inc.

a more detailed approach to estimating residential construction employment than the input/output model. In those instances where other models were able to consider additional factors which could not be reflected in the input/output model, the estimates from the other models were found superior. Accordingly, the input/output model's sector-by-sector employment and business activity estimates were adjusted to reflect the additional data derived from other models.

EMC has adopted a policy which gives all the preference allowed by law to the hiring of local citizens, including Native Americans, and EMC has prepared a provision to be inserted into any construction contract, whereby each potential contractor must agree to employ local people to the extent possible and practicable (EMC, 1980b). The effect of this policy will be to lower the amount of inmigration. In addition, the Project will result in an upgrading of job opportunities in the local study area by providing skilled jobs along with training opportunities for those people hired locally.

WITHOUT-PROJECT FORECAST (1980-2016)

Economic Conditions

The forecasts of future conditions in the local study area should be viewed in relation to recent trends. These are documented in the "Report on Current Conditions" (RPC, 1981e).

That report noted that the three counties of which the local study area is a part had a lower 1978 per capita personal income ($4,251 for Forest County, $5,566 for Langlade County, and $6,379 for Oneida County) than the state average of $7,532. The lower per capita personal income reflected the higher unemployment rate in the local study area (6.5 percent in 1979) versus the state (4.5 percent), the higher percentages of persons living on transfer payments, and the relatively low weekly wage ($167.97 in 1978) for the local study area relative to the state ($225.45).

Oneida is the most industrialized county in the local study area and has the highest per capita personal income ($6,379 in 1978). Forest County has the lowest per capita personal income ($4,251 in 1978), a large portion of which is accounted for by transfer payments to retirees who have inmigrated to the county. Langlade has the most diverse economic base, with agriculture occupying a larger share of the economy than in Oneida and Forest counties or in Wisconsin as a whole.

In recent years, the number of jobs has been growing more slowly than additions to the local study area labor force. This has resulted in higher unemployment rates and an outmigration of young adults from the local study area. In attitude surveys (RPC, 1982b), permanent residents indicated they were less optimistic regarding the near-term progress of the local study area than for the nation as a whole. A majority favored further economic development if it can be accomplished without harm to

the environment and without causing large numbers of people to migrate to the local study area.

Our projected trends for the without-project economic conditions have been checked against the historic conditions and they demonstrate a high degree of accuracy. For example, our projections indicate that, without development of the Crandon Project, the local study area is likely to experience increased economic activity later than the national or state economies, based on projections of business activity, employment, unemployment, and personal income. Because of the location of the local study area and its heavy reliance on indigenous natural resources, no new major industries are projected to develop in the local study area during the forecast period. Many economic sectors are projected to have slow or moderate increases during the forecast period (Table 2-2).

Business activity and income increases are sporadic throughout the forecast period (Table 2-3). As this table shows, the period of most rapid increase is the 1980s. During this decade, business activity and household income each increase at an annual rate of approximately 3.1 percent. Thereafter until the end of the forecast period, the increases slow to annual rates of approximately 2.0 and 1.6 percent, respectively, for business activity and household income. The without-project forecast is referred to as "baseline" in Table 2-3 and in some other tables throughout this report.

TABLE 2-2

BUSINESS ACTIVITY, EMPLOYMENT AND PRODUCTIVITY
ANNUAL PERCENTAGE GROWTH RATES
WITHOUT-PROJECT SCENARIO
1980 TO 2016

	Business Activity	Employment	Productivity[a]
Agriculture	1.68	-1.56	3.24
Forestry	2.13	0.22	1.91
Non-Project Mining	2.24	1.67	0.57
Construction[b]	3.06	2.46	0.60
Food Processing	1.88	0.45	1.43
Other Manufacturing	2.47	0.14	2.33
T.C.P.U.[c]	2.56	-0.16	2.72
Trade	2.55	0.78	1.77
F.I.R.E.[d]	2.00	1.28	0.72
Recreation	2.12	1.29	0.83
Other Services	2.66	1.87	0.79
Government Enterprises	2.54	0.55	1.99
Commuters	NA	0.78	NA
ALL SECTORS	2.28	0.78	1.50

NOTE: NA means "Not Applicable."

[a]Productivity is measured as the amount of employment required to produce a certain dollar value of output.

[b]This analysis assumes that investment grows at the same rate as growth in output. This assumption makes the projections more sensitive to local conditions over the long-run. In doing so, however, the model does not simulate short-term trends which would tend to cause investment to grow at a slower rate than output in the early years of the forecast period. Since growth in the construction sector is largely a function of investment, the actual growth rates for construction output and employment are likely to be less than what is projected. This effect is consistent for all scenarios, and therefore should not affect the projections of impacts. In addition, it does not have a major effect on the total projected employment.

[c]Transportation, Communication, and Public Utilities.

[d]Finance, Insurance, and Real Estate.

SOURCE: Research and Planning Consultants, Inc.

TABLE 2-3

ECONOMIC ACTIVITY REPORT
(THOUSANDS OF 1982 DOLLARS)

	PROJECT-RELATED		BASELINE		TOTAL					
					BUSINESS ACTIVITY			HOUSEHOLD INCOME		
YEAR	BUSINESS ACTIVITY	HOUSEHOLD INCOME	BUSINESS ACTIVITY	HOUSEHOLD INCOME	AMOUNT	CHANGE	PCT CNG	AMOUNT	CHANGE	PCT CNG
1980	7251	1183	795952	418273	803203	0	0.0	419455	0	0.0
1981	10034	1468	806793	429763	816827	13624	1.7	431230	11775	2.8
1982	10975	1432	834893	444696	845868	29041	3.6	446128	14898	3.5
1983	10695	1432	877700	464894	888394	42526	5.0	466326	20198	4.5
1984	14547	1584	917122	484091	931668	43274	4.9	485676	19350	4.1
1985	646	250	952373	501224	953019	21351	2.3	501474	15798	3.3
1986	345	133	982273	516270	982618	29598	3.1	516404	14930	3.0
1987	0	0	1008167	529131	1008167	25550	2.6	529131	12728	2.5
1988	0	0	1035893	542291	1035893	27726	2.8	542291	13159	2.5
1989	0	0	1061349	554364	1061349	25456	2.5	554364	12073	2.2
1990	0	0	1088408	566750	1088408	27059	2.5	566750	12386	2.2
1991	0	0	1118246	579556	1118246	29838	2.7	579556	12806	2.3
1992	0	0	1146537	591117	1146537	28291	2.5	591117	11562	2.0
1993	0	0	1175665	602667	1175665	29128	2.5	602667	11549	2.0
1994	0	0	1205055	614140	1205055	29390	2.5	614140	11473	1.9
1995	0	0	1234881	625643	1234881	29826	2.5	625643	11503	1.9
1996	0	0	1257455	634700	1257455	22573	1.8	634700	9057	1.4
1997	0	0	1278733	642993	1278733	21278	1.7	642993	8293	1.3
1998	0	0	1299581	651018	1299581	20848	1.6	651018	8025	1.2
1999	0	0	1320473	659020	1320473	20892	1.6	659020	8002	1.2
2000	0	0	1341532	667047	1341532	21058	1.6	667047	8028	1.2
2001	0	0	1368275	676450	1368275	26743	2.0	676450	9403	1.4
2002	0	0	1397522	687403	1397522	29247	2.1	687403	10953	1.6
2003	0	0	1424923	697968	1424923	27401	2.0	697968	10564	1.5
2004	0	0	1451178	708125	1451178	26255	1.8	708125	10157	1.5
2005	0	0	1477254	718243	1477254	26076	1.8	718243	10118	1.4
2006	0	0	1503807	728691	1503807	26553	1.8	728691	10448	1.5
2007	0	0	1530710	739349	1530710	26902	1.8	739349	10658	1.5
2008	0	0	1558104	750265	1558104	27394	1.8	750265	10916	1.5
2009	0	0	1586104	761454	1586104	28000	1.8	761454	11189	1.5
2010	0	0	1614688	772909	1614688	28584	1.8	772909	11455	1.5
2011	0	0	1644116	784815	1644116	29429	1.8	784815	11906	1.5
2012	0	0	1675585	798754	1675585	31469	1.9	798754	13940	1.8
2013	0	0	1708259	813326	1708259	32674	1.9	813326	14572	1.8
2014	0	0	1741744	828269	1741744	33485	2.0	828269	14943	1.8
2015	0	0	1775890	843511	1775890	34146	2.0	843511	15242	1.8
2016	0	0	1810749	859175	1810749	34859	2.0	859175	15665	1.9

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE:
RESEARCH AND PLANNING CONSULTANTS, INC.

Table 2-2 presents the business activity and annual employment growth rates projected for the various sectors of the local study area economy. Growth in business activity is projected to be highest for construction; transportation, communication and public utilities (T.C.P.U.); trade; other services; and government enterprises. However, due to projected increases in employee productivity, these sectors may not necessarily have the greatest growth in employment. Sectors projected to have the highest employment growth are construction; other services; non-Project mining; recreation; and finance, insurance, and real estate (F.I.R.E.). Examples of the other services sector would include laundries, dry cleaners, plumbers, maid services, and the like.

Total employment is projected to increase from 21,581 in 1980 to 28,559 in 2016, an annual growth rate of less than 0.8 percent (Table 2-4). Employment increases fastest in the earlier years of the forecast period. From 1980 to 1990, employment is projected to increase annually at a rate of approximately 1.6 percent. Thereafter, employment growth slows to an annual rate of 0.5 percent.

Unemployment is expected to fluctuate throughout the forecast period (Table 2-5). In 1980, the local study area's unemployment rate was 8.4 percent. Unemployment was projected to reach 10.7 percent in 1982 and decline slowly thereafter. Higher levels of unemployment are projected in the early part of the

TABLE 2-4

WITHOUT-PROJECT SCENARIO
PROJECTED EMPLOYMENT

Year	Total Employment	Change	Percent Change
1980	21581	0	0.0
1981	21574	-7	0.0
1982	21832	258	1.2
1983	22495	663	3.0
1984	23114	619	2.7
1985	23683	569	2.5
1986	24071	388	1.6
1987	24401	330	1.4
1988	24745	344	1.4
1989	25042	297	1.2
1990	25337	295	1.2
1991	25618	281	1.1
1992	25827	209	0.8
1993	26020	193	0.7
1994	26216	196	0.8
1995	26410	194	0.7
1996	26477	67	0.3
1997	26515	38	0.1
1998	26544	29	0.1
1999	26569	25	0.1
2000	26596	27	0.1
2001	26642	46	0.2
2002	26749	107	0.4
2003	26846	97	0.4
2004	26923	77	0.3
2005	26994	71	0.3
2006	27078	84	0.3
2007	27163	85	0.3
2008	27251	88	0.3
2009	27354	103	0.4
2010	27466	112	0.4
2011	27591	125	0.5
2012	27758	167	0.6
2013	27943	185	0.7
2014	28141	198	0.7
2015	28346	205	0.7
2016	28559	213	0.8

SOURCE: Research and Planning Consultants, Inc.

TABLE 2-5

WITHOUT-PROJECT SCENARIO

LABOR FORCE STATISTICS TABLE
CIVILIAN LABOR FORCE, EMPLOYMENT, AND UNEMPLOYMENT

YEAR	CIVILIAN LABOR FORCE	EMPLOYMENT	UNEMPLOYMENT	PERCENT UNEMPLOYMENT
1980	23551	21581	1970	8.4
1981	23992	21574	2418	10.1
1982	24441	21832	2609	10.7
1983	24847	22495	2351	9.5
1984	25240	23114	2126	8.4
1985	25655	23683	1973	7.7
1986	25968	24071	1898	7.3
1987	26272	24401	1871	7.1
1988	26608	24745	1863	7.0
1989	26926	25042	1885	7.0
1990	27244	25337	1907	7.0
1991	27547	25618	1928	7.0
1992	27803	25827	1976	7.1
1993	27994	26020	1973	7.0
1994	28223	26216	2007	7.1
1995	28457	26410	2048	7.2
1996	28715	26477	2238	7.8
1997	28970	26515	2456	8.5
1998	29240	26544	2696	9.2
1999	29491	26569	2922	9.9
2000	29748	26596	3151	10.6
2001	29896	26642	3254	10.9
2002	30034	26749	3285	10.9
2003	30178	26846	3332	11.0
2004	30315	26923	3392	11.2
2005	30436	26994	3442	11.3
2006	30514	27078	3436	11.3
2007	30568	27163	3404	11.1
2008	30593	27251	3342	10.9
2009	30597	27354	3243	10.6
2010	30596	27466	3130	10.2
2011	30536	27591	2946	9.6
2012	30480	27758	2722	8.9
2013	30409	27943	2466	8.1
2014	30357	28141	2215	7.3
2015	30480	28346	2134	7.0
2016	30709	28559	2150	7.0

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

21st Century. This occurs as the local study area population matures (Table 3-2 of the Demographic Analysis). During this time, the working-age population is projected to increase faster than either total population or the number of jobs. In these years, some of these people may outmigrate from the local study area in search of better employment opportunities. Toward the end of the forecast period, beginning in the year 2010, the labor force begins to decrease, resulting in lower unemployment rates.

Consistent with long-term national projections of income growth (Interindustry Forecasting Project, 1978; 1979), personal income is projected to increase faster than population. As a result, per capita income increases. In 1980, per capita income was $8,115 (in 1982 dollars). This is projected to increase to $14,605 by the end of the forecast period, an annual rate of increase of approximately 1.6 percent (see Table 2-19).

Special Industry Studies

The "Report on Current Conditions" (RPC, 1981e) notes that the economic base of the local study area consists of forestry, manufacturing, agriculture, and tourism. Most of the manufacturing in the local study area produces wood and paper products, using local timber.

In addition, the service and retail sectors are also important components of the local study area economy. This reflects recreation and tourism activity. It also reflects the dispropor-

tionate number of consumers versus employees, due to the number of retirees residing in the local study area. Most of the recreation is outdoor-related and does not generate a great deal of income (RPC, 1981e).

Manufacturing has grown moderately with some new firms coming into the local study area. Those firms in the wood and paper products industries have been growing slowly or not at all. Employment in forestry has been stable. Agricultural employment has been declining, although proprietors' incomes have grown. The service and retail sectors have grown most rapidly, reflecting increased tourism, recreation, and retirement activities (RPC, 1981e). However, new jobs being added by retail and service sectors are predominantly low-wage jobs, many of which are seasonal in nature.

Over the past few years, growth in tourism has been slowed by the high price and occasional scarcity of gasoline. Development of second homes also has been slowed by high mortgage-interest rates.

In our opinion, none of the current economic sectors which form the base of the local study area economy have the potential to create a large number of jobs or to create new jobs with high average wages and career potential. If the local study area is to narrow its present gaps with state per capita income and state unemployment rates, new economic activities are needed in the local study area.

Agriculture. In the past, technological gains have had a dramatic impact on agriculture and are projected to continue to do so in the future. While agricultural acreage is projected to decrease slightly as the land is diverted to other uses, agricultural output (Table 2-6) and employee productivity (Table 2-2) are projected to show substantial gains. Farm output, or business activity, is projected to increase annually at a rate of approximately 1.7 percent. Farm employment is projected to decline at an annual rate of 1.6 percent. Farm employment, which accounted for 9.0 percent of the local study area employment in 1980, is projected to account for only 3.9 percent of total jobs in 2016 (Table 2-6).

While agricultural acreage and number of farms are expected to decline, the average farm size will increase (Table 2-6).

Forestry and Wood Products. The economy of the local study area is heavily dependent on its forestry resource base. This sector will maintain its importance throughout the forecast period (Table 2-7). Business activity is projected to increase annually at a rate of 2.1 percent (Table 2-2). Gains in employee productivity, however, will limit employment growth to moderate levels (Table 2-2). From 1980 to 2016, employment is projected to increase approximately 0.2 percent annually (Table 2-7).

TABLE 2-6

AGRICULTURE
WITHOUT-PROJECT SCENARIO

Year	Business Activity[a]	Percent of Total LSA Business Activity	Employment	Percent of Total LSA Employment	Agricultural Land (acres)	Number of Farms
1980	56,058	7.0	1,950	9.0	166,102	890
1985	59,797	6.3	1,775	7.5	165,358	845
1990	66,540	6.1	1,659	6.5	164,939	802
1995	73,249	5.9	1,543	5.8	164,890	762
2000	77,231	5.8	1,405	5.3	164,872	724
2005	84,364	5.7	1,302	4.8	164,840	687
2010	91,815	5.7	1,208	4.4	164,713	653
2016	102,214	5.6	1,108	3.9	164,570	614

[a]Thousands of 1982 dollars.

SOURCE: Research and Planning Consultants, Inc.

TABLE 2-7

FORESTRY AND WOOD PRODUCTS
WITHOUT-PROJECT SCENARIO

Year	Business Activity[a]	Percent Change	Percent of Total LSA Business Activity	Employment	Percent Change	Percent of Total LSA Employment
1980	190,332	0.0	23.7	1,959	0.0	9.1
1985	201,991	6.1	21.2	1,855	-5.3	7.8
1990	228,753	13.2	21.0	1,907	2.8	7.5
1995	264,260	15.5	21.4	2,015	5.7	7.6
2000	290,597	10.0	21.7	2,030	0.7	7.6
2005	325,555	12.0	22.0	2,076	2.2	7.7
2010	360,386	10.7	22.3	2,096	1.0	7.6
2016	406,367	12.8	22.4	2,120	1.1	7.4

[a]Thousands of 1982 dollars.

SOURCE: Research and Planning Consultants, Inc.

The forestry and wood products sector accounted for 9.1 percent of local study area employment in 1980. By 2016, this percentage is projected to decrease to 7.4 percent (Table 2-7).

Mining. Current mining activity in the local study area consists primarily of sand and gravel production. This activity is a very small portion of total economic activity in the local study area, and is not projected to increase substantially during the forecast period (Table 2-8). Mining employment is expected to grow from 32 in 1980 (or 0.1 percent of total local study area employment) to 58 in 2016, which represents 0.2 percent of total employment (Table 2-8). Our projections also assume that no new mining activities will develop in the local study area.

Trade. The trade sector is an important one in the economy of the local study area. In 1980, trade accounted for 19.4 percent of the employment in the local study area. Projections indicate that trade employment will decrease slightly to 16.9 percent of the local study are total by the end of the forecast period (Table 2-9).

Coinciding with growth in personal income, retail sales are forecast to increase from $257,749 in 1980 to $525,505 in 2016. This represents an annual growth rate of 2.0 percent (Table 2-9). As a result of this increase, the local study area may be able to support a more diverse trade base (Chase, 1980). In this event,

TABLE 2-8

MINING
WITHOUT-PROJECT SCENARIO

Year	Business Activity[a]	Percent Change	Percent of Total LSA Business Activity	Employment	Percent Change	Percent of Total LSA Employment
1980	2,486	0.0	0.3	32	0.0	0.1
1985	2,684	8.0	0.3	33	3.0	0.1
1990	2,939	9.5	0.3	36	9.1	0.1
1995	3,475	18.2	0.3	42	16.7	0.2
2000	3,898	12.2	0.3	46	9.5	0.2
2005	4,388	12.6	0.3	50	8.7	0.2
2010	4,869	11.0	0.3	54	8.0	0.2
2016	5,515	13.3	0.3	58	7.4	0.2

[a]Thousands of 1982 dollars.

SOURCE: Research and Planning Consultants, Inc.

TABLE 2-9

TRADE
WITHOUT-PROJECT SCENARIO

Year	Retail Sales[a]	Percent Change	Employment[b]	Percent Change	Percent of Total LSA Employment
1980	$257,749	--	4,188	--	19.4
1985	311,056	20.7	3,680	0.6	15.5
1990	353,261	13.6	3,908	6.2	15.4
1995	394,672	11.7	4,149	6.2	15.7
2000	422,220	7.0	4,263	2.7	16.0
2005	454,880	7.7	4,409	3.4	16.3
2010	487,294	7.1	4,566	3.6	16.6
2016	525,505	7.8	4,840	6.0	16.9

[a]Thousands of 1982 dollars.

[b]Includes both wholesale and retail trade employment.

SOURCE: Research and Planning Consultants, Inc.

it is possible that the capture areas of the local study area trade centers could increase, causing a further stimulus in trade activity. A more detailed description of local study area trade patterns is included in the "Report on Current Conditions" (RPC, 1981e).

Recreation. Recreation industries are important in the local study area economy, and will continue to be throughout the forecast period. The business activity of local study area recreation establishments is projected to increase substantially over the forecast period, growing at an annual rate of 3.1 percent (Table 2-10). Employment is forecast to increase 1.6 percent annually. In 1980, employment in recreation industries accounted for 9.2 percent of the local study area's total employment (Table 2-10). By 2016, this is projected to increase to 11.0 percent. Much of this increase is attributable to a moderate growth in outdoor recreation activities.

WITH-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

Economic Conditions

Project development will increase substantially the local study area employment levels and, during the 1980s, will account for a large share of the growth in area employment. Construction

TABLE 2-10

RECREATION
WITHOUT-PROJECT SCENARIO

Year	Business Activity[a]	Percent Change	Percent of Total LSA Business Activity	Employment	Percent Change	Percent of Total LSA Employment
1980	$46,589	--	5.8	1,988	--	9.2
1985	54,730	17.5	5.7	2,237	12.5	9.4
1990	61,891	13.1	5.7	2,515	12.4	9.9
1995	69,221	11.8	5.6	2,688	6.8	10.2
2000	74,384	7.5	5.5	2,748	2.2	10.3
2005	81,292	9.3	5.5	2,852	3.8	10.6
2010	88,664	9.1	5.5	2,970	4.1	10.8
2016	99,266	12.0	5.5	3,155	6.2	11.0

[a]Thousands of 1982 dollars.

SOURCE: Research and Planning Consultants, Inc.

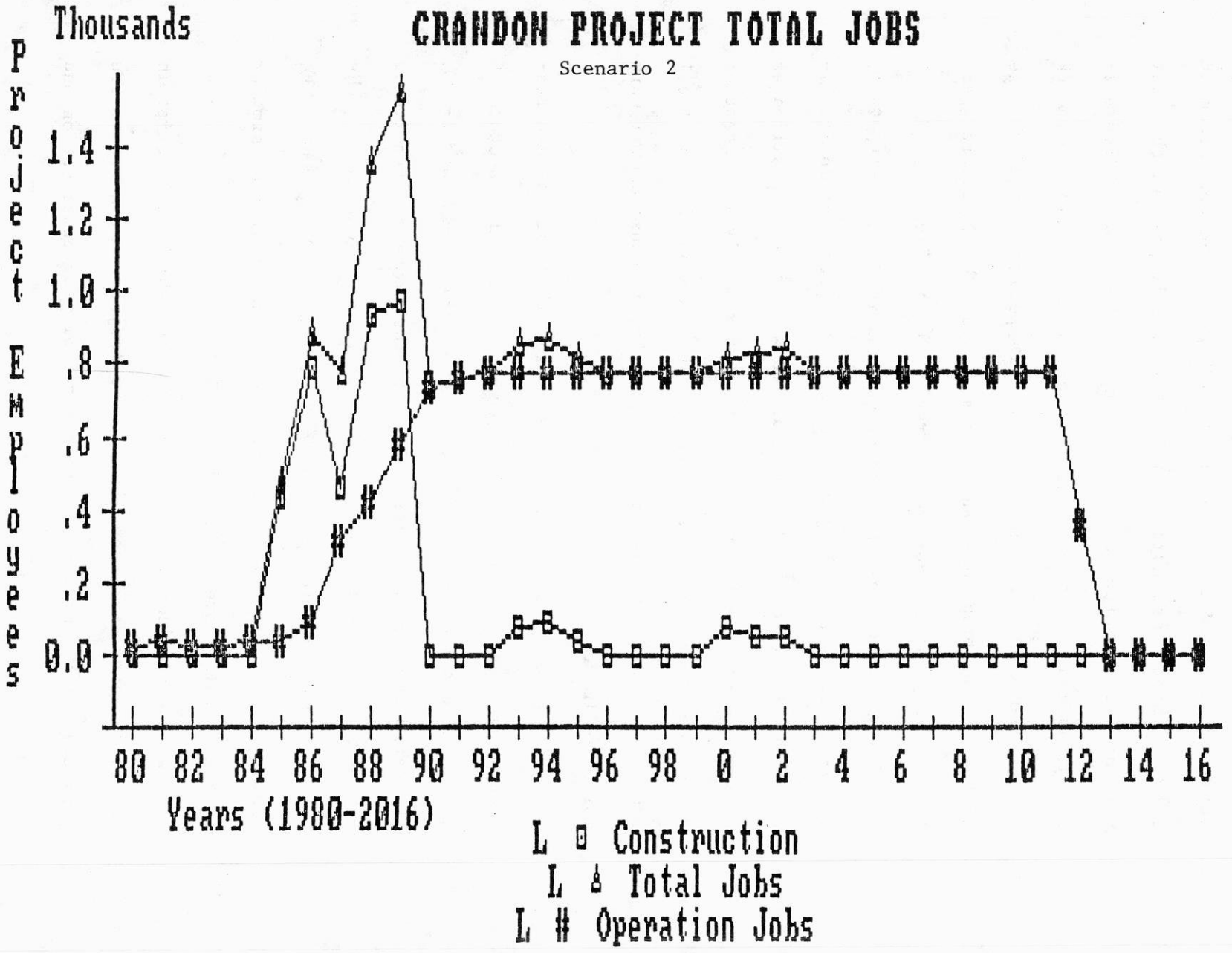
activity is forecast to begin in 1985 and to be completed in 1989. Direct construction employment should peak in the last year of construction at a range of 870 to 1,070 jobs (Figure 2-3). In addition to these construction jobs, the operation work force also should increase during this period. By 1989, the number of operation jobs ranges from 520 to 640. Therefore, peak total employment in 1989 ranges from 1,390 to 1,710.

These projections also are documented in Tables 2-11, 2-12, and 2-13, which show Project construction jobs, but do not include the 10 percent of the construction work force classified as commuter workers. RPC projects that approximately 10 percent of the construction work force will commute from outside the local study area based on case studies of analogous construction work forces (Gilmore, et al, 1982).

Project construction activities also will lead to the creation of secondary (indirect and induced) jobs in other sectors of the local economy (Figure 2-4 and Tables 2-11, 2-12, and 2-13). The ratio of secondary jobs to direct jobs averages from 0.4 to 0.5 (4 to 5 indirect jobs for every 10 direct jobs) during the construction phase (computed from Tables 2-11, 2-12, and 2-13). Again, this is consistent with previous case studies of similar work forces (Gilmore, et al, 1982).

Without-project baseline jobs are jobs which would exist in the local study area even without the Project. Direct jobs are jobs created by the Crandon Project payroll for construction and

FIGURE 2-3



SOURCE: Research and Planning Consultants, Inc.

TABLE 2-11

SCENARIO 1

POPULATION AND EMPLOYMENT SUMMARY REPORT

	POPULATION			EMPLOYMENT						
YEAR	TOTAL POPULATION	CHANGE	PERCENT CHANGE	CONSTRUCTION*	PROJECT OPERATION	INDIRECT	W-O PROJ.	TOTAL	CHANGE	PERCENT CHANGE
1980	51690	0	0.0	0	35	7	21539	21581	0	0.0
1981	52028	338	.7	0	40	15	21519	21574	-8	0.0
1982	52331	303	.6	0	35	22	21776	21832	259	1.2
1983	52673	342	.7	0	35	21	22439	22495	663	3.0
1984	52957	284	.5	0	40	21	23053	23114	618	2.7
1985	53900	943	1.8	392	45	85	23623	24145	1031	4.5
1986	55522	1621	3.0	711	90	210	24063	25074	930	3.9
1987	56167	645	1.2	419	290	319	24404	25432	358	1.4
1988	57759	1593	2.8	837	380	459	24754	26431	999	3.9
1989	58784	1025	1.8	873	520	557	25059	27009	578	2.2
1990	57391	-1393	-2.4	0	660	543	25364	26567	-441	-1.6
1991	57531	140	.2	0	685	446	25656	26787	219	.8
1992	57422	-109	-.2	0	700	338	25867	26906	119	.4
1993	57914	492	.9	70	700	367	26063	27200	295	1.1
1994	57957	43	.1	80	700	390	26261	27431	230	.8
1995	57840	-117	-.2	35	700	397	26459	27590	160	.6
1996	57636	-204	-.4	0	700	382	26529	27612	21	.1
1997	57557	-80	-.1	0	700	367	26568	27635	23	.1
1998	57608	51	.1	0	700	359	26597	27656	21	.1
1999	57656	48	.1	0	700	358	26617	27675	19	.1
2000	57784	129	.2	70	700	370	26643	27783	108	.4
2001	57913	128	.2	50	700	379	26689	27818	35	.1
2002	58040	127	.2	55	700	389	26797	27942	123	.4
2003	58172	133	.2	0	700	376	26895	27971	29	.1
2004	58307	135	.2	0	700	365	26974	28039	69	.2
2005	58427	120	.2	0	700	354	27048	28102	62	.2
2006	58547	120	.2	0	700	353	27136	28189	87	.3
2007	58665	118	.2	0	700	352	27226	28279	90	.3
2008	58784	119	.2	0	700	352	27319	28371	92	.3
2009	58899	115	.2	0	700	352	27428	28480	109	.4
2010	59045	146	.2	0	700	352	27547	28599	119	.4
2011	59183	139	.2	0	700	326	27679	28705	106	.4
2012	58924	-259	-.4	0	325	250	27854	28429	-275	-1.0
2013	58736	-188	-.3	0	0	133	28049	28181	-248	-.9
2014	58834	97	.2	0	0	42	28254	28296	115	.4
2015	58928	94	.2	0	0	0	28443	28443	147	.5
2016	59011	83	.1	0	0	0	28654	28654	210	.7

* REFERS TO NUMBER OF CONSTRUCTION JOBS FILLED BY RESIDENTS OF AND INMIGRANTS TO THE STUDY AREA
DAILY COMMUTERS ARE EXCLUDED.

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

TABLE 2-12

SCENARIO 2

POPULATION AND EMPLOYMENT SUMMARY REPORT

	POPULATION			EMPLOYMENT						
YEAR	TOTAL POPULATION	CHANGE	PERCENT CHANGE	CONSTRUCTION*	PROJECT OPERATION	INDIRECT	W-O PROJ.	TOTAL	CHANGE	PERCENT CHANGE
1980	51690	0	0.0	0	35	7	21539	21581	0	0.0
1981	52028	338	.7	0	40	15	21519	21574	-8	0.0
1982	52331	303	.6	0	35	22	21776	21832	259	1.2
1983	52673	342	.7	0	35	21	22439	22495	663	3.0
1984	52957	284	.5	0	40	21	23053	23114	618	2.7
1985	54096	1140	2.2	437	45	98	23623	24202	1089	4.7
1986	56003	1906	3.5	788	100	249	24063	25199	997	4.1
1987	56602	600	1.1	464	320	381	24405	25569	370	1.5
1988	58500	1898	3.4	932	425	550	24756	26663	1094	4.3
1989	59619	1119	1.9	972	580	670	25061	27284	621	2.3
1990	57783	-1836	-3.1	0	735	654	25369	26758	-526	-1.9
1991	57862	78	.1	0	760	536	25662	26958	201	.7
1992	57714	-148	-.3	0	780	405	25874	27059	101	.4
1993	58264	550	1.0	80	780	439	26070	27369	310	1.1
1994	58301	37	.1	90	780	467	26268	27604	235	.9
1995	58168	-133	-.2	40	780	475	26466	27761	157	.6
1996	57888	-280	-.5	0	780	458	26537	27775	13	0.0
1997	57751	-137	-.2	0	780	439	26576	27795	20	.1
1998	57802	52	.1	0	780	429	26604	27814	19	.1
1999	57850	47	.1	0	780	428	26623	27831	17	.1
2000	57978	129	.2	80	780	444	26648	27952	121	.4
2001	58106	128	.2	55	780	454	26695	27984	32	.1
2002	58233	127	.2	60	780	467	26803	28110	125	.4
2003	58366	133	.2	0	780	450	26900	28131	21	.1
2004	58501	135	.2	0	780	438	26980	28198	67	.2
2005	58622	120	.2	0	780	424	27054	28258	61	.2
2006	58743	121	.2	0	780	424	27143	28346	88	.3
2007	58862	119	.2	0	780	423	27233	28437	90	.3
2008	58982	120	.2	0	780	423	27327	28530	93	.3
2009	59098	117	.2	0	780	423	27436	28639	110	.4
2010	59246	148	.3	0	780	423	27556	28759	120	.4
2011	59387	141	.2	0	780	392	27689	28861	102	.4
2012	59085	-302	-.5	0	360	302	27865	28528	-333	-1.2
2013	58865	-220	-.4	0	0	161	28061	28222	-306	-1.1
2014	58963	98	.2	0	0	51	28267	28318	97	.3
2015	59059	95	.2	0	0	0	28454	28454	136	.5
2016	59143	84	.1	0	0	0	28664	28664	210	.7

* REFERS TO NUMBER OF CONSTRUCTION JOBS FILLED BY RESIDENTS OF AND INMIGRANTS TO THE STUDY AREA
DAILY COMMUTERS ARE EXCLUDED.

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

TABLE 2-13

SCENARIO 3

POPULATION AND EMPLOYMENT SUMMARY REPORT

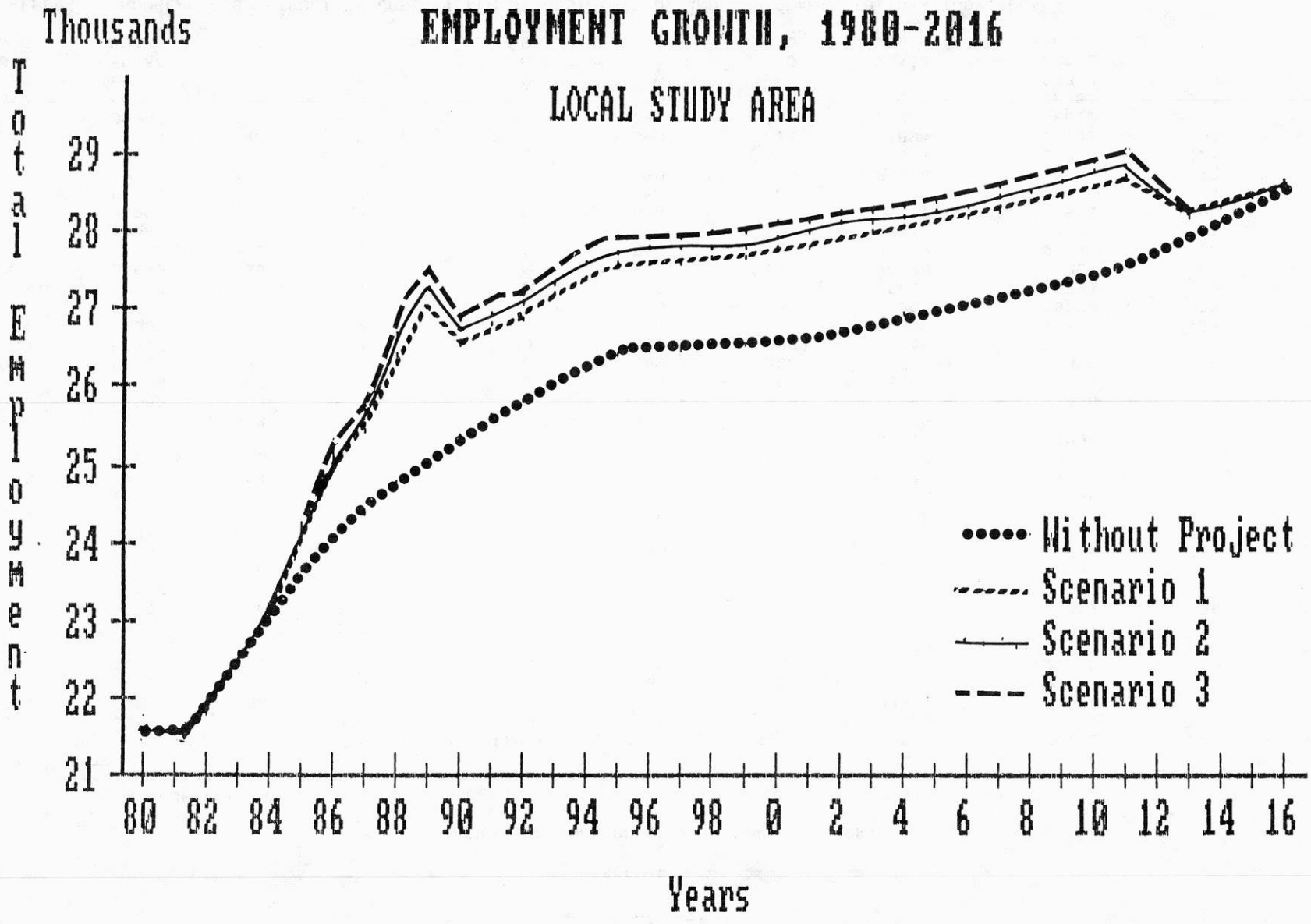
	POPULATION			EMPLOYMENT						
YEAR	TOTAL POPULATION	CHANGE	PERCENT CHANGE	CONSTRUCTION*	PROJECT OPERATION	INDIRECT	W-O PROJ.	TOTAL	CHANGE	PERCENT CHANGE
1980	51690	0	0.0	0	35	7	21539	21581	0	0.0
1981	52028	338	.7	0	40	15	21519	21574	-8	0.0
1982	52331	303	.6	0	35	22	21776	21832	259	1.2
1983	52673	342	.7	0	35	21	22439	22495	663	3.0
1984	52957	284	.5	0	40	21	23053	23114	618	2.7
1985	54207	1250	2.4	482	45	101	23623	24251	1137	4.9
1986	56327	2120	3.9	864	110	260	24063	25297	1046	4.3
1987	56904	578	1.0	509	350	406	24405	25669	372	1.5
1988	59024	2120	3.7	1026	470	594	24758	26848	1179	4.6
1989	60246	1222	2.1	1071	640	733	25064	27508	660	2.5
1990	58168	-2078	-3.4	0	810	727	25373	26910	-598	-2.2
1991	58232	64	.1	0	835	611	25668	27114	204	.8
1992	58070	-163	-.3	0	860	479	25880	27218	104	.4
1993	58664	594	1.0	90	860	518	26076	27544	326	1.2
1994	58689	25	0.0	100	860	551	26273	27784	240	.9
1995	58532	-156	-.3	45	860	561	26471	27938	154	.6
1996	58164	-368	-.6	0	860	540	26542	27942	4	0.0
1997	57962	-203	-.3	0	860	518	26580	27958	16	.1
1998	58008	46	.1	0	860	506	26608	27974	16	.1
1999	58051	43	.1	0	860	505	26624	27990	16	.1
2000	58176	125	.2	90	860	525	26649	28123	134	.5
2001	58301	125	.2	60	860	537	26695	28152	28	.1
2002	58426	125	.2	65	860	552	26802	28279	127	.5
2003	58558	132	.2	0	860	532	26899	28291	12	0.0
2004	58693	135	.2	0	860	518	26978	28356	65	.2
2005	58815	121	.2	0	860	502	27052	28414	58	.2
2006	58937	122	.2	0	860	501	27141	28502	88	.3
2007	59058	121	.2	0	860	501	27232	28593	91	.3
2008	59180	122	.2	0	860	500	27326	28687	94	.3
2009	59299	118	.2	0	860	501	27436	28797	110	.4
2010	59449	150	.3	0	860	501	27557	28918	121	.4
2011	59591	143	.2	0	860	471	27691	29022	104	.4
2012	59231	-360	-.6	0	395	366	27869	28629	-392	-1.4
2013	58993	-238	-.4	0	0	198	28065	28263	-366	-1.3
2014	59092	99	.2	0	0	62	28271	28333	70	.2
2015	59188	96	.2	0	0	0	28462	28462	129	.5
2016	59273	85	.1	0	0	0	28674	28674	212	.7

* REFERS TO NUMBER OF CONSTRUCTION JOBS FILLED BY RESIDENTS OF AND INMIGRANTS TO THE STUDY AREA
DAILY COMMUTERS ARE EXCLUDED.

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

FIGURE 2-4



SOURCE: Research and Planning Consultants, Inc.

operation employees. Indirect jobs, rather than resulting from the Crandon payroll, are created because of purchases of goods and services in the local study area by the Crandon Project.

Induced jobs are created because of purchases of goods and services by EMC employees in the local study area economy. Both the indirect and induced jobs help generate increased economic activity in the local study area, which results in even more jobs in the local study area. These extra jobs created by the increased economic activity associated with the direct, indirect and induced jobs are reflected in the without-project column of Tables 2-11 through 2-13, which might be more appropriately labeled as "non-Project" jobs, since it actually includes both without-project and the extra jobs created as a result of the local study area's more active economy.

Tables 2-14 and 2-15 illustrate how the Project-related jobs and business activity are divided among the sectors of the local economy. Over 66 percent of the indirect jobs are in the trade, recreation, and other services sectors. This is consistent with patterns observed in connection with other large-scale resource development projects (Gilmore, et al, 1982; Murdock and Leistritz, 1979). In Table 2-14, which provides the number of Project-related jobs by sector for 1989, the housing construction sector shows only three to four jobs resulting from the Project. Housing construction employment is low in 1989 because housing

TABLE 2-14

LOCAL STUDY AREA
CONSTRUCTION PHASE
PROJECT-RELATED JOBS BY SECTOR, 1989

Sector	Scenario 1	Scenario 2	Scenario 3
Agriculture	0	0	0
Forestry	33	37	41
Mining	0	0	0
Construction	3	3	4
Food Processing	17	20	22
Direct Project[a]	1,393	1,552	1,711
Other Manufacturing	31	38	41
T.C.P.U.[b]	28	33	36
Trade	83	101	111
F.I.R.E.[c]	29	35	38
Recreation	88	107	117
Other Services	157	190	208
Government	105	127	139
Commuters	0	0	0
TOTAL	1,967	2,248	2,468

[a]Does not include jobs filled by commuters.

[b]Transportation, Communication, and Public Utilities.

[c]Finance, Insurance, and Real Estate.

SOURCE: Research and Planning Consultants, Inc.

TABLE 2-15

LOCAL STUDY AREA
CONSTRUCTION PHASE
ANNUAL PERCENTAGE DIFFERENCE IN BUSINESS ACTIVITY[a], 1989

Sector	Scenario 1	Scenario 2	Scenario 3
Agriculture	0.0	0.0	0.0
Forestry	1.7	2.0	2.1
Mining	269.4	299.3	329.2
Construction	0.2	0.2	0.2
Food Processing	4.2	5.0	5.5
Other Manufacturing	1.8	2.1	2.3
T.C.P.U.[b]	2.8	3.3	3.6
Trade	2.1	2.6	2.9
F.I.R.E.[c]	3.3	4.0	4.3
Recreation	3.6	4.3	4.7
Other Services	4.1	4.5	5.4
Government	2.0	2.4	2.6
Commuters	0.0	0.0	0.0
TOTAL[d]	21.6	24.3	26.7

[a]Percentage difference from without-project future.

[b]Transportation, Communication, and Public Utilities.

[c]Finance, Insurance, and Real Estate.

[d]Percentage difference in business activity for the total economy is the weighted average of percentage difference in the individual sectors as would be expected. Much of the difference is from direct-Project expenditures.

NOTE: NA means "not applicable."

SOURCE: Research and Planning Consultants, Inc.

starts should be few that year as a result of the impending outmigration of the Project's construction labor force.

The local study area input/output model was used to calculate the amount of indirect employment attributable to the Crandon Project. Total indirect employment then was distributed across the sectors using data from several areas of the analysis. Residential construction employment was forecast using data from the Housing and Land Use Analysis. Public employment was forecast using data from the Public Facilities and Services Analysis. Indirect employment in the other sectors was estimated using data form the input/output model itself.

Many of the Project-related jobs can be filled by current local study area residents. Between 25 and 50 percent of the construction jobs are projected to be filled by local residents (EMC, 1982c). The remainder would require people with special skills who would inmigrate or commute to the local study area. The actual percentage of construction jobs filled locally will depend on a number of factors, most of which are quite difficult to predict. Many of the secondary jobs created during the construction phase likely will be filled by local residents, or by family members of inmigrating construction or operation workers. The unemployment rates during the construction phase (Table 2-16) are projected to result in migration to the local study area of people seeking employment. Some of these inmigrants also may be employed in some of the secondary jobs (Gilmore, et al, 1982).

TABLE 2-16

LOCAL STUDY AREA UNEMPLOYMENT

Year	Without Project Percent	Scenario 1 Percent	Scenario 1 Difference	Scenario 2 Percent	Scenario 2 Difference	Scenario 3 Percent	Scenario 3 Difference
1980	8.4	8.4	0.0	8.4	0.0	8.4	0.0
1981	10.1	10.1	0.0	10.1	0.0	10.1	0.0
1982	10.7	10.7	0.0	10.7	0.0	10.7	0.0
1983	9.5	9.5	0.0	9.5	0.0	9.5	0.0
1984	8.4	8.4	0.0	8.4	0.0	8.4	0.0
1985	7.7	7.0	-0.7	7.0	-0.7	7.0	-0.7
1986	7.3	7.0	-0.3	7.0	-0.3	7.0	-0.3
1987	7.1	7.0	-0.1	7.0	-0.1	7.0	-0.1
1988	7.0	7.0	0.0	7.0	0.0	7.0	0.0
1989	7.0	7.0	0.0	7.0	0.0	7.0	0.0
1990	7.0	9.5	2.5	9.8	2.8	10.0	3.0
1991	7.0	7.0	0.0	7.0	0.0	7.0	7.0
1992	7.1	7.1	0.0	7.1	0.0	7.1	0.0
1993	7.0	7.0	0.0	7.0	0.0	7.0	0.0
1994	7.1	7.0	-0.1	7.0	-0.1	7.0	-0.1
1995	7.2	7.0	-0.2	7.0	-0.2	7.0	-0.2
1996	7.8	7.5	-0.3	7.5	-0.3	7.5	-0.3
1997	8.5	7.7	-0.8	7.6	-0.9	7.5	-1.0
1998	9.2	8.3	-0.9	8.0	-1.2	7.8	-1.4
1999	9.9	9.0	-0.9	8.8	-1.1	8.6	-1.3
2000	10.6	9.4	-1.2	9.2	-1.4	8.9	-1.7
2001	10.9	9.8	-1.1	9.5	-1.4	9.3	-1.6
2002	10.9	9.8	-1.1	9.6	-1.3	9.3	-1.6
2003	11.0	10.1	-0.9	9.9	-1.1	9.7	-1.3
2004	11.2	10.3	-0.9	10.1	-1.1	9.9	-1.3
2005	11.3	10.4	-0.9	10.3	-1.0	10.1	-1.2
2006	11.3	10.4	-0.9	10.2	-1.1	10.0	-1.3
2007	11.1	10.3	-0.8	10.1	-1.0	9.9	-1.2
2008	10.9	10.0	-0.9	9.8	-1.1	9.6	-1.3
2009	10.6	9.7	-0.9	9.5	-1.1	9.3	-1.3
2010	10.2	9.3	-0.9	9.1	-1.1	8.9	-1.3
2011	9.6	8.8	-0.8	8.6	-1.0	8.4	-1.2
2012	8.9	9.5	0.6	9.5	0.6	9.5	0.6
2013	8.1	9.7	1.6	9.8	1.7	9.9	1.8
2014	7.3	8.7	1.4	8.9	1.6	9.0	1.7
2015	7.0	8.0	1.0	8.2	1.2	8.4	1.4
2016	7.0	7.1	0.1	7.3	0.3	7.4	0.4

SOURCE: Research and Planning Consultants, Inc.

The number of Project-related jobs created during the construction phase accounts for 7.9 to 9.9 percent of the number of jobs in the local study area (Figure 2-4 and Tables 2-11 through 2-13 and 2-17). This will result in lower unemployment and more intense competition for labor than the local study area has experienced in recent years. Traditionally, construction jobs pay higher wages than most jobs in an area. However, in recent years the local study area has experienced higher unemployment than the State of Wisconsin or the nation as a whole. This implies that an adequate supply of labor exists, and that, all things considered, competition for labor will be moderate.

The effects of Project construction on the local study area unemployment rate are shown in Table 2-16. Based on recent historical trends, we have assumed that inmigration will occur sufficient to prevent unemployment from declining below 7 percent. Because of projected unemployment rates from 1985 to 1989 in the without-project scenario, the effect of the Project on the local study area unemployment rate will be small.

Construction of the Crandon Project is projected to increase personal income in the area. Construction jobs traditionally pay higher wages than most other jobs. This should produce a positive effect on local study area income. During 1989, the peak year of construction, total personal income in scenarios with the Project ranges from 8.4 to 11.2 percent above the without-project level (Table 2-18). This results in an increase in per capita

TABLE 2-17

EMPLOYMENT
DIFFERENCE TABLE

YEAR	SCENARIO 0 W-0 PROJ. TOTAL	SCENARIO 1 MINIMUM IMPACT TOTAL	SCENARIO 1 MINIMUM IMPACT DIFFERENCE	SCENARIO 1 MINIMUM IMPACT PERCENT	SCENARIO 2 MOST LIKELY IMPACT TOTAL	SCENARIO 2 MOST LIKELY IMPACT DIFFERENCE	SCENARIO 2 MOST LIKELY IMPACT PERCENT	SCENARIO 3 MAXIMUM IMPACT TOTAL	SCENARIO 3 MAXIMUM IMPACT DIFFERENCE	SCENARIO 3 MAXIMUM IMPACT PERCENT
1980	21581	21581	0	0.0	21581	0	0.0	21581	0	0.0
1981	21574	21574	0	0.0	21574	0	0.0	21574	0	0.0
1982	21832	21832	0	0.0	21832	0	0.0	21832	0	0.0
1983	22495	22495	0	0.0	22495	0	0.0	22495	0	0.0
1984	23114	23114	0	0.0	23114	0	0.0	23114	0	0.0
1985	23683	24145	462	2.0	24202	520	2.2	24251	568	2.4
1986	24071	25074	1004	4.2	25199	1129	4.7	25297	1226	5.1
1987	24401	25432	1031	4.2	25569	1168	4.8	25669	1268	5.2
1988	24745	26431	1686	6.8	26663	1918	7.8	26848	2103	8.5
1989	25042	27009	1967	7.9	27284	2242	9.0	27508	2467	9.9
1990	25337	26567	1231	4.9	26758	1421	5.6	26910	1573	6.2
1991	25618	26787	1168	4.6	26958	1340	5.2	27114	1496	5.8
1992	25827	26906	1079	4.2	27059	1232	4.8	27218	1392	5.4
1993	26020	27200	1180	4.5	27369	1349	5.2	27544	1524	5.9
1994	26216	27431	1214	4.6	27604	1388	5.3	27784	1568	6.0
1995	26410	27590	1181	4.5	27761	1352	5.1	27938	1528	5.8
1996	26477	27612	1134	4.3	27775	1297	4.9	27942	1465	5.5
1997	26515	27635	1120	4.2	27795	1280	4.8	27958	1443	5.4
1998	26544	27656	1112	4.2	27814	1270	4.8	27974	1430	5.4
1999	26569	27675	1106	4.2	27831	1262	4.7	27990	1420	5.3
2000	26596	27783	1187	4.5	27952	1356	5.1	28123	1527	5.7
2001	26642	27818	1176	4.4	27984	1342	5.0	28152	1509	5.7
2002	26749	27942	1192	4.5	28110	1360	5.1	28279	1530	5.7
2003	26846	27971	1125	4.2	28131	1285	4.8	28291	1445	5.4
2004	26923	28039	1117	4.1	28198	1275	4.7	28356	1433	5.3
2005	26994	28102	1108	4.1	28258	1265	4.7	28414	1420	5.3
2006	27078	28189	1111	4.1	28346	1268	4.7	28502	1424	5.3
2007	27163	28279	1115	4.1	28437	1273	4.7	28593	1430	5.3
2008	27251	28371	1120	4.1	28530	1278	4.7	28687	1435	5.3
2009	27354	28480	1126	4.1	28639	1285	4.7	28797	1443	5.3
2010	27466	28599	1133	4.1	28759	1293	4.7	28918	1452	5.3
2011	27591	28705	1114	4.0	28861	1270	4.6	29022	1431	5.2
2012	27758	28429	672	2.4	28528	770	2.8	28629	871	3.1
2013	27943	28181	238	0.9	28222	278	1.0	28263	320	1.1
2014	28141	28296	155	0.5	28318	177	0.6	28333	192	0.7
2015	28346	28443	97	0.3	28454	108	0.4	28462	116	0.4
2016	28559	28654	94	0.3	28664	105	0.4	28674	115	0.4

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

TABLE 2-18

PERSONAL INCOME
(THOUSANDS OF 1982 DOLLARS)
DIFFERENCE TABLE

YEAR	SCENARIO 0 W-O PROJ. TOTAL	SCENARIO 1 MINIMUM IMPACT TOTAL	SCENARIO 1 MINIMUM IMPACT DIFFERENCE	SCENARIO 1 MINIMUM IMPACT PERCENT	SCENARIO 2 MOST LIKELY IMPACT TOTAL	SCENARIO 2 MOST LIKELY IMPACT DIFFERENCE	SCENARIO 2 MOST LIKELY IMPACT PERCENT	SCENARIO 3 MAXIMUM IMPACT TOTAL	SCENARIO 3 MAXIMUM IMPACT DIFFERENCE	SCENARIO 3 MAXIMUM IMPACT PERCENT
1980	419455	419455	0	0.0	419455	0	0.0	419455	0	0.0
1981	431230	431230	0	0.0	431230	0	0.0	431230	0	0.0
1982	446128	446128	0	0.0	446128	0	0.0	446128	0	0.0
1983	466326	466326	0	0.0	466326	0	0.0	466326	0	0.0
1984	485676	485676	0	0.0	485676	0	0.0	485676	0	0.0
1985	501474	514281	12807	2.6	516663	15189	3.0	517220	15747	3.1
1986	516404	541129	24725	4.8	546014	29611	5.7	547407	31003	6.0
1987	529131	552394	23263	4.4	557206	28074	5.3	559678	30547	5.8
1988	542291	582030	39740	7.3	590510	48219	8.9	594679	52389	9.7
1989	554364	600774	46410	8.4	610731	56367	10.2	616186	61822	11.2
1990	566750	594843	28094	5.0	600730	33981	6.0	605736	38986	6.9
1991	579556	606179	26624	4.6	611723	32168	5.6	616982	37427	6.5
1992	591117	615521	24404	4.1	620629	29512	5.0	626217	35100	5.9
1993	602667	630773	28106	4.7	636708	34041	5.6	643201	40534	6.7
1994	614140	643702	29562	4.8	649903	35763	5.8	656679	42539	6.9
1995	625643	654503	28861	4.6	660519	34876	5.6	667062	41420	6.6
1996	634700	662619	27919	4.4	668368	33668	5.3	674582	39883	6.3
1997	642993	671001	28008	4.4	676772	33780	5.3	682976	39983	6.2
1998	651018	679197	28179	4.3	685003	33985	5.2	691220	40202	6.2
1999	659020	687302	28282	4.3	693120	34100	5.2	699348	40328	6.1
2000	667047	698308	31261	4.7	704897	37850	5.7	711962	44915	6.7
2001	676450	707674	31224	4.6	714137	37686	5.6	721025	44574	6.6
2002	687403	719494	32091	4.7	726117	38713	5.6	733155	45752	6.7
2003	697968	728279	30311	4.3	734520	36552	5.2	741118	43151	6.2
2004	708125	738700	30575	4.3	744997	36872	5.2	751638	43513	6.1
2005	718243	749055	30812	4.3	755405	37162	5.2	762087	43844	6.1
2006	728691	760051	31360	4.3	766508	37817	5.2	773294	44603	6.1
2007	739349	771290	31942	4.3	777860	38511	5.2	784757	45408	6.1
2008	750265	782810	32546	4.3	789495	39230	5.2	796509	46244	6.2
2009	761454	794674	33221	4.4	801483	40030	5.3	808628	47174	6.2
2010	772909	806833	33924	4.4	813770	40861	5.3	821054	48145	6.2
2011	784815	818150	33335	4.2	824923	40109	5.1	832027	47212	6.0
2012	798754	819719	20965	2.6	823794	25040	3.1	827921	29166	3.7
2013	813326	821137	7811	1.0	822372	9046	1.1	823437	10111	1.2
2014	828269	834246	5976	0.7	835038	6769	0.8	835497	7227	0.9
2015	843511	847583	4072	0.5	848045	4534	0.5	848430	4919	0.6
2016	859175	863285	4110	0.5	863752	4577	0.5	864202	5026	0.6

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

income during much of the construction period (Table 2-19). Projections indicate per capita income may be as much as 1.4 percent higher annually because of the Project. However, our assumption concerning the lower unemployment inmigration bound is conservative, causing a higher population projection; but if population is less, per capita income would be even greater.

EMC purchases of goods and services in the local study area will increase overall business activity. Table 2-20 shows assumed construction-phase estimates of Project purchases in the local study area by sector in total dollar amounts for all three scenarios. EMC purchases in the local study area will provide the greatest benefits to the forestry sector and the transportation, communication and public utilities sector.

Special Industry Studies

Agriculture. Construction of the Crandon Project is projected to have little effect on agriculture in the local study area. The additional population associated with the Project will cause an increase in residential construction. This will cause between 500 and 600 acres to be removed from agricultural production. This amount represents less than 1.0 percent of the total agricultural land, and, therefore, should not affect overall agricultural output.

For the construction and operation phases, we have estimated the amount of undeveloped land expected to be diverted to devel-

TABLE 2-19

PER CAPITA PERSONAL INCOME
(THOUSANDS OF 1982 DOLLARS)
DIFFERENCE TABLE

YEAR	SCENARIO 0 W-0 PROJ. TOTAL	SCENARIO 1 MINIMUM IMPACT TOTAL	SCENARIO 1 MINIMUM IMPACT DIFFERENCE	SCENARIO 1 MINIMUM IMPACT PERCENT	SCENARIO 2 MOST LIKELY IMPACT TOTAL	SCENARIO 2 MOST LIKELY IMPACT DIFFERENCE	SCENARIO 2 MOST LIKELY IMPACT PERCENT	SCENARIO 3 MAXIMUM IMPACT TOTAL	SCENARIO 3 MAXIMUM IMPACT DIFFERENCE	SCENARIO 3 MAXIMUM IMPACT PERCENT
1980	8115	8115	0	0.0	8115	0	0.0	8115	0	0.0
1981	8288	8288	0	0.0	8288	0	0.0	8288	0	0.0
1982	8525	8525	0	0.0	8525	0	0.0	8525	0	0.0
1983	8853	8853	0	0.0	8853	0	0.0	8853	0	0.0
1984	9171	9171	0	0.0	9171	0	0.0	9171	0	0.0
1985	9418	9541	124	1.3	9551	133	1.4	9542	124	1.3
1986	9657	9746	89	0.9	9750	92	1.0	9718	61	0.6
1987	9847	9835	-12	-0.1	9844	-2	-0.0	9835	-11	-0.1
1988	10027	10077	50	0.5	10094	67	0.7	10075	48	0.5
1989	10181	10220	39	0.4	10244	63	0.6	10228	47	0.5
1990	10339	10365	25	0.2	10396	57	0.6	10414	74	0.7
1991	10495	10537	42	0.4	10572	78	0.7	10595	101	1.0
1992	10673	10719	46	0.4	10754	81	0.8	10784	111	1.0
1993	10853	10892	39	0.4	10928	75	0.7	10964	111	1.0
1994	11034	11106	72	0.7	11147	113	1.0	11189	155	1.4
1995	11226	11316	90	0.8	11355	129	1.2	11396	170	1.5
1996	11376	11497	121	1.1	11546	170	1.5	11598	222	2.0
1997	11513	11658	145	1.3	11719	206	1.8	11783	270	2.3
1998	11646	11790	144	1.2	11851	205	1.8	11916	270	2.3
1999	11779	11921	142	1.2	11981	202	1.7	12047	268	2.3
2000	11895	12085	189	1.6	12158	263	2.2	12238	343	2.9
2001	12035	12220	185	1.5	12290	255	2.1	12367	332	2.8
2002	12202	12397	194	1.6	12469	267	2.2	12549	346	2.8
2003	12361	12519	158	1.3	12585	223	1.8	12656	295	2.4
2004	12513	12669	156	1.3	12735	222	1.8	12806	294	2.3
2005	12666	12820	154	1.2	12886	220	1.7	12957	291	2.3
2006	12825	12982	157	1.2	13049	223	1.7	13121	295	2.3
2007	12988	13147	159	1.2	13215	227	1.7	13288	300	2.3
2008	13155	13317	162	1.2	13385	230	1.7	13459	304	2.3
2009	13327	13492	165	1.2	13562	234	1.8	13637	309	2.3
2010	13497	13665	167	1.2	13735	238	1.8	13811	314	2.3
2011	13677	13824	147	1.1	13891	214	1.6	13962	286	2.1
2012	13893	13911	18	0.1	13943	50	0.4	13978	85	0.6
2013	14122	13980	-142	-1.0	13970	-152	-1.1	13958	-164	-1.2
2014	14360	14180	-180	-1.3	14162	-198	-1.4	14139	-221	-1.5
2015	14438	14383	-54	-0.4	14359	-78	-0.5	14334	-103	-0.7
2016	14551	14629	78	0.5	14605	53	0.4	14580	29	0.2

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

TABLE 2-20

CRANDON PROJECT
DIRECT CONSTRUCTION PURCHASES[a]
WITHIN LOCAL STUDY AREA, 1985-1989

	Scenario 1	Scenario 2	Scenario 3
Agriculture	0.0	0.0	0.0
Forestry	7,412.4	8,236.0	9,059.6
Mining	48.8	54.2	59.7
Construction	6.2	6.9	7.5
Food Processing	0.0	0.0	0.0
Other Manufacturing	0.0	0.0	0.0
T.C.P.U.[b]	2,614.0	2,904.4	3,194.9
Trade	0.0	0.0	0.0
F.I.R.E.[c]	0.0	0.0	0.0
Recreation	23.2	25.8	28.4
Other Services	22.8	25.3	27.9
Government	0.0	0.0	0.0
Households	116,211.2	140,766.0	151,924.8

[a]Based on thousands of 1982 constant dollars.

[b]Transportation, Communication, and Public Utilities.

[c]Finance, Insurance, and Real Estate.

SOURCE: Research and Planning Consultants, Inc.

oped land, resulting in acreage losses for the agriculture sector and the forestry and wood products sector. We are able to estimate that approximately 1,000 to 1,200 acres will be diverted from agricultural use over the course of the forecast period, but we cannot predict exactly when that diversion will occur. Therefore, we have assumed that half of the diverted acreage (500 to 600 acres) will be developed and removed from agricultural production during the construction phase and that the other half of the diverted acreage will be developed during the operation phase. The same practice was used to estimate that 1,400 to 1,600 acres will be diverted to developed land and will no longer be used by the forestry and wood products sector. We assumed that half of that total acreage would be diverted during the construction phase and the remainder would be diverted during the operation phase.

The construction activity should not cause a shortage of agricultural labor. Almost half of the agricultural labor force are farm proprietors, the majority of whom will be unaffected by the Project. In recent years, the number of farm proprietorships has been declining as the average farm size has increased. In addition, technological gains have caused dramatic increases in farm labor productivity. These trends toward declining demand for agricultural labor are projected to result in a net loss of approximately 250 agricultural jobs from 1980 to 1989 (Table 2-6). Construction of the Crandon Project facilities will provide

additional employment opportunities to alleviate the loss of these agricultural jobs.

Forestry and Wood Products. Purchases of local wood products during construction of the Crandon Project are not projected to create a large number of additional indirect jobs in the forestry and wood products sector (Table 2-14). The Project is forecast to cause between 700 and 800 acres of forestland to be diverted to residential or commercial use; however, most of this land is forecast to be undeveloped land in the towns of Crescent, Pine Lake, Newbold, and Pelican, and will not be commercial forestland. This amount represents less than 1.0 percent of total forestland in the local study area.

The major effect construction of the Crandon Project may have on the forestry and wood products industries will be increased competition for labor. It is assumed that construction jobs will be most attractive to males aged 18 to 34. This group comprises 40.5 percent of the forestry industry's work force. Therefore, employers in the forestry and wood products sector could face greater labor competition than other employers. Some employers may have to offer higher wages in order to keep better employees. In the past, the supply of 18- to 34-year-old males has been greater in the local study area than the number of higher-paying jobs. Historically, this age group has been a prime source of outmigration from the local study area. There-

fore, the effect of this Project may be to retain in the local study area individuals in this age group, who otherwise might have outmigrated.

Mining. Construction of the Crandon Project is projected to cause a slight increase in activity in the sand and gravel mining sector. This activity is not substantial enough to affect the level of mining employment (Table 2-14).

Trade. The major effect Project construction will have on the trade sector is to stimulate employment in the sector. Table 2-14 shows that, in 1989, an additional 83 to 111 jobs are expected to be created in the trade sector. This accounts for an additional 2.1 to 2.9 percent in 1989 business activity (Table 2-15). Most of this activity and the resulting jobs will be in retail trade. During 1989, the peak year of the construction phase, retail sales range from $28 to $38 million above the retail sales figures without the Crandon Project (extrapolated from Tables 2-9 and 2-15). This construction phase will be a substantial benefit to local merchants. Still, since the construction phase is short-lived, it is unlikely that these sales will stimulate substantial capital investment in new shopping facilities. However, private planning and land acquisition may occur during the construction phase leading to development of new retail space during the operation phase.

Recreation. The most substantial impact construction of the Crandon mine/mill facilities should have on the recreation sector will be to increase business activity and employment. Local use of recreational facilities should increase, while surveys of seasonal residents and tourists (RPC, 1982b) do not indicate that the Project will discourage recreational visits to the local study area by nonresidents.

During 1989, the peak year of construction, the Project should create an additional 88 to 117 recreational jobs (Table 2-14). This represents an additional 3.6 to 4.7 percent of business activity (Table 2-15). Much of this activity will be in outdoor recreational pursuits, as a result of the increasingly-younger age structure of the population. This will stimulate not only summer, but also winter recreational activities. In addition, the higher personal income levels attributable to the Project will increase local study area expenditures for amusements, restaurants, and taverns.

In order to assess the effects the Project may have on the attractiveness of the local study area to recreational visitors, a survey was conducted in 1980 (RPC, 1980e). The following dicussion is based on the survey results (RPC, 1982b). For the purposes of the survey, recreational users are identified as being one of three types--recreational visitors, seasonal residents, and permanent residents. Each class of recreational user was surveyed (Tables 2-21, 2-22, and 2-23). However, when no

TABLE 2-21

EFFECT OF CRANDON PROJECT ON RECREATION SECTOR
SURVEY RESULTS - TOURISTS

Effect of Crandon Project on
Choosing to Visit Northeast Wisconsin

	Frequency	Percent of Responses
No Effect	740	71.4
Will Not Visit Area	55	5.3
Will Make Fewer Visits	53	5.1
Will Make More Visits	13	1.3
Will Visit Areas Away From Crandon Project	99	9.6
Other	76	7.3

Effects of Crandon Project on
Recreation in Northeast Wisconsin

	Frequency	Percent of Responses
No Response/Missing Data	434	--
Depends, None if Done Right	62	9.5
No Effect	143	21.9
Pollute/Crowding	209	32.1
Improve Recreation Facilities	42	6.4
Drop in Tourism	43	6.6
Other	153	23.5

SOURCE: Research and Planning Consultants, Inc.

TABLE 2-22

EFFECT OF CRANDON PROJECT ON RECREATION SECTOR
SURVEY RESULTS - SEASONAL RESIDENTS

Overall Effect of Crandon Project on
Seasonal Residence Location

	Frequency	Percent of Responses
No Response/Missing Data	45	--
Very Good	25	7.1
Good	138	39.2
No Difference	122	34.7
Bad	59	16.8
Very Bad	8	2.3

Effects of Crandon Project on
Seasonal Resident's Plans for Properties

	Frequency	Percent of Responses
No Response/Missing Data	31	--
None	255	69.8
Raise Value	34	9.3
Hurt Environment	8	2.2
Lower Value	7	1.9
Move/Sell	16	4.4
Other	46	12.6

Whether Opening of Crandon Project Would Make
Seasonal Residents More Likely to Sell Property

	Frequency	Percent of Responses
No Response/Missing Data	20	--
No	306	81.2
Yes/Ruin Recreation	11	2.9
Yes/Raise Value	9	2.4
Yes/Crowding	16	4.2
Yes/Hurt Environment	7	1.9
Yes/Other	28	7.4

SOURCE: Research and Planning Consultants, Inc.

TABLE 2-23

EFFECT OF CRANDON PROJECT ON RECREATION SECTOR
SURVEY RESULTS - PERMANENT RESIDENTS

Overall Effect of Crandon Project on
Outdoor Recreational Facilities

	Frequency	Percent of Responses
No Response/Missing Data	77	--
Very Good	74	10.5
Good	266	38.0
Fair	110	15.6
Poor	68	9.7
Very Poor	22	3.1
No Effect	162	23.1

Effects of Crandon Project on
Entertainment Facilities

	Frequency	Percent of Responses
No Response/Missing Data	78	--
Very Good	61	8.7
Good	339	48.2
Fair	89	12.7
Poor	62	8.8
Very Poor	24	3.4
No Effect	127	18.2

SOURCE: Research and Planning Consultants, Inc.

opinion was given, this was recorded as "no response/missing data."

Overall, more than 70 percent of the respondents indicated the Crandon Project would have no effect on their vacation plans. A small percentage of recreational visitors to the local study area indicated they may change vacation plans because of the development of the mine/mill complex. Only 5.3 percent of the respondents indicated they would not vacation in the local study area if the mine/mill complex were developed. Some of the respondents (9.6 percent) concerned about the Crandon Project indicated they would continue to vacation in the local study area, but would use facilities farther away. The major concerns about the Crandon Project expressed by recreational visitors were pollution and crowding. Many respondents indicated that, while they were concerned about the Project, they would not cease to visit the local study area unless poor conditions actually did result. The Demographic Analysis suggests a greater population in the local study area as a result of the Crandon Project during the construction phase. This may discourage some recreational visitors.

Most permanent residents felt the Crandon Project would improve recreational facilities in the local study area. Only 12.8 percent of the respondents indicated that the mine/mill complex would have a negative effect on outdoor recreation facil-

ities, and just 12.2 percent felt the recreation sector would be affected adversely by the Crandon Project.

OPERATION PHASE (1990-2011)

Economic Conditions

Project operations will create approximately 1,150 to 1,500 long-term direct and indirect jobs in the local study area (Figure 2-3 and Table 2-17). From 700 to 860 of these jobs will be direct EMC jobs. However, as during the construction phase, secondary jobs also will be created in local industries, with these secondary jobs being created from local study area purchases by EMC employees and by direct EMC purchases of materials, supplies, etc. (Figure 2-4). As a result, approximately 66 percent of these jobs are in the trade, recreation, and other services sectors. Table 2-24, which displays these data, covers 1,100 to 1,400 of these Project-related jobs, but does not include 10 percent of the total direct Crandon workers, who are assumed to be commuters holding jobs in the local study area.

The proportion of Project-related jobs filled by local residents is expected to be larger during the operation phase than during construction. This is a result of the special skill requirements necessary during the construction phase which are not available in the local study area. It is estimated that

TABLE 2-24

LOCAL STUDY AREA
OPERATION PHASE
PROJECT-RELATED JOBS BY SECTOR, 1999

Sector	Scenario 1	Scenario 2	Scenario 3
Agriculture	1	1	1
Forestry	10	12	13
Mining	2	2	2
Construction	5	6	7
Food Processing	10	12	14
Direct Project	700	780	860
Other Manufacturing	19	23	27
T.C.P.U.[a]	33	38	45
Trade	68	83	102
F.I.R.E.[b]	24	30	36
Recreation	61	73	86
Other Services	114	136	160
Government	57	64	64
Commuters	0	0	0
TOTAL	1,106	1,262	1,421

[a]Transportation, Communication, and Public Utilities.

[b]Finance, Insurance, and Real Estate.

SOURCE: Research and Planning Consultants, Inc.

approximately 60 percent of the direct Project jobs during the operation phase may be filled from the local labor force.

Operation of the Crandon mine/mill complex will prove to be a net benefit for the local study area. The number of permanent jobs available in the local study area as a result of the Project averages from 4.1 to 6.2 percent above those projected in the without-project scenario (Table 2-17). In addition to the income created by these jobs, the Project also brings the benefit of lowered unemployment rates (Table 2-16). Unemployment rates forecast for the local study area throughout the Project life are approximately 1 percentage point lower than those projected for the without-project scenario.

While the average Project operation job will pay less than the average construction job, the operation-phase jobs still will pay more than most jobs in the local study area economy. Overall, Project-related personal income ranges from 4.2 to 6.9 percent above that projected in the without-project scenario (Table 2-18). This will enable many residents to enjoy a better standard of living.

As during the construction phase, the operation phase will generate substantial benefits for the local study area economy as a result of EMC purchases in the local study area. Table 2-25 provides estimates of EMC purchases in the local study area by sector in a typical operation year (1999) for all three with-project scenarios.

TABLE 2-25

CRANDON PROJECT
DIRECT OPERATION PURCHASES[a]
WITHIN LOCAL STUDY AREA, 1999

	Scenario 1	Scenario 2	Scenario 3
Agriculture	0.0	0.0	0.0
Forestry	599.7	666.3	732.9
Mining	189.1	210.1	231.1
Construction	18.1	20.1	22.1
Food Processing	0.0	0.0	0.0
Other Manufacturing	0.0	0.0	0.0
T.C.P.U.[b]	992.7	1,025.2	1,127.0
Trade	0.0	0.0	0.0
F.I.R.E.[c]	0.0	0.0	0.0
Recreation	100.6	111.8	123.0
Other Services	101.6	112.9	124.0
Government	0.0	0.0	0.0
Households	14,784.0	18,320.6	22,236.2

[a]Based on thousands of 1982 constant dollars.

[b]Transportation, Communication, and Public Utilities.

[c]Finance, Insurance, and Real Estate.

SOURCE: Research and Planning Consultants, Inc.

As during the construction phase, employment by sector during the operation phase was projected by the local study area input/output model. The projections from the input/output model were modified if other models used in this assessment provided additional relevant data. For instance, our housing market model provided data which suggested that the construction-sector employment should be increased. Public employment projections were based in part on data from the Public Facilities and Services Analysis. In other sectors, estimates for indirect employment were derived exclusively from the local study area input/output model.

Special Industry Studies

The operation of the Crandon Project has limited effects on the special sectors of the local study area economy. For some of the five special sectors, it has the effect of stimulating employment. For others, it has essentially no effect.

Agriculture. The Crandon Project is anticipated to have a very minor effect on local agriculture. As a result of Project development, an additional 500 to 600 acres of land are projected to be removed from agricultural production. These projections resulted from the land use model (RPC, 1982a). This represents less than 1 percent of the total local study area agricultural

land calculated for without-project development. This should not affect local agricultural output.

Forestry and Wood Products. Operation of the Project is expected to stimulate a small number of jobs in the forestry and wood products sector. In 1999, from 10 to 13 indirect jobs resulting from the Project are forecast to be created in the forestry sector (Table 2-24). In the same year, annual growth of the forestry sector's business activity should be less than 1 percent (Table 2-26).

Operation of the Project is projected to cause the diversion of between 700 and 800 acres of forestland to residential or commercial uses. This represents less than 1 percent of the total forestland in the area. Much of the forestland removed, however, will be undeveloped and not commercial forestland. Therefore, this land conversion should have no effect on forest production.

Mining. The Crandon Project would change entirely the nature of metallic-mining activity in the local study area. The mining sector in the local study area economy would develop from a few sand and gravel operations serving local study area needs into one of the major sectors of the local study area economy. Our projections are conservative in that we do not forecast the

TABLE 2-26

LOCAL STUDY AREA
OPERATION PHASE
ANNUAL PERCENTAGE DIFFERENCE IN BUSINESS ACTIVITY[a], 1999

Sector	Scenario 1	Scenario 2	Scenario 3
Agriculture	0.1	0.1	0.1
Forestry	0.5	0.6	0.7
Mining	1315.6	1315.7	1315.7
Construction	0.3	0.3	0.4
Food Processing	2.5	3.0	3.6
Other Manufacturing	1.1	1.3	1.6
T.C.P.U.[b]	3.3	3.9	4.6
Trade	1.6	2.0	2.4
F.I.R.E.[c]	2.5	3.1	3.8
Recreation	2.2	2.7	3.1
Other Services	2.5	3.0	3.6
Government	1.0	1.2	1.2
Commuters	0.0	0.0	0.0
TOTAL[d]	39.4	39.7	40.0

[a]Percentage difference from without-project future.

[b]Transportation, Communication, and Public Utilities.

[c]Finance, Insurance, and Real Estate.

[d]Percentage difference in business activity for the total economy is the weighted average of percentage difference in the individual sectors as would be expected. Much of the difference is from direct-Project expenditures.

NOTE: NA means "not applicable."

SOURCE: Research and Planning Consultants, Inc.

stimulation of additional metallic-mining activity or the development of satellite industries within the local study area.

The Crandon Project could stimulate additional jobs in the local study area with the development of associated "satellite" industries. Project operation will require a substantial amount of specialized equipment and services (such as metallic-mining machinery, drill bits, mining-equipment wholesalers, and mining-engineering firms). At present, there are no such supply or service firms in the local study area.

Trade. Operation of the Crandon Project is forecast to stimulate an additional 68 to 102 jobs in the trade sector (Table 2-24). As during the construction phase, most of these jobs will be in retail trade. Based on the projected increase in personal income from the Crandon Project, it is anticipated that operation of the Project will stimulate an additional 1.6 to 2.4 percent of annual retail sales. Eventually, this higher level of retail sales may result in the development of expanded shopping facilities, such as a new shopping center (Chase, 1980).

Recreation. Recreational demands of the Project-related population from operation of the Crandon Project will stimulate additional jobs in the recreation industries. In 1999, the forecasts indicate that from 61 to 86 new jobs may be created in

the recreation sector (Table 2-24). This represents an additional 2.2 to 3.1 percent of business activity (Table 2-26).

POST-OPERATION PHASE (2011-2016)

Economic Conditions

Since the post-operation phase is so far in the future, the projections in this section should be taken only as representative of the direction of the trends described herein. The post-operation phase is the period about which we can be least certain of the actual results. Still, the projections do provide an idea of the general conditions likely in this time period.

Closure of the Crandon Project will cause a substantial loss of jobs in the local study area. Project closure will result in the loss of not only the direct EMC jobs (Figure 2-3), but also the indirect jobs as well. Because of structural changes induced in the economy by the Project, employment after mine/mill closure in the with-project scenarios is forecast to be slightly higher than in the without-project scenario (Figure 2-4). These structural changes include the higher employment and per capita income levels resulting indirectly from Project activities. As a result, total personal income will be higher during this period; however, the larger total population resulting from the Project is projected to cause per capita income to decrease after Project closure (Tables 2-18 and 2-19).

The effects of mine/mill closure will depend on economic conditions at the time of closure. Our projections indicate closure of the mine/mill complex will increase unemployment in the local study area by almost two percentage points (Table 2-16). These forecasts also indicate that mine/mill closure will come at a time of a declining labor force because of the steadily increasing average age of the local study area population (Demographic Analysis, Table 3-2). If closure comes at the time of a stable or an increasing labor force, the effects of closure may be more severe. In the absence of appropriate planning before the mine/mill closes, recovery from the closure of the complex could be slow. With effective planning, any potential negative effects of Project closure could be eliminated or reduced, particularly if alternate economic development scenarios are pursued.

3. DEMOGRAPHIC ANALYSIS

The purpose of the Demographic Analysis is to determine the change in local study area population which could be expected because of development of the Crandon Project (also referred to as the "Project"). This analysis is necessary because many of the housing, public facilities and services, fiscal, and social effects of the Project are related directly to population change, and to the distribution of the population among the towns and cities in the local study area.

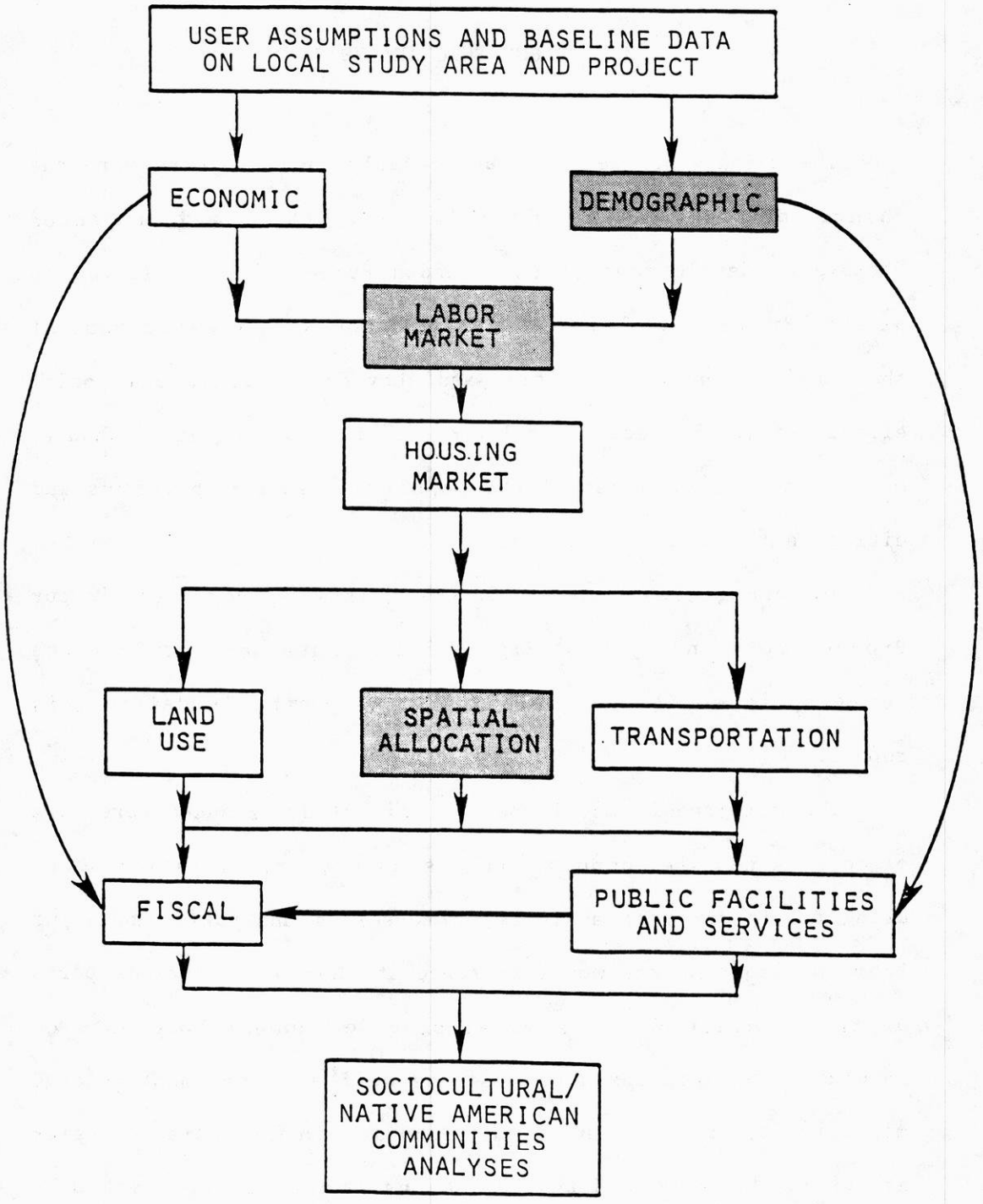
The demographic model (RPC, 1981b) is a key component in our Project modeling system (Figure 3-1). Data derived from the demographic model are employed by every other model in this report.

The demographic model used in this study produces forecasts of local study area population by single-year, age/sex cohorts using cohort-survival analysis, time-series analysis, and input from the labor market model to forecast changes in various parts of the population. This model provides annual forecasts of population by age, sex, and type, as well as employment-related migration by age, sex, and type. Separate family characteristics are assumed for each of the four types of population tracked by the model: without-project, Project construction, Project opera-

FIGURE 3-1

PROJECT MODEL SYSTEM

(INTERRELATIONSHIP OF MODELS AND ANALYSES)



SOURCE: Research and Planning Consultants, Inc.

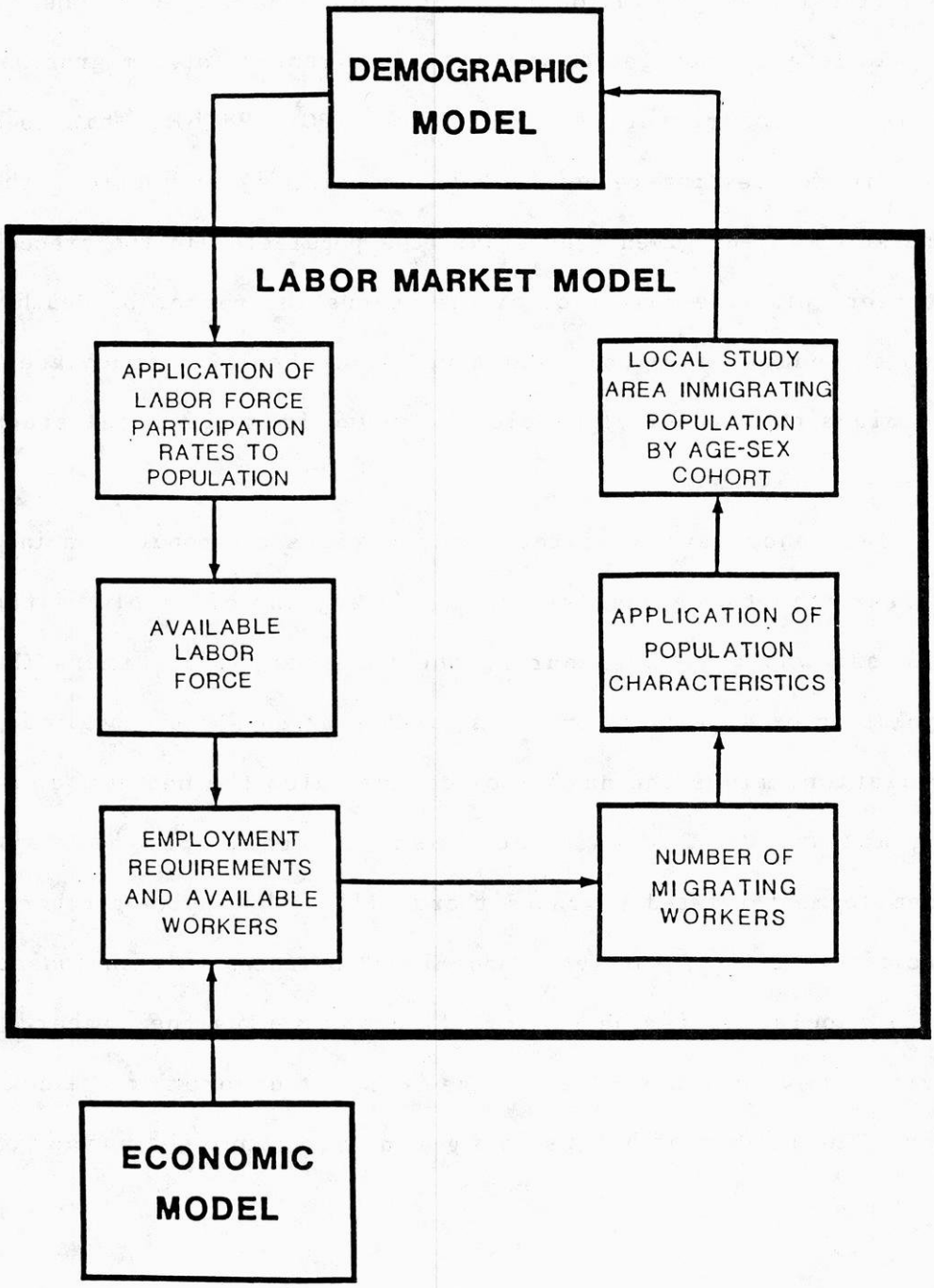
tion, and Project-related indirect and induced population. As indicated in Figure 3-2, population changes resulting from employment-related migration are provided by the labor market model (RPC, 1981b). The spatial allocation model (RPC, 1982a) then distributes population to local study area jurisdictions.

To forecast population without employment-related migration, we use the cohort-survival technique (RPC, 1981b). This is a standard forecasting technique based on simple arithmetic: the population in any given year equals the population in the preceding year, plus the number of births, minus the number of deaths, plus the number of people who moved into the local study area, and minus the number of people who moved from the local study area.

The cohort-survival technique divides the population into age/sex cohorts. An age/sex cohort is a group of people of the same sex who were born during the same period of time. The population of a given cohort in a given year equals the beginning population, minus the number of deaths, plus the net number of migrants. We forecast how many births, deaths, and nonemployment-related migrants there will be by applying cohort-specific fertility, survival, and migration rates to each cohort. Total population is the sum of all cohorts plus the number of births. Newborns are added to the youngest cohort for the next year. The number of births in a given year minus the number of

FIGURE 3-2

LABOR MARKET MODEL FLOWCHART



SOURCE: Research and Planning Consultants, Inc.

deaths produces what is referred to commonly as the "natural increase."

Two types of migration are estimated in the model: retirement migration and employment-related migration. We use migration rates to estimate the migration of people who have reached retirement age--those 65 years of age and older. These rates are based on 1970 to 1980 trends. To estimate migration for working-age populations, we first estimate the available labor pool in the local study area. To do this, we apply age/sex-specific labor force participation rates to estimates of population for each cohort.

We then compare this available labor pool with the number of workers required, as estimated in the economic model (RPC, 1981a). The available labor pool, minus the required work force, represents unemployment before any migration occurs. The ratio of the number of unemployed to the total available work force is the premigration unemployment rate. We then compare this rate with the assigned minimum (7 percent) and maximum (13 percent) unemployment rates that we have determined from analysis of past unemployment rates. If the premigration unemployment rate falls within the range of the maximum and minimum rates, no migration occurs. However, if the premigration unemployment rate is less than the minimum rate (7 percent), inmigration occurs. This procedure estimates the number of migrating workers.

The next step is to estimate changes in population associated with the inmigrating workers by using the labor market model (RPC, 1981b) (Figure 3-2). We do this by applying a set of average household characteristics (e.g. 2.278 members per construction-worker family) to the estimated number of inmigrating construction workers (see Table 3-1).

Finally, we add the number of job-related migrants to the population that excludes these migrants. This gives an estimate of total population for each year. This process results in a population forecast by age/sex cohort for the local study area. Each year's forecast forms the basis for the next year's forecast. We also use these forecasts in other elements of the socioeconomic assessment.

Native Americans are given separate consideration later in this report, but they are not analyzed separately for demographic issues. The size of the population is too small to affect the forecast. No special consideration is given the college population, since the only college in the local study area is a nonresidential college, meaning that most of the students are permanent residents of the local study area. Some students may reside some months of the year in the local study area while attending school and may not be accounted for in the Demographic Analysis, but their number is insubstantial relative to the size of the total population. The effects of seasonal population fluctuation as a result of tourism is considered in the housing and land use and

the transportation analyses, but for demographic purposes, this population was not included in the total local study area population.

To forecast population for our with-project scenarios, we track Project-related populations separately as they move into the local study area. Essentially, we apply the process just described for four employment categories: without-project, construction, operation, and indirect. We estimate the available labor pool for each of these four groups and match these available workers to the job requirements according to a priority schedule.

We use the priority schedule to match types of workers with types of jobs, and thus determine all the jobs that can be filled from the available labor pool. We estimate worker migration by comparing the implied unemployment rate to specified minimum and maximum rates. We then apply separate sets of population characteristics to each group of migrating workers to determine the changes in population associated with migration. Adding the number of job-related migrants to the population that excludes the migrants gives the forecast of total population for the next year. For example, we assume that a certain percentage of construction jobs will be filled by inmigrants with special skills not available in the local study area. The remaining construction jobs will be filled first from the existing population and then from inmigrant construction workers.

The final step is to compare the without-project and with-project population forecasts to determine the potential demographic effects of the Crandon Project on the local study area.

Fertility rates are based on calculated rates for the three-county local study area from 1979 to 1981, with these rates trended to national forecasts from the Census Bureau which assume an ultimate completed fertility level of 2.1 (replacement fertility). Survival rates are based on survival rates for the State of Wisconsin for 1970 to 1980 from the University of Wisconsin-Extension Applied Population Laboratory, with the rates held constant over the forecast period. They were adjusted to establish a 1980 baseline.

Migration rates for the population aged 65 and over are derived from the local study area's three-county data for 1970 to 1980 from the University of Wisconsin-Extension Applied Population Laboratory, with the rates held contant over the forecast period. The labor availability rates of the without-project population are 1980 local rates trended according to national rates projected by the U.S. Department of Labor, Bureau of Labor Statistics, for the period 1980 to 2000, with constant rates assumed for the period 2000 to 2016. Population characteristics of migrating without-project workers (3.527 members per family) are based on results of a survey by the University of Wisconsin-Extension Applied Population Laboratory of migrants to northern

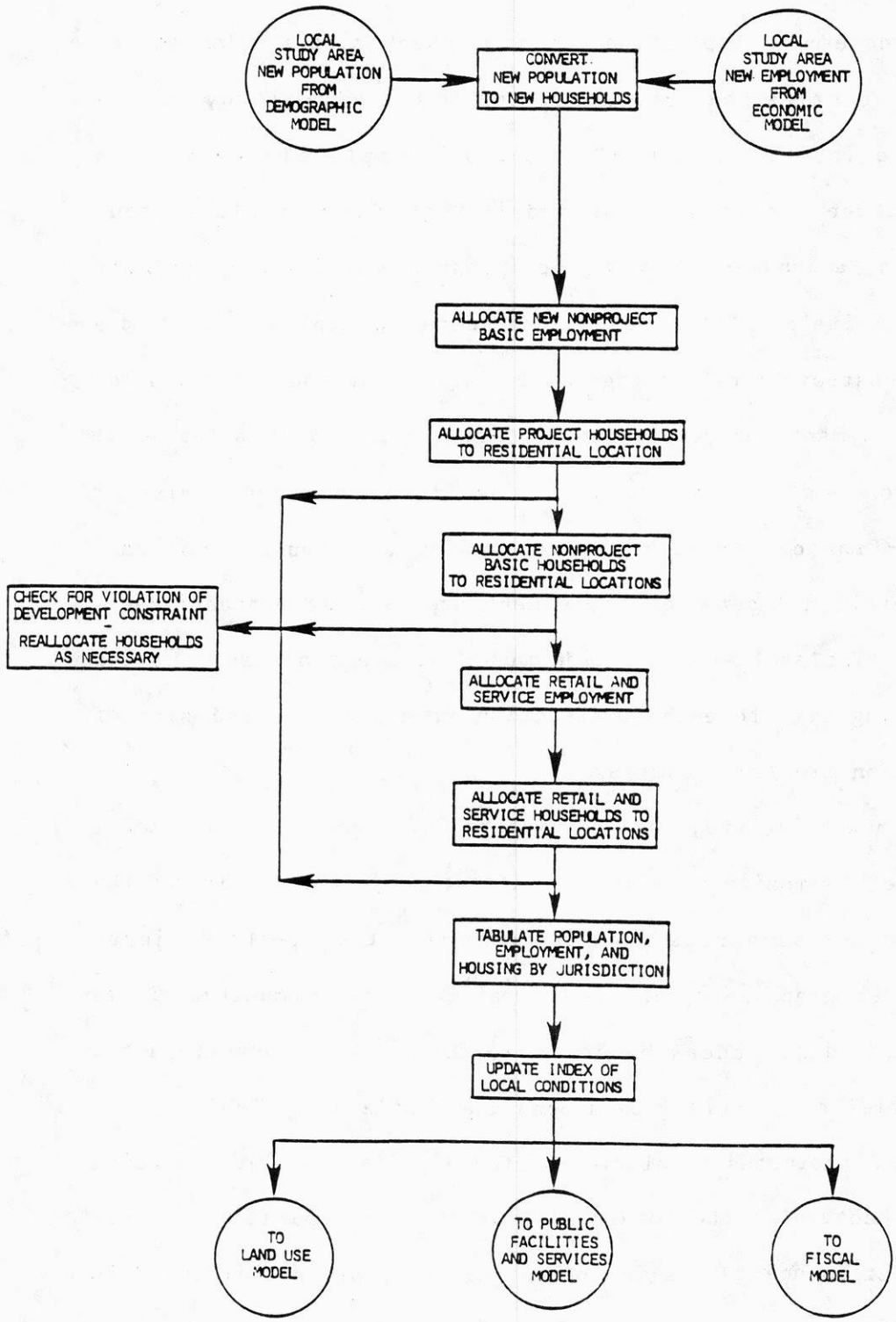
Wisconsin counties (Voss and Fuguitt, 1979). These same characteristics are assumed for with-project workers in indirect jobs.

To determine population and employment distribution to the various counties and municipalities in the local study area, a spatial allocation model (RPC, 1982a) is employed (see Housing and Land Use Analysis). The model (Figure 3-3) includes four submodels, a dynamic index of local characteristics (e.g. primary housing units and total retail and services employment), and a set of constraints reflecting local development controls to allocate employment and population to jurisdictions within the local study area (e.g. constraints resulting from annexation limits or housing-finance restrictions). Total primary housing units and total retail and services employment are used as attractiveness factors. The spatial allocation model also employs as a factor the driving time to each jurisdiction from the proposed site of the Crandon mine/mill complex.

By measuring projected population differences in each local study area community between the without-project scenario and the with-project scenarios, we can determine the likely Project-related demographic impacts as they affect each community. These population differences by scenario for 16 of the most-impacted communities are provided in Appendix A, Table A-1. Table A-2 of Appendix A indicates population differences for each jurisdiction as a percentage of the total local study area population. Population difference tables for other jurisdictions not included in

FIGURE 3-3

SPATIAL ALLOCATION MODEL FOR NEW POPULATION



SOURCE: Research and Planning Consultants, Inc.

Appendix A of this report are provided in the separate volume titled, "Forecast of Future Conditions Data Summary."

Projections concerning spatial allocation of population to local study area jurisdictions are based on the assumption that current conditions will continue. However, a government policy change by one jurisdiction may alter to some degree the conditions in that or other jurisdictions. Local government actions, taken singularly or collectively, can alter substantially the real world and result in conditions much different than forecast by the models. As an example, the institution of mobile-home restrictions by a jurisdiction would affect projections relating to population, economy, and housing in that jurisdiction and in other jurisdictions. So, current (1980) housing and land use restrictions by local government jurisdictions are major assumptions in the Demographic Analysis.

WITHOUT-PROJECT FORECAST (1980-2016)

Population Characteristics

Of the three counties within the local study area, Oneida had the largest population (30,379) in 1979, followed by Langlade (19,797) and Forest counties (8,713) (RPC, 1981e). This information and the information following in the next two paragraphs are derived from the "Report on Current Conditions" (RPC, 1981e). The local study area population is predominantly rural, while

Wisconsin's population is predominantly urban (RPC, 1981e). The local study area population is almost entirely white, although it has a higher proportion of Native Americans and a lower proportion of blacks than Wisconsin as a whole. The median age for the local study area population, ranging from 29.5 years to 32.3 years for the counties, is higher than the state median age (27.2). This results from the higher proportion of local study area population over the age of 65. In recent years, the proportion of school-age population (20.9 percent) has decreased below the state average (21.4 percent), while, overall, the local study area population has grown at almost twice the state rate (11.3 percent versus 6.0 percent over the last 10 years).

The local study area is characterized by a stable, mature, homogeneous population. Inmigration of older individuals, most of whom are not in the labor force, has been an important demographic factor during the 1970s and should continue to be throughout the forecast period. This suggests that demands for health care services will increase.

The inmigration of an older population, essentially composed of consumers supported by private and government transfer payments, has stimulated the services and retail sectors of the local study area economy. However, this additional economic activity has not produced the sort of employment and career opportunities to allow many residents entering the work force to find jobs with attractive wage and career potential.

Table 3-1 shows expected population growth in the local study area without the proposed Crandon Project. Without the development of the Crandon Project, population in the local study area is expected to increase slowly throughout the forecast period, growing from 51,690 in 1980 to 59,044 in 2016, a total increase of 14.2 percent.

The forecast annual growth rates projected by RPC for the local study area (Figure 3-4) are consistent with the long-term historical pattern of population growth in the local study area. From 1950 to 1980, the local study area grew in population at an annual rate of 0.31 percent. RPC projections indicate that population will grow during the forecast period at an annual rate of 0.37 percent. Recently (1970 to 1980), the local study area has grown more rapidly (1.2 percent annually) than in previous years. The growth is projected to continue at a more moderate pace from 1980 to 1990 and will slow even more thereafter.

During the 1980s, the local study area is projected to grow at an annual rate of 0.6 percent. This annual rate of growth is less than the 1.2 percent experienced during the 1970s, but is higher than the 30-year span preceding 1980. Our forecasts indicate that the employment-related migration which the local study area experienced during the 1970s will slow during the 1980s. After the 1980s, employment-related migration is not substantial. The majority of population growth after 1990 is attributable to retirement-aged migration and natural increase.

TABLE 3-1

WITHOUT PROJECT SCENARIO

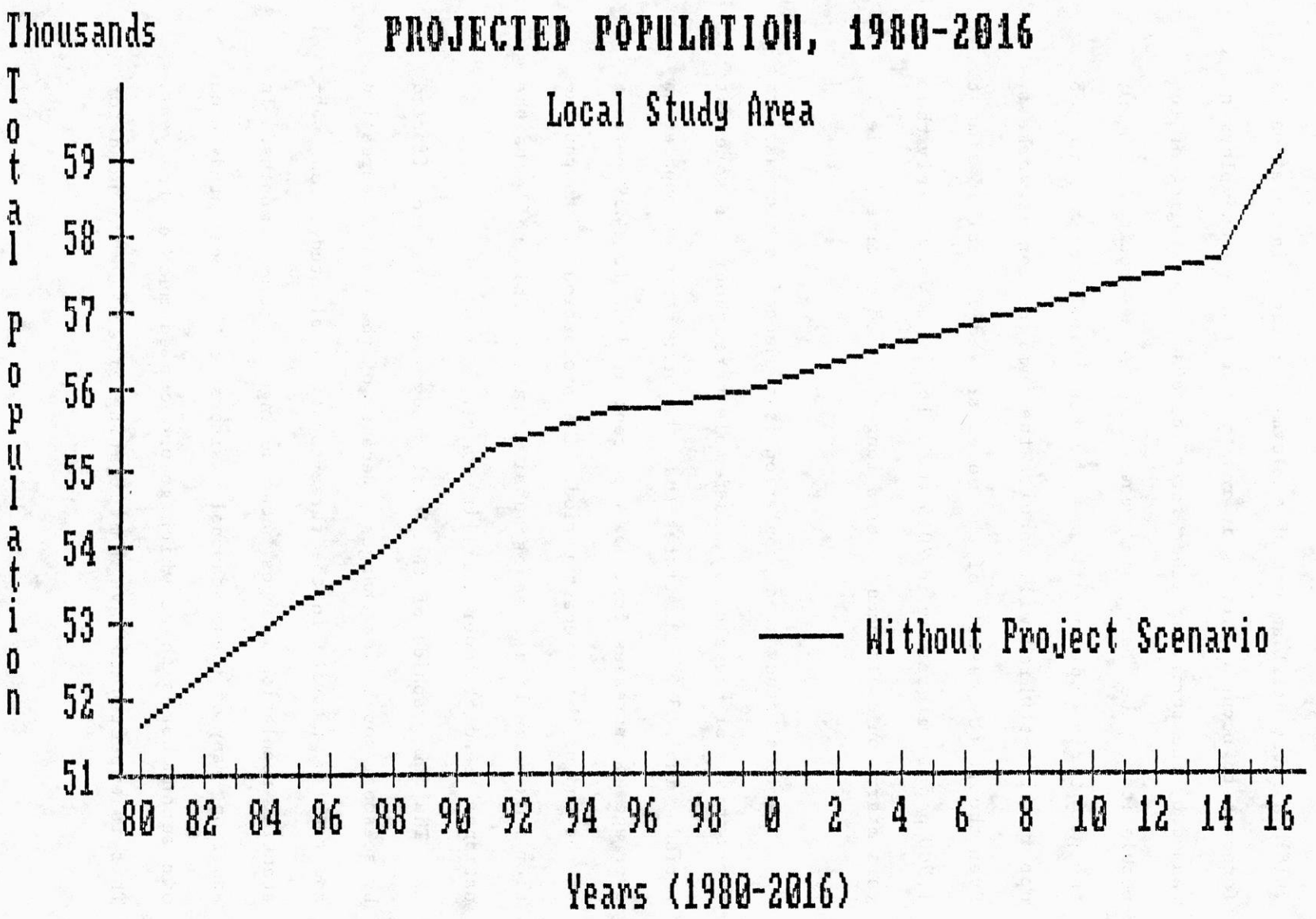
COMPONENTS OF POPULATION CHANGE

	BIRTHS	DEATHS	NET NATURAL INCREASE	EMPLOYMENT RELATED MIGRATION	OTHER MIGRATION	TOTAL MIGRATION	TOTAL POPULATION CHANGE	POPULATION
1980	0	0	0	46	1	47	47	51690
1981	795	590	205	4	129	133	338	52028
1982	779	607	172	0	131	131	303	52331
1983	822	622	200	9	133	142	342	52673
1984	771	635	136	13	135	148	284	52957
1985	778	639	139	17	136	153	292	53249
1986	783	649	134	-45	135	90	224	53473
1987	781	659	122	10	133	143	265	53738
1988	778	668	110	101	133	234	344	54082
1989	772	676	96	141	132	273	369	54451
1990	742	675	67	166	131	297	364	54815
1991	733	685	48	232	129	361	409	55224
1992	722	694	28	9	125	134	162	55386
1993	714	702	12	10	123	133	145	55531
1994	704	707	-3	10	121	131	128	55659
1995	645	701	-56	10	119	129	73	55732
1996	639	704	-65	9	119	128	63	55794
1997	633	707	-74	10	118	128	54	55849
1998	632	709	-77	11	117	128	51	55900
1999	632	710	-78	10	116	126	48	55948
2000	713	710	3	10	116	126	129	56077
2001	714	710	4	9	117	126	130	56207
2002	711	711	0	10	117	127	127	56334
2003	714	712	2	9	118	127	129	56463
2004	714	713	1	10	119	129	130	56593
2005	687	702	-15	8	120	128	113	56706
2006	686	705	-19	10	120	130	111	56817
2007	686	707	-21	9	121	130	109	56926
2008	685	710	-25	10	121	131	106	57032
2009	684	712	-28	8	122	130	102	57134
2010	704	706	-2	9	122	131	129	57263
2011	699	711	-12	8	125	133	121	57384
2012	690	717	-27	9	127	136	109	57493
2013	683	723	-40	9	130	139	99	57592
2014	676	728	-52	8	133	141	89	57681
2015	666	723	-57	658	143	801	744	58425
2016	668	732	-64	538	145	683	619	59044

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

FIGURE 3-4



SOURCE: Research and Planning Consultants, Inc.

In the last two years of the forecast period (2015 and 2016), a substantial amount of employment-related inmigration is forecast to occur. This is in response to the low unemployment caused by the shrinking labor force (because of the aging of the population as the "baby boom" generation reaches retirement age), the growth in employment, and the resulting increase in job opportunities which will require the inmigration of workers. Even though the results of the model showed a total of almost 1,500 people migrating in 2015 and 2016, it is very likely that this migration could occur over a longer period of time (Table 3-1).

The local study area population is projected to increase its proportions of the elderly and female throughout the forecast period. Table 3-2 illustrates that the proportion of population over age 45 increases from 35.94 percent in 1980 to 44.39 percent at the end of the forecast period. The proportion of the population under age 18 decreases substantially. This reflects the national trend of lower fertility rates.

The demographics of the local study area also are affected by seasonal population changes. Because of the strong recreation and tourism activity in the three-county local study area, substantial population changes occur during the summer months. In addition, many of these seasonal visitors to the local study area own second homes there which go unoccupied much of the year. This is expected to have a mitigating effect on the need for

TABLE 3-2

LOCAL STUDY AREA
PERCENT OF POPULATION BY AGE GROUP AND SEX
WITHOUT-PROJECT SCENARIO

Year	0 - 18	19 - 44	45 - 64	65+	Male	Female
1980	31.31	32.75	20.44	15.50	49.48	50.52
1985	27.76	36.41	18.83	17.00	49.28	50.72
1990	26.31	38.36	17.97	17.36	49.13	50.87
1995	25.71	38.56	18.69	17.04	49.03	50.97
2000	24.49	38.34	20.49	16.68	48.94	51.06
2005	23.42	38.00	22.01	16.57	48.89	51.11
2010	22.51	35.19	25.69	16.60	48.81	51.19
2016	22.79	32.82	27.08	17.31	48.80	51.20

SOURCE: Research and Planning Consultants, Inc.

additional housing if the Crandon Project is developed. This will be explored at greater length in the Housing and Land Use Analysis.

Population Distribution

As mentioned earlier in this chapter, RPC's spatial allocation model (RPC, 1982a) is used to distribute population by type to jurisdictions within the local study area. The attractiveness factors built into this model are total primary housing units and total retail and services employment. Commuting time also is a factor in the spatial allocation model.

This model is based on current conditions in the local study area jurisdictions. Changes in local government policies, such as changes in restrictions on certain types of housing, would affect these projections.

Again, as indicated in the Introduction, the three counties included in the local study area are only partial counties, with two Forest County towns, two Langlade County towns, and six Oneida County towns excluded from the local study area. Table 3-3 indicates the forecast population growth for the local study area for without- and with-project futures. Individual forecasts for each year and each jurisdiction are provided in Tables A-1 and A-2 of Appendix A. Local study area population in Oneida County is forecast to increase from 23,825 persons in 1980 to approximately 29,500 persons in 2016 (Appendix A, Table A-1).

TABLE 3-3

POPULATION
DIFFERENCE TABLE

YEAR	SCENARIO 0 W-0 PROJ. TOTAL	SCENARIO 1 MINIMUM IMPACT TOTAL	DIFFERENCE	PERCENT	SCENARIO 2 MOST LIKELY IMPACT TOTAL	DIFFERENCE	PERCENT	SCENARIO 3 MAXIMUM IMPACT TOTAL	DIFFERENCE	PERCENT
1980	51690	51690	0	0.0	51690	0	0.0	51690	0	0.0
1981	52028	52028	0	0.0	52028	0	0.0	52028	0	0.0
1982	52331	52331	0	0.0	52331	0	0.0	52331	0	0.0
1983	52673	52673	0	0.0	52673	0	0.0	52673	0	0.0
1984	52957	52957	0	0.0	52957	0	0.0	52957	0	0.0
1985	53249	53900	652	1.2	54096	848	1.6	54207	958	1.8
1986	53473	55522	2049	3.8	56003	2530	4.7	56327	2854	5.3
1987	53738	56167	2429	4.5	56602	2865	5.3	56904	3167	5.9
1988	54082	57759	3678	6.8	58500	4418	8.2	59024	4942	9.1
1989	54451	58784	4333	8.0	59619	5168	9.5	60246	5795	10.6
1990	54815	57391	2576	4.7	57783	2968	5.4	58168	3353	6.1
1991	55224	57531	2307	4.2	57862	2638	4.8	58232	3008	5.4
1992	55386	57422	2037	3.7	57714	2328	4.2	58070	2684	4.8
1993	55531	57914	2384	4.3	58264	2733	4.9	58664	3133	5.6
1994	55659	57957	2299	4.1	58301	2643	4.7	58689	3030	5.4
1995	55732	57840	2109	3.8	58168	2436	4.4	58532	2801	5.0
1996	55794	57636	1842	3.3	57888	2094	3.8	58164	2370	4.2
1997	55849	57557	1708	3.1	57751	1902	3.4	57962	2113	3.8
1998	55900	57608	1708	3.1	57802	1903	3.4	58008	2108	3.8
1999	55948	57656	1708	3.1	57850	1902	3.4	58051	2103	3.8
2000	56077	57784	1708	3.0	57978	1902	3.4	58176	2099	3.7
2001	56207	57913	1706	3.0	58106	1900	3.4	58301	2094	3.7
2002	56334	58040	1706	3.0	58233	1900	3.4	58426	2092	3.7
2003	56463	58172	1709	3.0	58366	1903	3.4	58558	2095	3.7
2004	56593	58307	1714	3.0	58501	1909	3.4	58693	2101	3.7
2005	56706	58427	1721	3.0	58622	1916	3.4	58815	2109	3.7
2006	56817	58547	1730	3.0	58743	1925	3.4	58937	2120	3.7
2007	56926	58665	1739	3.1	58862	1936	3.4	59058	2132	3.7
2008	57032	58784	1752	3.1	58982	1950	3.4	59180	2148	3.8
2009	57134	58899	1765	3.1	59098	1964	3.4	59299	2165	3.8
2010	57263	59045	1781	3.1	59246	1983	3.5	59449	2185	3.8
2011	57384	59183	1799	3.1	59387	2003	3.5	59591	2207	3.8
2012	57493	58924	1431	2.5	59085	1592	2.8	59231	1738	3.0
2013	57592	58736	1144	2.0	58865	1273	2.2	58993	1401	2.4
2014	57681	58834	1153	2.0	58963	1283	2.2	59092	1411	2.4
2015	58425	58928	503	0.9	59059	634	1.1	59188	763	1.3
2016	59044	59011	-33	-0.0	59143	99	0.2	59273	229	0.4

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

This will lead to Oneida County jurisdictions increasing their share of total local study area population from 46 percent in 1980 to 50 percent in 2016 (Appendix A, Table A-2). Most of the population growth in Oneida County is forecast for the four towns surrounding Rhinelander.

However, for two reasons, the City of Rhinelander is forecast to continue its historic trend of decreasing population. First, Rhinelander's inability to annex additional territory without voter approval from neighboring towns will restrict the amount of residential development available within the city's corporate limits. Second, if the local study area population reflects national trends in decreasing household size, this would lead to reductions in the size of current households residing in Rhinelander and in the size of future households locating in the city. This is expected to result in Rhinelander's reduced population.

Local study area population located in Forest and Langlade counties is projected to increase over the forecast period. However, projected population increases in these counties in the without-project forecast are less than that for Oneida County. Local study area population located in Forest County is forecast to increase from 8,348 in 1980 to 8,603 in 2016 (Appendix A, Table A-1). Most of this increase would occur in the City of Crandon and in the towns of Laona and Wabeno (Appendix A, Table A-1). Population growth in Forest County is expected to be

slower than that for the entire local study area. As a result of this, Forest County's share of total local study area population is projected to decrease from approximately 16 percent in 1980 to 14.5 percent in 2016 (Appendix A, Table A-2).

Like Forest County, population located in Langlade County is forecast to increase, but at a rate slightly slower than that of the local study area. Local study area population located in Langlade County is projected to increase from 19,517 in 1980 to approximately 20,900 in 2016 (Appendix A, Table A-1). Most of this growth is expected to occur in the City of Antigo. Since Langlade County's population growth is forecast to be slower than that of the local study area, its share of total local study area population would decrease over time, from approximately 38 percent in 1980 to 35.5 percent in 2016 (Appendix A, Table A-2).

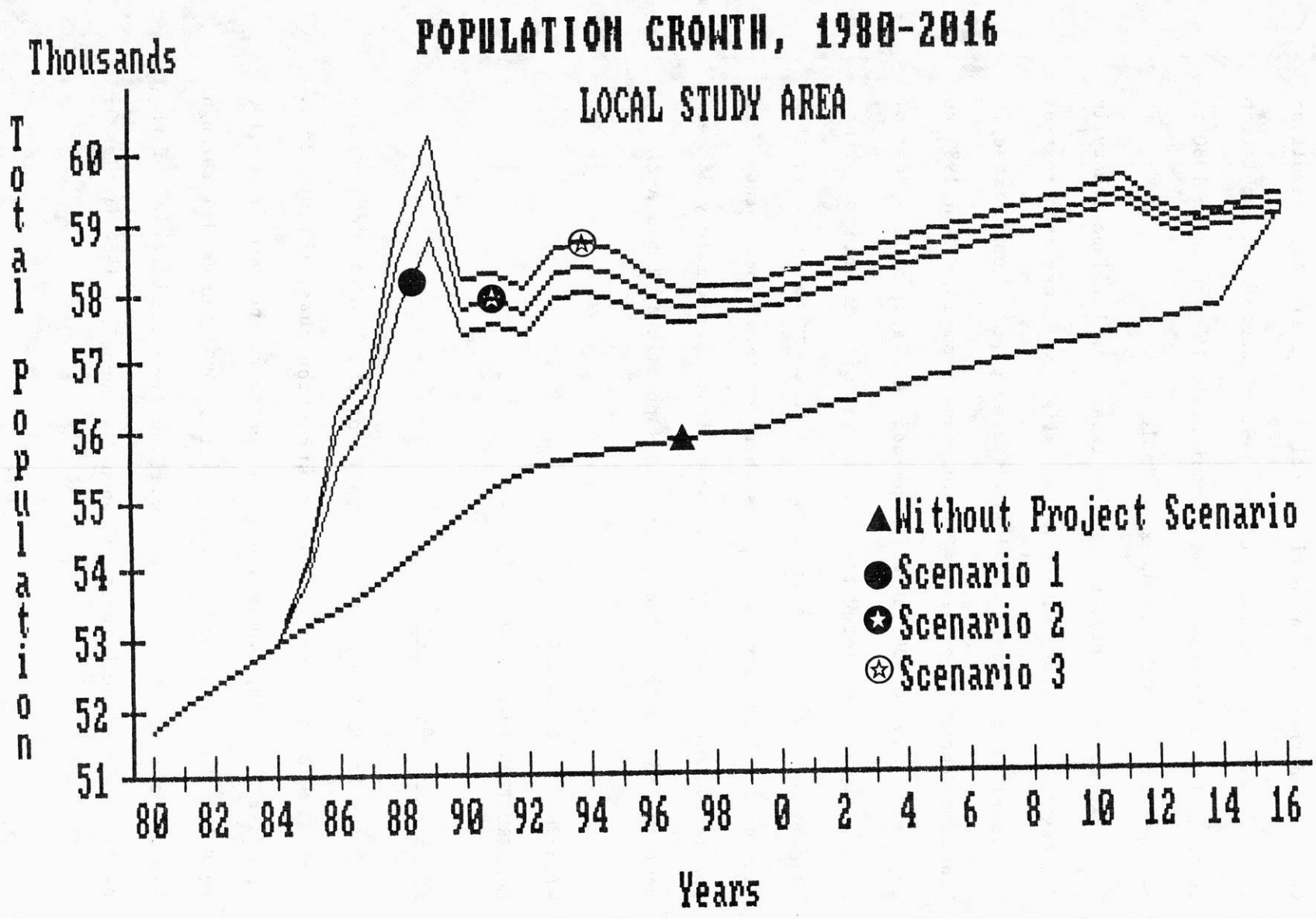
WITH-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

Population Characteristics

The largest population effects of the Crandon Project are forecast to occur during the construction phase (Figure 3-5). From 1980 to 1989, population is projected to increase from 7,100 to 8,600 above the 1980 population of 51,690 (Tables 3-4 through 3-6). Most of this increase will be from inmigration of the Project-related work force and should occur after 1984 (Tables 3-

FIGURE 3-5



SOURCE: Research and Planning Consultants, Inc.

TABLE 3-4

SCENARIO 1

COMPONENTS OF POPULATION CHANGE

	BIRTHS	DEATHS	NET NATURAL INCREASE	EMPLOYMENT RELATED MIGRATION	OTHER MIGRATION	TOTAL MIGRATION	TOTAL POPULATION CHANGE	POPULATION
1980	0	0	0	46	1	47	47	51690
1981	795	590	205	4	129	133	338	52028
1982	779	607	172	0	131	131	303	52331
1983	822	622	200	9	133	142	342	52673
1984	771	635	136	13	135	148	284	52957
1985	778	639	139	664	140	804	943	53900
1986	796	650	146	1333	142	1475	1621	55522
1987	822	660	162	345	138	483	645	56167
1988	821	671	150	1302	141	1443	1593	57759
1989	840	680	160	728	137	865	1025	58784
1990	821	681	140	-1656	123	-1533	-1393	57391
1991	772	692	80	-67	127	60	140	57531
1992	758	701	57	-288	122	-166	-109	57422
1993	748	708	40	325	127	452	492	57914
1994	744	714	30	-108	121	13	43	57957
1995	682	708	-26	-210	119	-91	-117	57840
1996	673	711	-38	-278	112	-166	-204	57636
1997	663	713	-50	-160	130	-30	-80	57557
1998	660	715	-55	-12	118	106	51	57608
1999	660	717	-57	-12	117	105	48	57656
2000	744	716	28	-16	117	101	129	57784
2001	745	718	27	-17	118	101	128	57913
2002	743	719	24	-15	118	103	127	58040
2003	745	720	25	-11	119	108	133	58172
2004	745	721	24	-9	120	111	135	58307
2005	717	711	6	-8	122	114	120	58427
2006	716	714	2	-4	122	118	120	58547
2007	714	717	-3	-2	123	121	118	58665
2008	713	720	-7	2	124	126	119	58784
2009	710	723	-13	4	124	128	115	58899
2010	731	716	15	6	125	131	146	59045
2011	724	723	1	10	128	138	139	59183
2012	715	729	-14	-375	130	-245	-259	58924
2013	700	734	-34	-338	184	-154	-188	58736
2014	690	736	-46	8	135	143	97	58834
2015	681	732	-51	7	138	145	94	58928
2016	673	740	-67	8	142	150	83	59011

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

TABLE 3-5

SCENARIO 2

COMPONENTS OF POPULATION CHANGE

	BIRTHS	DEATHS	NET NATURAL INCREASE	EMPLOYMENT RELATED MIGRATION	OTHER MIGRATION	TOTAL MIGRATION	TOTAL POPULATION CHANGE	POPULATION
1980	0	0	0	46	1	47	47	51690
1981	795	590	205	4	129	133	338	52028
1982	779	607	172	0	131	131	303	52331
1983	822	622	200	9	133	142	342	52673
1984	771	635	136	13	135	148	284	52957
1985	778	639	139	860	141	1001	1140	54096
1986	801	650	151	1611	144	1755	1906	56003
1987	836	661	175	286	139	425	600	56602
1988	831	672	159	1596	143	1739	1898	58500
1989	858	681	177	804	138	942	1119	59619
1990	841	682	159	-2117	122	-1995	-1836	57783
1991	778	693	85	-134	127	-7	78	57862
1992	764	702	62	-332	122	-210	-148	57714
1993	753	708	45	377	128	505	550	58264
1994	750	715	35	-120	122	2	37	58301
1995	688	709	-21	-231	119	-112	-133	58168
1996	679	713	-34	-358	112	-246	-280	57888
1997	668	714	-46	-223	132	-91	-137	57751
1998	663	715	-52	-14	118	104	52	57802
1999	663	717	-54	-17	118	101	47	57850
2000	747	717	30	-18	117	99	129	57978
2001	749	719	30	-20	118	98	128	58106
2002	746	720	26	-17	118	101	127	58233
2003	749	721	28	-14	119	105	133	58366
2004	749	722	27	-12	120	108	135	58501
2005	720	712	8	-10	122	112	120	58622
2006	719	715	4	-5	122	117	121	58743
2007	718	718	0	-4	123	119	119	58862
2008	716	721	-5	1	124	125	120	58982
2009	713	724	-11	3	125	128	117	59098
2010	734	718	16	7	125	132	148	59246
2011	727	724	3	10	128	138	141	59387
2012	718	730	-12	-421	131	-290	-302	59085
2013	702	736	-34	-376	190	-186	-220	58865
2014	692	737	-45	7	136	143	98	58963
2015	682	733	-51	8	138	146	95	59059
2016	675	741	-66	8	142	150	84	59143

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

TABLE 3-6

SCENARIO 3

COMPONENTS OF POPULATION CHANGE

	BIRTHS	DEATHS	NET NATURAL INCREASE	EMPLOYMENT RELATED MIGRATION	OTHER MIGRATION	TOTAL MIGRATION	TOTAL POPULATION CHANGE	POPULATION
1980	0	0	0	46	1	47	47	51690
1981	795	590	205	4	129	133	338	52028
1982	779	607	172	0	131	131	303	52331
1983	822	622	200	9	133	142	342	52673
1984	771	635	136	13	135	148	284	52957
1985	778	639	139	969	142	1111	1250	54207
1986	805	650	155	1818	147	1965	2120	56327
1987	844	661	183	256	139	395	578	56904
1988	837	672	165	1810	145	1955	2120	59024
1989	870	682	188	894	140	1034	1222	60246
1990	854	683	171	-2369	120	-2249	-2078	58168
1991	784	694	90	-153	127	-26	64	58232
1992	770	702	68	-353	122	-231	-163	58070
1993	760	709	51	415	128	543	594	58664
1994	758	716	42	-138	121	-17	25	58689
1995	696	710	-14	-261	119	-142	-156	58532
1996	686	713	-27	-452	111	-341	-368	58164
1997	674	715	-41	-294	132	-162	-203	57962
1998	668	716	-48	-24	118	94	46	58008
1999	668	718	-50	-24	117	93	43	58051
2000	752	718	34	-26	117	91	125	58176
2001	754	719	35	-27	117	90	125	58301
2002	751	720	31	-24	118	94	125	58426
2003	753	722	31	-18	119	101	132	58558
2004	753	723	30	-15	120	105	135	58693
2005	724	713	11	-12	122	110	121	58815
2006	722	715	7	-7	122	115	122	58937
2007	721	718	3	-5	123	118	121	59058
2008	719	721	-2	0	124	124	122	59180
2009	715	724	-9	2	125	127	118	59299
2010	736	718	18	7	125	132	150	59449
2011	729	724	5	10	128	138	143	59591
2012	720	731	-11	-477	128	-349	-360	59231
2013	703	736	-33	-383	178	-205	-238	58993
2014	693	738	-45	8	136	144	99	59092
2015	684	734	-50	7	139	146	96	59188
2016	676	742	-66	9	142	151	85	59273

NOTE:
NUMBERS MAY NOT ADD DUE TO ROUNDING

SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC.

4 through 3-6). In addition, the forecast population growth is a result of net natural increases and the inmigration of people not of working age during this time period. From 1984 to 1989, population in the local study area is projected to increase at an annual rate of between 2.1 to 2.6 percent. This rate of growth is slightly higher than the annual rate of 1.4 percent experienced in the local study area in the 1970s; however, it is still far less than the 10 percent annual rate of growth or 5 percent sustained rate of growth associated with "boomtown" developments.

Certain conditions usually are associated with the "boomtown" situation and, in the localities which have come to be known as boomtowns (such as the Wyoming communities of Gillette and Rock Springs), these conditions can be discerned in the communities prior to the activity or development which sets off a boomtown period. By comparing the predevelopment conditions of boomtowns with the current conditions in the local study area, it is possible to determine the likelihood of the Crandon Project creating a boomtown situation.

As mentioned earlier, a boomtown situation usually is associated with short-term 10-percent or sustained 5-percent annual population growth rates which have the effect of straining public services and social structures. Other predevelopment factors associated with boomtowns include:

- An underdeveloped system of public facilities and services, which might include a shortage in water and wastewater treatment, crowded school facilities, and a shortage

of land where quality well water is available and which is suitable for septic tanks.

- An economic base that lacks diversity or is not yet well-established.

- An undeveloped labor market, lacking variety in the skilled trades represented or with a shortage of available labor, as in the sparsely-populated ranching economy of Wyoming.

- An incomplete home construction sector, lacking an adequate number of local contractors or lacking major housing manufacturing corporations within a 100-mile radius, coupled with a shortage of land suitable for development or largely unregulated developments or subdivisions.

- Inexperience, from a sociocultural standpoint, in absorbing even small amounts of inmigration, or being very small in area population as with Gillette, Wyoming, with a predevelopment population of 7,763 (in 1970), or Rock Springs, Wyoming, with a predevelopment population of 11,657 (in 1970).

As is clear, the local study area has conditions markedly different from those traditionally associated with a boomtown in its predevelopment stage. Accordingly, there is no reason to believe boomtown conditions will develop in the local study area.

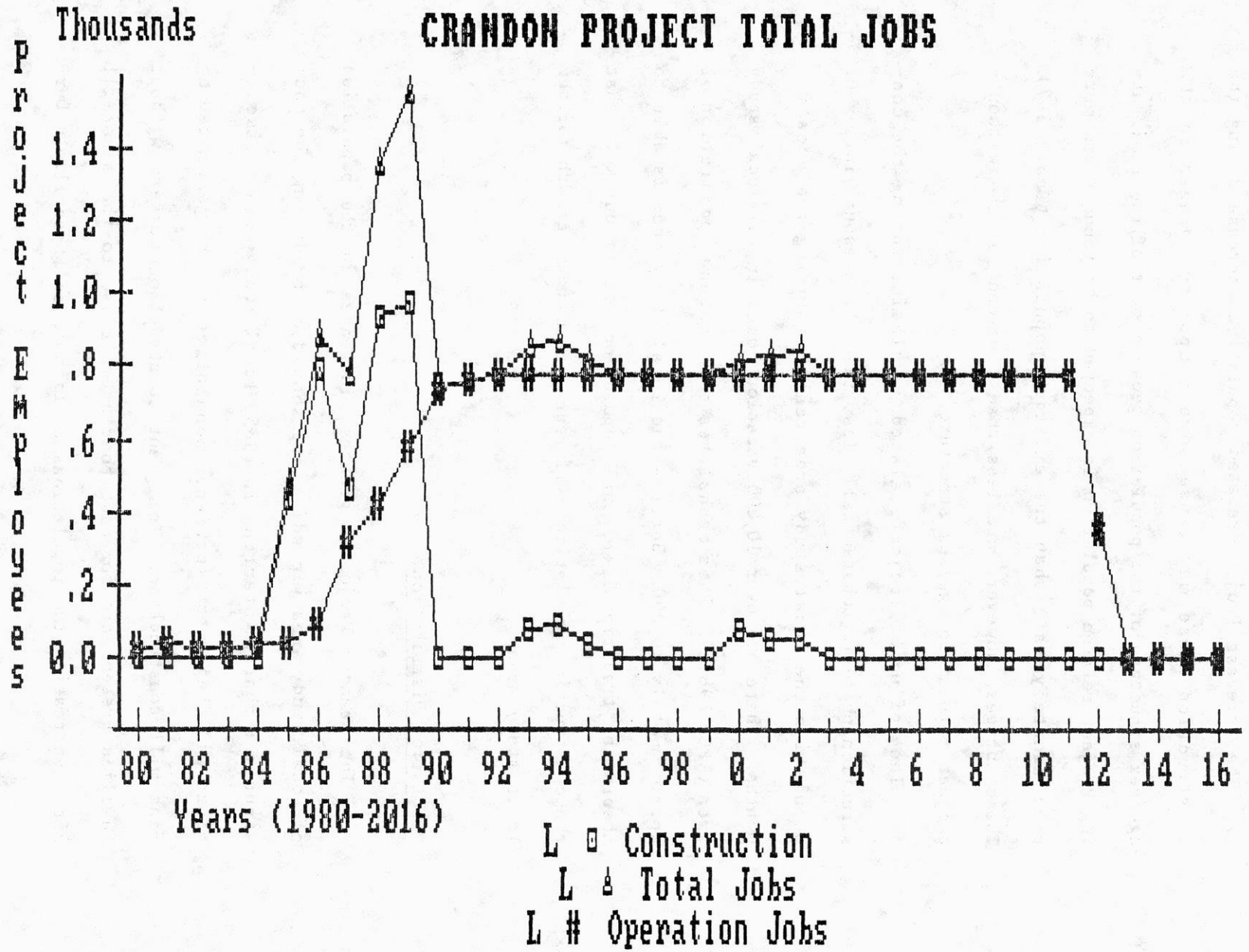
Research and experience have shown that most workers will choose residential locations within one hour to 1-1/2 hours from the sites of major industrial developments. In the western communities like Gillette or Rock Springs, there may be only one primary residential location within 1-1/2 hours commuting time from a project site. In the local study area, more than 40 communities are located within 1-1/2 hours driving-time of the proposed site for the Project. The large number of jurisdictions where workers could settle within easy driving distance of the

Project site provides another important reason why boomtown conditions are unlikely to develop in the local study area.

Since the local study area is not projected to average more than 3 percent annually over any five-year period, the demographic projections serve to confirm that the local study area will not qualify for boomtown status under the sustained 5-percent annual growth rate standard or even under the short-term 10-percent annual growth rate criteria. This further corroborates the strong evidence against the possibility of boomtown conditions developing.

Project-related population is expected to peak in 1989, also the peak year of construction employment (Figure 3-6). (Project-related population is defined as the additional population attributed to the Project as measured by the difference between the with- and without-project scenarios.) Project-related population includes the EMC workers and their families plus secondary workers and their families. Project-related population in 1989 is forecast to range from approximately 4,300 in Scenario 1 to 5,800 in Scenario 3 (Table 3-3). This constitutes from 8.0 to 10.6 percent growth of the local study area population. This percentage (8.0 to 10.6) of the local study area population which is related to the Project is expected to be acquired over a five-year span and would not represent the type of sustained annual growth associated with the hypothetical "boomtown."

FIGURE 3-6



SOURCE: Research and Planning Consultants, Inc.

The forecast Project-related population increase during the construction phase may cause some temporary changes in the age/sex structure of the population because most of the inmigrating Project-related population is expected to be younger and more predominately male than the existing population (Table 3-7). These changes, however, are less than 1 percent of the without-project population age/sex structure.

The influx of Project-related population during the construction phase is substantially less than the seasonal influx of population the local study area realizes during the vacation months. There are over 10,000 vacation homes in the local study area (RPC, 1981e). This translates to a seasonal population of approximately 30,000. Because the local study area is able to absorb the traditional seasonal population, it is unlikely that the construction population will represent unusual growth for the local study area.

Population Distribution

The Crandon Project's greatest increases in the population of local study area jurisdictions should occur during the construction phase. Starting in 1985, local study area jurisdictions will begin to experience population growth generated by mine/mill construction. Inmigrant construction workers without families present are forecast to cluster close to the mine/mill site, increasing the populations of Lincoln and Nashville. Dur-

TABLE 3-7

CONSTRUCTION PHASE, 1989
PERCENT AND PERCENT DIFFERENCE IN POPULATION
BY AGE AND SEX UNDER DIFFERENT SCENARIOS

	Without Project	Scenario 1		Scenario 2		Scenario 3	
		Percent	Difference	Percent	Difference	Percent	Difference
0-18	26.4	27.3	0.9	27.6	1.2	27.8	1.4
19-44	38.1	38.9	0.8	38.9	0.8	39.0	0.9
45-64	18.1	17.7	-0.4	17.6	-0.5	17.5	-0.6
65+	17.3	16.1	-1.2	15.9	-1.4	15.8	-1.5
Male	49.2	49.8	0.6	49.8	0.6	49.9	0.7
Female	50.9	50.2	-0.7	50.2	-0.7	50.1	-0.8

NOTE: Numbers may not add to 100 percent as a result of rounding.

SOURCE: Research and Planning Consultants, Inc.

ing 1989, Lincoln's with-project population is expected to be from 230 to 278 persons greater than under without-project conditions (Appendix A, Table A-1). Nashville's with-project 1989 population is expected to be from 274 to 328 more than in the without-project future (Appendix A, Table A-1). Again, most of this population increase is generated by inmigrant construction workers.

Regardless of whether they are inmigrants or already residents of the local study area, the households headed by individuals who acquire Project construction jobs are expected to locate in a more dispersed fashion than inmigrant workers whose families are not present. In other words, construction workers who are single or who do not move their families into the area can be expected to locate closer to the Project site than construction workers who bring their families into the local study area. These households, along with households headed by Project operation workers who are employed at the site during the construction phase, are expected to have the greatest effects on the populations of the cities of Crandon and Antigo, and the towns of Elcho, Pelican, Pine Lake, Crescent, and Newbold. Table 3-8 displays population differences for all towns, cities and counties in the area.

Although no jurisdictions will experience boomtown-type conditions, certain jurisdictions will be impacted by Project development to a greater extent than other jurisdictions. Three

TABLE 3-8

PEAK POPULATION IMPACT BY JURISDICTION, 1989
MOST-LIKELY IMPACT SCENARIO
(SCENARIO 2)

Jurisdiction	Total 1989 Without-Project Population	Peak Impact	Percent of Total Impact	Percent of Total Jurisdiction Population	Maximum One-Year Growth Rate (Percen)	Maximum Average Annual Rate of Growth Sustained Over Five Years (Percent)
Argonne	472	34	0.66	7.20	1.86	1.40
Blackwell	383	15	0.29	3.92	1.82	0.67
Caswell	87	9	0.17	10.34	3.41	2.22
Town of Crandon	573	66	1.28	11.52	4.13	2.20
Freedom	307	37	0.72	12.05	4.28	2.24
Hiles	328	28	0.54	8.54	2.68	1.59
Laona	1,508	115	2.23	7.63	2.43	1.71
Lincoln	**579**	**249**	**4.82**	**43.01**	**16.10**	**7.31**
Nashville	**711**	**297**	**5.75**	**41.77**	**15.85**	**7.23**
Popple River	59	3	0.06	5.08	1.69	1.00
Ross	203	9	0.17	4.43	1.47	0.77
Wabeno	1,235	113	2.19	9.15	3.01	1.82
City of Crandon	**2,058**	**267**	**5.17**	**12.97**	**4.75**	**2.92**
Forest County	**8,503**	**1,242**	**24.03**	**14.61**	**2.09**	**2.90**
Ackley	643	31	0.60	4.82	1.71	0.95
Ainsworth	449	47	0.91	10.47	3.59	2.01
Town of Antigo	1,676	93	1.80	5.55	1.85	1.12
Elcho	**1,092**	**125**	**2.42**	**11.45**	**3.98**	**2.27**
Evergreen	515	24	0.46	4.66	1.74	.84
Langlade	415	30	0.58	7.23	2.13	1.41
Neva	974	54	1.04	5.54	1.85	1.06
Norwood	866	36	0.70	4.16	1.84	0.77
Parrish	87	5	0.10	5.75	2.30	1.12
Peck	424	18	0.35	4.25	1.88	0.79
Polar	829	40	0.77	4.83	1.81	0.92
Price	245	15	0.29	6.12	1.63	1.20
Rolling	1,239	54	1.04	4.36	1.77	0.82
Upham	547	47	0.91	8.59	2.85	1.63
Wolf River	912	44	0.85	4.82	1.97	0.88
City of Antigo	9,162	896	17.34	9.78	3.56	2.46
Langlade County	20,075	1,559	30.17	7.77	3.24	1.76
Crescent	**2,053**	**290**	**5.61**	**14.13**	**7.55**	**5.09**
Enterprise	279	22	0.43	7.89	2.46	1.53
Lake Tomahawk	744	46	0.89	6.18	2.02	1.23
Monico	294	25	0.48	8.50	2.93	1.71
Newbold	**2,505**	**316**	**6.11**	**12.61**	**6.32**	**4.25**
Pelican	**4,163**	**709**	**13.72**	**17.03**	**8.94**	**5.86**
Piehl	95	5	0.10	5.26	2.08	1.03
Pine Lake	**3,084**	**384**	**7.43**	**12.45**	**6.27**	**4.29**
Schoepke	402	50	0.97	12.44	4.59	2.37
Stella	492	28	0.54	5.69	1.83	1.11
Sugarcamp	1,347	67	1.30	4.97	1.86	1.01
Threelakes	1,894	164	3.17	8.66	2.95	1.78
Woodboro	553	32	0.62	5.79	2.00	1.20
Rhinelander	7,968	229	4.43	2.87	1.95	0.47
Oneida County	25,873	2,367	45.80	9.15	3.42	2.73
Study Area Total	54,451	5,168	100.00	9.49	2.30	2.40

NOTE: Lines in bold-face type represent jurisdictions identified as most-impacted.

SOURCE: Research and Planning Consultants, Inc.

criteria are used to identify those jurisdictions that are likely to experience the greatest impacts of Project development. The criteria used to select jurisdictions for special analysis are:

1. Jurisdictions containing the mine/mill complex;

2. Jurisdictions experiencing a sustained average annual growth rate in excess of 4 percent for a period of five years; or

3. Jurisdictions with populations of 1,000 or more that experience single-year growth rates in excess of 4 percent.

Although some jurisdictions with populations under 1,000 experience single-year growth rates in excess of 4 percent, they are not selected for special analysis. This is a result of the relatively small population increases associated with these one-year growth rates in small jurisdictions.

Applying these criteria to projected most-likely-case population levels (Scenario 2) results in the identification of eight jurisdictions for special analysis. These jurisdictions, along with peak population impacts, for all of the local study area's counties, towns and cities, are shown in Table 3-8. Forest County is included for analysis since the mine/mill complex is within its boundaries. The towns of Lincoln, Nashville, Crescent, Newbold, Pelican, and Pine Lake are included because they experience sustained average annual growth rates in excess of 4 percent. The City of Crandon is included since it experiences an annual population increase of over 4 percent and its population exceeds 1,000 persons. Though not identified in Table 3-8, this

chapter's text also gives special consideration to the Crandon School District because, as with Forest County, the mine/mill complex would be within its boundaries.

While they do not meet the above criteria as most-impacted jurisdictions, the cities of Rhinelander and Antigo each receive a substantial percent of the Project's total population impacts, but those impacts should be absorbed easily because the two cities are the largest in the local study area. The City of Antigo's total impact population in 1989 of 896 constitutes 17.34 percent of the total impact population for the local study area but amounts to only 9.78 percent of that city's total population. Rhinelander's peak (1989) Project impact population of 229 makes up only 2.87 percent of that city's population.

Analyzing sustained rates of growth over the five-year construction phase indicates that the towns of Lincoln and Nashville are expected to experience the highest sustained average annual growth rates of any local study area jurisdictions. Both of these towns are projected to experience growth rates of more than 7 percent. Project-related population in both towns during 1989 results in population levels approximately 46 to 48 percent greater than without-project levels. As mentioned above, much of this population impact is associated with inmigrant construction workers. Following completion of construction, population impacts experienced by these jurisdictions are reduced.

Following Lincoln and Nashville, the jurisdictions whose populations are expected to be affected most by Project development are the four towns surrounding Rhinelander: Crescent, Newbold, Pelican, and Pine Lake. All of these towns are projected to experience sustained growth rates in excess of 4 percent throughout the construction phase. Relative impacts of this population growth will be smaller than those experienced in Lincoln and Nashville. Project-related population is expected to account for only 17 percent or less of any of these four jurisdictions' populations in 1989.

Although the City of Crandon does experience an annual growth rate of nearly 5 percent, the 1989 Project-related population of 267 persons should account for approximately 13 percent of 1989 without-project population.

The Crandon School District is projected to undergo a 3.28 percent average annual growth rate in enrollments during the construction phase. By 1989, school enrollment under the most-likely scenario is projected to be an additional 230 students, or 26 percent greater than without-project levels (Figure 5-4 in Public Facilities and Services Analysis). Even with a maximum enrollment of approximately 1,100 in 1989, this is still less than the district's capacity of 1,145.

The portion of Forest County located within the local study area is expected to experience a sustained growth rate of less than 3 percent during the construction phase. By 1989, Forest

County's cumulative population increase over without-project levels is expected to total 1,392 persons, approximately 16 percent of the 1989 without-project population.

OPERATION PHASE (1990-2011)

Population Characteristics

The demographic effects of the Crandon Project during the operation phase (1990-2011) are similar to the effects forecast for the construction phase. There are, however, three important differences. First, the EMC operation work force will number approximately 800, which is approximately 750 less than the construction-phase maximum of direct jobs. Second, these will be long-term (20 years or more) jobs and not jobs of limited duration (five years or less), as during the construction phase. Third, the operation phase will not include a rapid increase of the work force, as is the case during construction. By 1990, the start of the operation phase, approximately 75 percent (or 600) of the 800-worker operation force should be hired. The result is that operation-phase population changes, while longer-lasting, are less pronounced than during the construction phase.

Over the long term, the Crandon Project is forecast to increase population from 1,700 to 2,200 more than in the without-project scenario (Table 3-3). This represents approximately 3 to 4 percent of the total local study area population. The rate of

population growth during the operation phase (1990 to 2011) is projected to be slower than during the 1980s (Figure 3-5 and Tables 3-4 through 3-6). This results primarily from four causes. First, the rate of natural population increase declines as the population ages and fertility decreases. Second, in the decade following the construction phase, there is a net loss of indirect jobs. This causes some outmigration. Third, once the construction phase is complete, many of the construction workers who inmigrated will leave the local study area as their jobs are eliminated. Unemployment rates are computed separately in the model for Project construction workers and Project-related indirect workers. These unemployment rates can increase above 13.0 percent causing outmigration of these groups even though the overall local study area unemployment rate may not cause without-project workers to outmigrate. Fourth, since most of the hiring for the Project is completed by the end of the construction phase, inmigration for employment decreases. The construction of tailings disposal facilities maintains some construction jobs during the operating life of the mine/mill complex. However, the population effects resulting from this limited number of ongoing construction jobs are minor.

Overall, the effects of the operation phase of the Project on the age and sex structure of the population are minor (Table 3-9). The Project-related population increase causes the age/sex structure of the local study area to become proportionately more

TABLE 3-9

OPERATION PHASE, 1999
PERCENT AND PERCENT DIFFERENCE IN POPULATION
BY AGE AND SEX UNDER DIFFERENT SCENARIOS

	Without Project	Scenario 1		Scenario 2		Scenario 3	
		Percent	Difference	Percent	Difference	Percent	Difference
0-18	24.7	25.0	0.3	25.0	0.3	25.0	0.3
19-44	38.4	38.6	0.2	38.6	0.2	38.7	0.2
45-64	20.1	20.1	0.0	20.1	0.0	20.0	-0.1
65+	16.8	16.4	-0.4	16.3	-0.5	16.3	-0.5
Male	49.0	49.1	0.1	49.1	0.1	49.1	0.1
Female	51.0	50.9	-0.1	50.9	-0.1	50.9	-0.1

NOTE: Numbers may not add to 100 percent as a result of rounding.

SOURCE: Research and Planning Consultants, Inc.

male and slightly younger than it would be in the without-project future.

Population Distribution

The labor market computer model indicates that, following completion of Project construction, many construction-related households are expected to leave the local study area. This will lead to decreases in Project-related population in jurisdictions where construction workers had resided previously. Outmigration of construction workers will affect most greatly the populations of Lincoln and Nashville. Project-related population in Lincoln is expected to decline by approximately 120 persons between 1989 and 1990. Nashville is expected to experience a population decrease of between 125 and 140 during this same period (Appendix A).

Population changes for most local study area jurisdictions during the operation phase should track closely the population changes experienced for the same period in the without-project scenario. However, jurisdictions in Forest and Langlade counties are projected to capture a larger proportion of total local study area population than they do in the without-project future (Appendix A, Table A-2). Much of this difference is due to relocation of without-project retail and services activity and accompanying population from jurisdictions in Oneida County to locations in Forest and Langlade counties closer to the proposed mine/mill

site and the residential locations of Project workers. Although their shares of local study area population are expected to be greater than in the without-project future, Forest and Langlade counties' shares of total population should decrease throughout the operation phase, similar to their without-project projections.

Increased population shares for Forest and Langlade counties are expected to lead to slightly decreased population shares for many Oneida County jurisdictions (Appendix A, Table A-2). In most cases, this is a result of the aforementioned relocation of retail and services activities from Oneida County, where they would be in the without-project future, to locations in Forest and Langlade counties, closer to the site of the Crandon Project. The City of Rhinelander, however, is projected to experience an absolute decrease in population from without-project levels for a different reason. Average household sizes in with-project futures are projected to be lower than those in without-project futures because increasing income creates more economic capability allowing for the formation of new households. As new households form from the existing Rhinelander population, they are likely to be unable to locate in Rhinelander because of land-availability constraints. As a result, they are projected to locate in jurisdictions surrounding Rhinelander. This process reduces Rhinelander's population in with-project futures below

the level predicted in without-project forecasts for that jurisdiction.

Rhinelander's population during the last year of the operation phase is forecast to be from 114 to 382 persons lower in with-project than in without-project futures (Appendix A, Table A-1). Combined Project-related population for the four jurisdictions surrounding Rhinelander is projected to total 576 to 790 for the year 2010 (Appendix A, Table A-1).

As Project operations continue, population impacts on individual jurisdictions are expected to be reduced. By the year 1999, Project-related population is expected to amount to 21.4 and 37.8 percent of Lincoln and Nashville's without-project populations, respectively. This is substantially lower than at the close of the construction phase. Likewise, population effects felt by the four towns surrounding Rhinelander are reduced. In 1999, Project-related population is projected to amount to approximately 7 percent of Pelican's without-project population. Population differences for Crescent, Newbold, and Pine Lake range from approximately 4 to 5 percent.

By the year 1999, Project-related population residing in the portion of Forest County within the local study area is expected to total 582 persons, or 6.8 percent of 1999 without-project population forecast (Appendix A, Table A-1). Enrollment for the Crandon School District is projected to be approximately 12.5 percent greater than under without-project conditions.

POST-OPERATION PHASE (2011-2016)

Population Characteristics

Even under the best conditions, projections concerning the post-operation phase always will be less reliable than the projections for the construction or operation phases preceding that time. So the demographic projections for the years from 2011 on can be seen best as forecasts of general trends in the population, based on current conditions.

Seen in this way, certain conditions may be predicted with confidence. We can predict, for instance, that the loss of Project-related jobs associated with closure of the mine/mill complex will result in outmigration from the local study area, as the former employees leave for other employment opportunities. We can predict with less confidence the magnitude of this outmigration. However, by the end of the forecast period (2016), five years after the Project closure, the difference in population with and without the Project is forecast to be less than one-half of 1 percent of the local study area's population (Figure 3-5 and Tables 3-4 through 3-6). The outmigration of younger people will increase the percentage of elderly in the population. Though our projections assume that no direct Project employees will be in the local study area beginning in the year 2011, it is likely that other direct Project jobs will continue at the Project site,

possibly including a caretaker crew and a few employees involved in reclamation activities.

The closure of the mine/mill complex is expected to occur at a time when the number of working-age people is declining because of reduced birth rates and an aging population (Tables 3-2 and 3-4 through 3-6). This somewhat mitigates the unemployment effects of Project closure. If, in actuality, mine/mill closure comes at a time when the working-age population is increasing with no other employment opportunities, the unemployment impacts will be substantial and could lead to high levels of sustained outmigration. The demographic effects of mine/mill closure also can be moderated by effective and timely planning activities on the part of local community leaders with emphasis on development of new employment opportunities. Given that there are approximately 25 years in which to plan for the Project closure, it should be possible to minimize any unemployment effects or other negative demographic impacts on the local study area.

Population Distribution

Following closure of the Crandon Project, populations in all local study area jurisdictions are projected to decline briefly, and then stabilize. The cities of Antigo and Rhinelander are expected to experience the greatest declines in population, with declines of approximately 85 and 75 persons, respectively (Appendix A, Table A-1).

During the post-closure period, the populations of the towns of Crescent, Newbold, Pelican, and Pine Lake are projected to decrease below without-project population levels (Appendix A, Table A-1). This would occur because the residential attractiveness of Rhinelander and surrounding towns relative to other local study area jurisdictions would be reduced in with-project futures. Reduced residential attractiveness results in slower growth rates for these jurisdictions during the with-project post-closure period than were experienced in the without-project future (Appendix A, Tables A-1 and A-2).

Population for the four towns surrounding Rhinelander is forecast to be 378 to 524 persons lower in with- than without-project futures in the year 2016 (Appendix A, Table A-1). With-project populations for the towns of Lincoln and Nashville along with the cities of Crandon and Antigo are projected to remain above without-project levels throughout the post-closure period (Appendix A, Table A-1).

4. HOUSING AND LAND USE ANALYSIS

The housing and land use analysis has two purposes. First, the analysis is needed to determine what changes in local study area housing market conditions are likely to occur as a result of development of the Crandon Project (also referred to as the "Project"). Project effects on number, type, and market price of housing units supplied are identified in order to estimate whether sufficient housing will be provided for Project-related population.

The second purpose of this analysis is to determine what changes in local study area land use patterns are likely to result from the increased population and employment levels associated with the Crandon Project. Project effects on local study area land use are measured in terms of the amount of land converted from undeveloped (i.e. forest and agricultural acreage) to developed (i.e. residential and commercial) uses. Forecasts of the amount, timing, and location of Project-induced residential, commercial, industrial, and public use development allows us to determine whether prime agricultural acreage or commercial forestland are likely to experience substantial development pressures.

The Housing and Land Use Analysis technical appendix, which is published separately from this report in the "Forecast of Future Conditions Data Summary" (EMC, 1983c), includes a comprehensive set of tables which measure projected annual land use changes by jurisdiction for each category of land use. Annual acreage levels for each land-use category (undeveloped, mercantile, residential, manufacturing, and public lands) are forecast for each jurisdiction. The technical appendix also includes tables showing projected annual changes in local study area housing stock by type for all four scenarios. These same tables for the without-project scenario and for Scenario 2 (with-project's most-likely case) are included in this chapter.

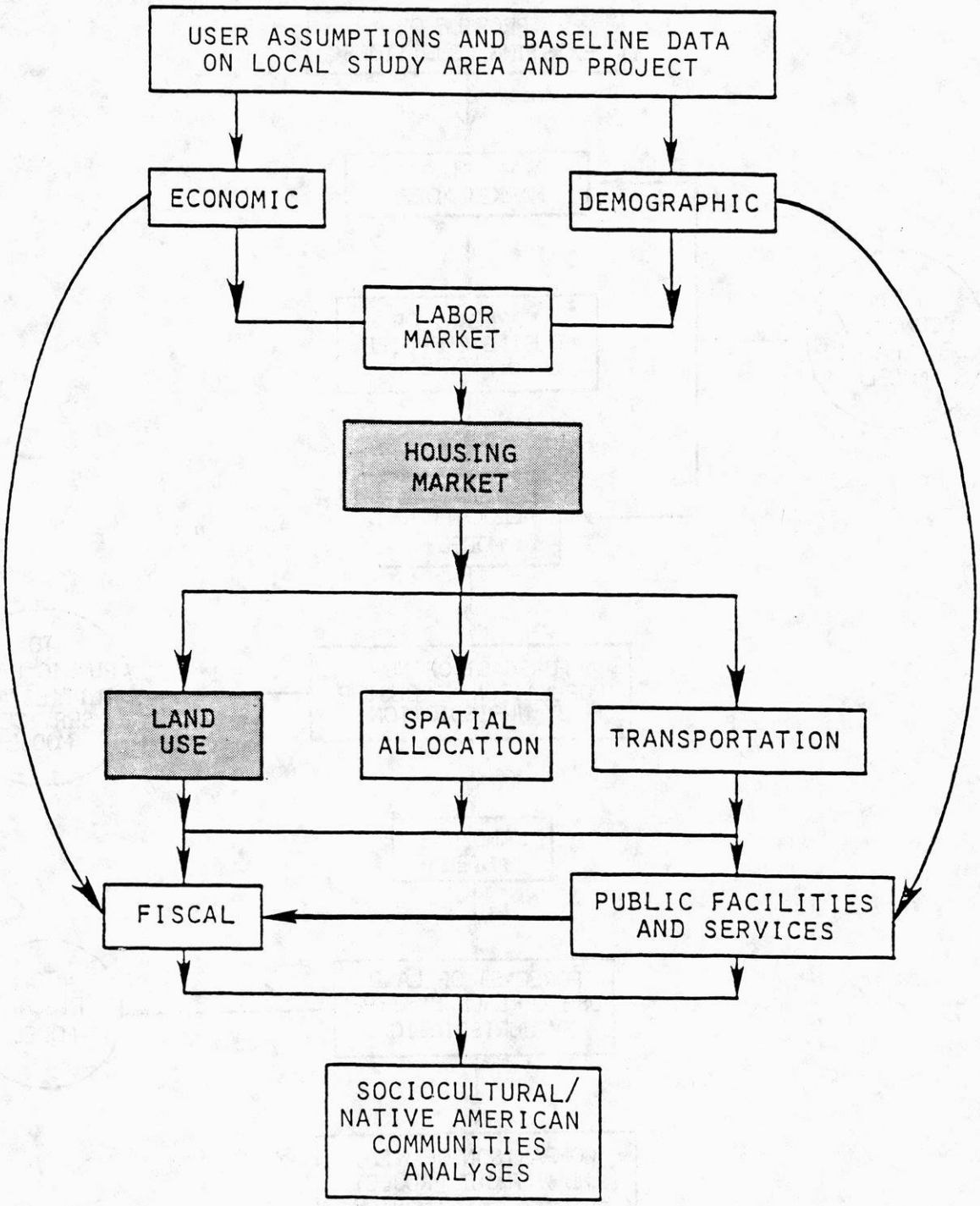
The housing and land use analysis provides a forecast of how the Crandon Project will affect the physical character of the local study area. The amount, type, and value of Project-induced development also directly affect the local study area property tax base and property tax revenues collected by local study area jurisdictions (counties, cities, secondary service centers, towns, and school districts). This information is among the data used to determine Project-related fiscal effects.

To forecast futures for the local study area, we use two computer models which are integral to our total modeling system (Figures 4-1 and 4-2). The housing market model (RPC, 1982a) assesses the housing market in the local study area (Figure 4-3). The land use model (Figure 4-4) calculates land use conversions

FIGURE 4-1

PROJECT MODEL SYSTEM

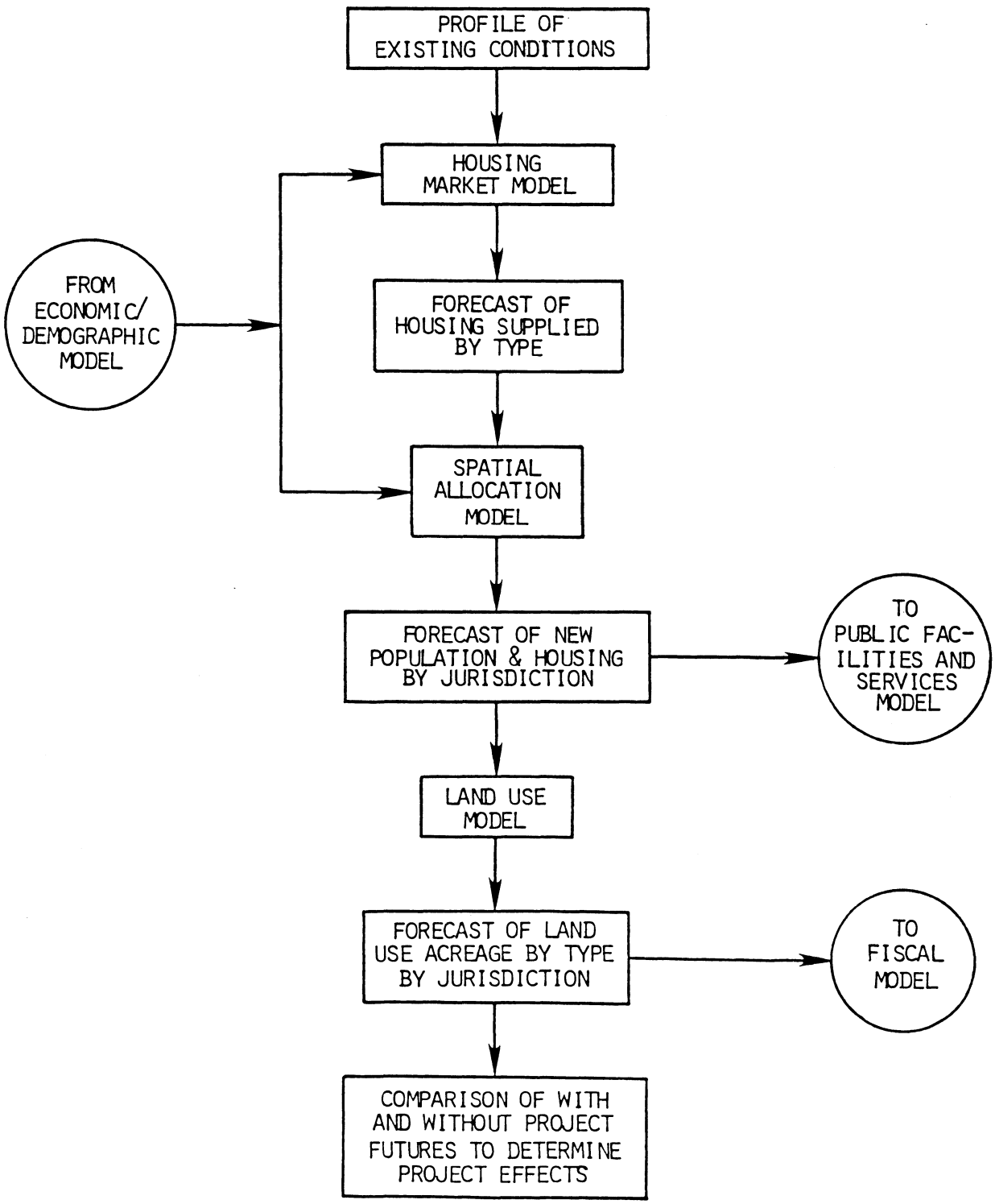
(INTERRELATIONSHIP OF MODELS AND ANALYSES)



SOURCE: Research and Planning Consultants, Inc.

FIGURE 4-2

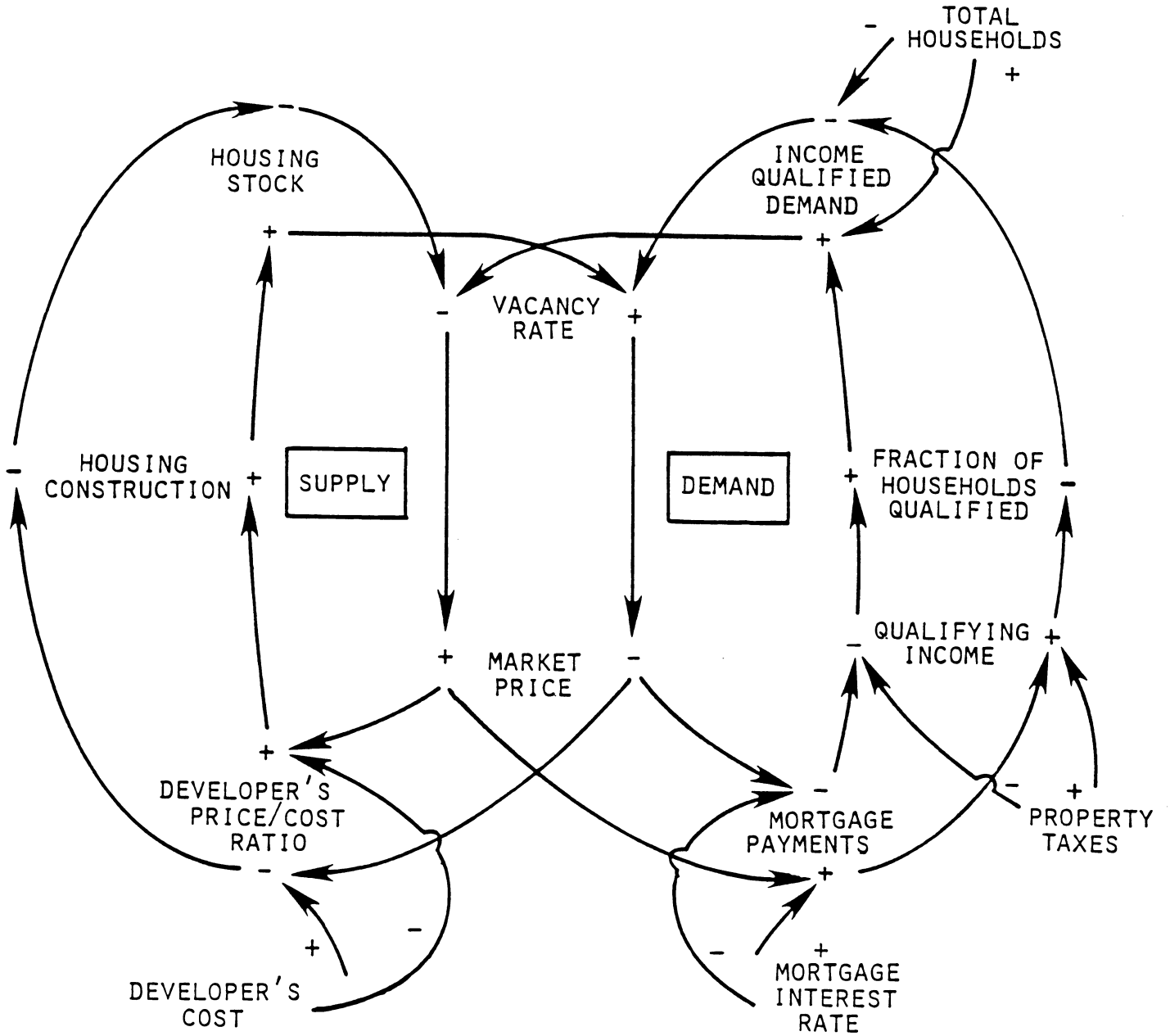
GENERAL APPROACH TO HOUSING AND LAND USE ANALYSIS



SOURCE: Research and Planning Consultants, Inc.

FIGURE 4-3

HOUSING MARKET MODEL RELATIONSHIPS

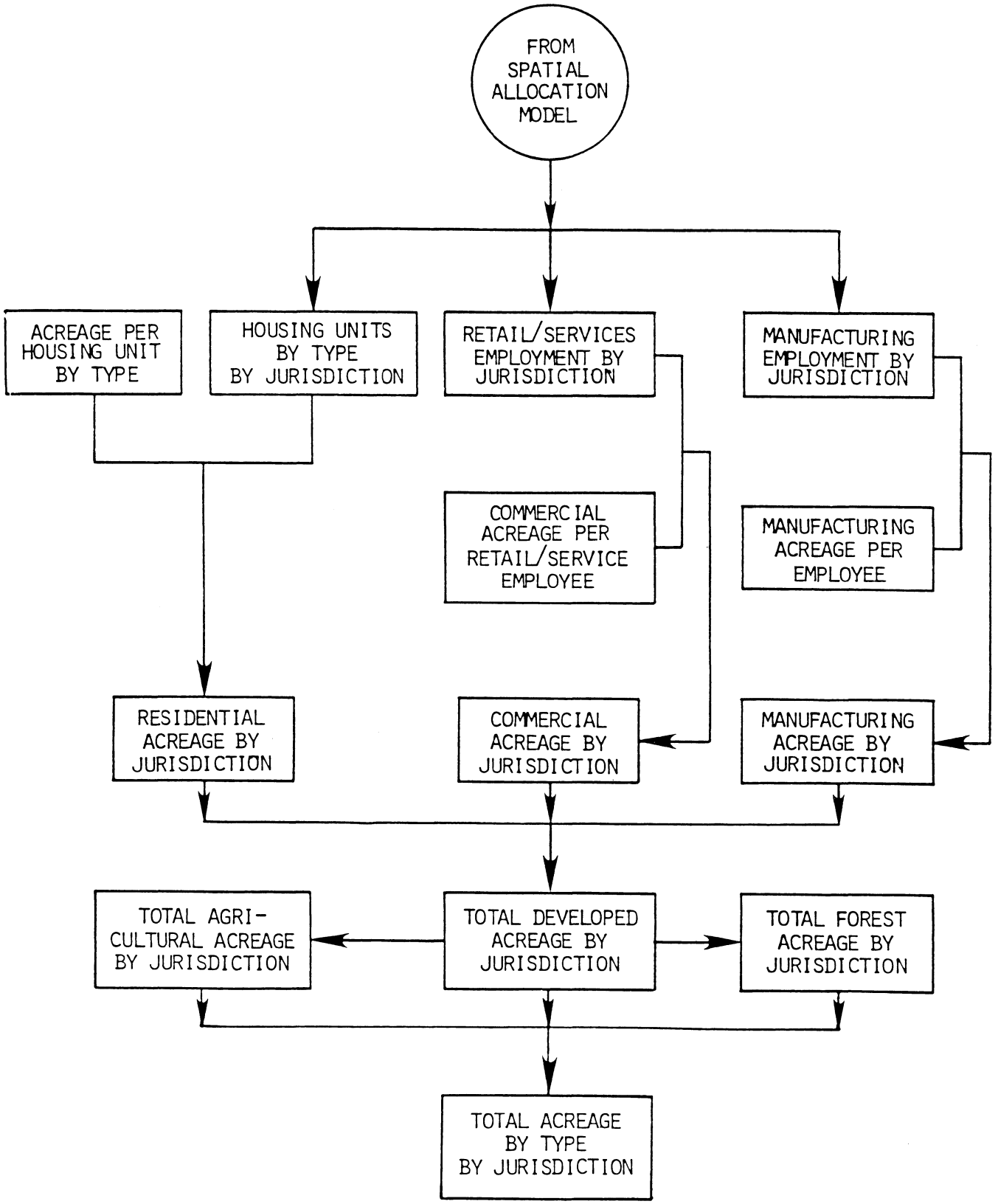


\+ INCREASE
\- DECREASE

SOURCE: Research and Planning Consultants, Inc.
(BASED ON RINK AND FORD, 1978)

FIGURE 4-4

LAND USE MODEL



SOURCE: Research and Planning Consultants, Inc.

and the effect of the changes on the property tax base (RPC, 1982a). The spatial allocation model (Figure 3-3 of the Demographic Analysis), which distributes housing to local jurisdictions (RPC, 1982a), was described in the previous chapter.

The housing market model (RPC, 1982a) is a dynamic simulation model (Rink and Ford, 1978) which produces regional housing forecasts. The model considers the behavior of homebuyers, lenders, builders, and developers in order to forecast annual demand and supply for mobile homes and permanent housing in the local study area. Local real estate professionals were consulted to obtain the most realistic data for this model. In addition, historical data were collected in an effort to measure local builder capacity.

We have gathered information describing housing supply and demand and land use patterns in the local study area. This description combines an inventory of the existing housing stock with an analysis of past trends and policies.

The housing market model assumes that given sufficient income levels, long-term residents will choose to purchase permanent housing. The demand for permanent housing rentals and mobile home purchases is generated by households that cannot afford to purchase permanent housing.

Figure 4-3 illustrates our approach to simulating the balance between supply and demand for housing. The four loops in the diagram show how housing supply and demand adjust to shifts

in permanent-housing vacancy rates and market prices. The supply loops react to housing shortages and decreasing vacancy rates when the market price of housing increases to a level where developers' expected profit margin is sufficiently large to stimulate housing construction. Increased construction, in turn, leads to increases in total housing stock and increases in vacancy rates. Increased vacancy rates deflate market prices, lowering the developer's expected profit margin. Reductions in the expected profit margin lead to reduced levels of housing construction and slower housing stock growth. This, in turn, leads to decreased vacancy rates, setting off another round of supply adjustments.

The demand loops in Figure 4-3 also respond to changes in vacancy rates and market prices. Low vacancy rates brought on by housing shortages lead to increased market prices for housing. This, in turn, results in increased mortgage payments and raises the income level necessary to qualify for permanent housing purchase. This decreases the fraction of households qualified for permament housing and the total income-qualified demand for permanent housing, resulting in increased vacancy rates that depress market prices. Lower market prices force mortgage payments to drop, decreasing qualifying income levels and increasing the fraction of families qualified for permanent housing. As income-qualified demand increases, vacancy rates decline, leading to further price changes and demand adjustments. Thus, changes

in market prices or vacancy rates set in motion a complex chain of events that works to balance permanent housing supply and demand.

The without-project description of housing supply considers business development practices of builders and developers, and lending policies of financial institutions. For housing demand, we examine population size and income characteristics. The land use description considers factors such as soil types that limit residential development, as well as zoning and other official land use controls.

The housing market model generates an annual forecast of additions to the housing stock. These forecasts estimate new housing, by type, for the local study area as a whole to meet increased demand generated by population growth. The forecasts also identify potential housing surpluses or shortages.

Two principal components of housing demand considered in our model are defined by the length of residency associated with existing and speculative housing stock. Most new households will be long-term residents who plan to remain for more than three years. Some construction workers will be short-term residents requiring housing for three years or less. To forecast future requirements for short-term housing, we:

1. Determine annual demand for short-term housing; and
2. Match this estimated short-term demand with the existing and planned supply of short-term housing.

To simplify housing allocation, we assume all short-term residents will demand rental housing. The results of this matching process indicate whether current and expected supply will be sufficient to satisfy future demand for short-term housing.

We forecast the amount of housing required to satisfy expected demand by new long-term households with a computer simulation model. The housing market model uses the description of existing conditions (RPC, 1981e) and information on characteristics of new households from the demographic forecasts to describe the local study area market for long-term housing. The model also forecasts annual changes in the supply of housing by type.

Since the primary purpose of this analysis is to determine if a Project-related housing shortage will occur, minimum housing prices and development costs are used throughout.

The land use model (RPC, 1982a) forecasts changes in land use for each local study area jurisdiction. Using projections of population and employment distribution, the model annually forecasts new acreage requirements for residential, commercial and industrial, and public land uses. These new requirements indicate the amount of land that must be converted from undeveloped to developed uses. Agricultural and forest acreage are reduced to reflect this conversion to developed uses.

To calculate the amount of land required for residential development, we multiply the number of new housing units by the average acreage per residential unit. The building site con-

straints assume new construction in incorporated areas will be on 1/4-acre sites, while construction sites in unincorporated areas will be on 2 acres. Similarly, for changes in commercial and industrial land use, we multiply acreage per employee by the number of new employees determined in the Economic Analysis. Changes in land use cause changes in the property tax base of each jurisdiction. The land use model combines the forecast of land use changes with estimates of value per acre for each use to produce annual estimates of each jurisdiction's tax base.

We also conducted a special analysis of those jurisdictions that contain prime agricultural or commercial forestland which we estimated might experience pressure for new development. The results of this special analysis would indicate the possibility that these lands may be converted to other uses. The results also are used in the special studies of the agriculture sector and the forestry and wood products sector, which are part of the special industries studies in the Economic Analysis.

Three basic assumptions are made in this chapter. First, we assume that the formation of households headed by persons under 65 years of age is constrained by the availability of jobs. We also assume that minimum costs of new construction are established by manufactured housing and mobile homes. Finally, we assume that mobile homes are permitted in all jurisdictions.

The housing market model generates data on number of new housing units by type, housing prices, and housing shortages.

The land use model provides the number of acres of developed land by jurisdiction and the number of acres of undeveloped land by jurisdiction.

Both models generate forecasts which are used in other chapters of this report. For instance, the housing market analysis is used, along with factors affecting residential location decisions, to estimate required public facilities and services (Figure 4-2). The land use model also is considered in the Economic Analysis to help project forecasts for the agriculture and forestry industry sectors.

The spatial allocation model (RPC, 1982a) distributes new employment, population, households, and housing units to the jurisdictions in the local study area (Figure 3-3 of the Demographic Analysis). The spatial allocation model receives data on households for each year by type from the housing market model (RPC, 1982a). It also receives employment by sector from the economic model (RPC, 1981a). The results of the spatial allocation model are used as inputs to the public facilities and services model (RPC, 1981d), land use model (RPC, 1982a), and fiscal model (RPC, 1981c).

Total primary housing units and total retail and services employment are used as attractiveness factors. The spatial allocation model also employs as a factor the driving time to each jurisdiction from the proposed Project site.

WITHOUT-PROJECT FORECAST (1980-2016)

The predominant land use in the local study area is forestland (approximately 75 percent), followed by cropland (approximately 17 percent). Residential development occupies approximately 6 percent of the local study area with industrial and commercial development occupying approximately 2 percent (RPC, 1981e).

Other than in Rhinelander and Antigo, residential development tends to be very dispersed. Between 1970 and 1979, most of the new housing starts occurred in the following towns: Newbold (567 starts), Three Lakes (483 starts), Pelican (366 starts), and Nashville (365 starts). Most of the recent growth has been occurring outside the incorporated areas. Rhinelander has little land available for development, and Wisconsin's annexation laws prevent additional land from being added to an incorporated area without permission of the landowners (RPC, 1981e).

Zoning and subdivision laws do not appear to restrict housing development. The main factors influencing the pattern of housing development appear to be the suitability of the land for septic tanks, location of employment, availability of surface water frontage (i.e. lakes, rivers), and the familiarity of builders and lenders with a specific area (RPC, 1981e).

The stock of houses serving as principal residences is characterized by single-family houses (approximately 84 percent of all housing). Many are on large lots and are served by well

water and septic systems, rather than central water and wastewater systems. New construction is split evenly between manufactured housing and stick-built housing. Most houses considered "stick-built" have a number of prefabricated components. Duplexes and multifamily units account for approximately 7 percent of total housing stock. The balance of the housing stock (9 percent) is composed of mobile homes located in mobile home parks or on individual lots (RPC, 1981e).

Second homes constitute a very large percentage (36.3 percent) of the total housing stock in the local study area (RPC, 1981e). Older second homes are likely to be seasonal residences not suited for winter occupancy. New second homes are more likely to be year-round residences built for resale or eventual retirement use rather than as summer camps. They are very similar to principal residences in the local study area (RPC, 1981e).

The home construction industry in the local study area is composed entirely of small builders. Major housing manufacturers are represented, but their representatives are small contractors. They sell the manufactured shell and subcontract the finish work (RPC, 1981e).

Subdivision activity is primarily in the hands of the small builders. Most tracts are divided by certified surveys which do not require subdivision plats. There are few subdividers who develop subdivisions of 50 lots or more. Those who do tend to be local lawyers and brokers, rather than full-time subdivision

companies. Improvements in most subdivisions are generally limited to roads and electrical services. Almost all subdivisions use septic tanks and wells. Lots are sold contingent on a successful percolation test. No subdivisions large enough to support a package sewage treatment plant have been developed in the local study area (RPC, 1981e).

The local study area housing market is characterized by a low vacancy rate and few unsold houses. There are no large speculative builders and no local financial institutions willing to support much speculative building, since the lenders are unlikely to let a builder or developer become financially overextended. Builders are likely to have no more than three unsold houses finished or in process when interest rates are low. When interest rates are high, many builders start a house only with a signed contract (RPC, 1981e).

This pattern of home construction is enforced by local lenders. Local financial institutions impose relatively high down payment requirements (20 to 25 percent), and loan committees often conduct personal inspections of houses prior to approving loans. Local financial institutions have not made extensive use of the secondary mortage market or private mortgage insurance to bring additional funds into the local study area or to lower down payment requirements. Within the last several years, some lenders from out of the local study area have established branch offices in Rhinelander which may result in greater use of the

secondary mortgage market and private mortgage insurance (RPC, 1981e).

The housing development and finance pattern in the local study area fits the demography and economy of the area very well. For 20 years, from 1950 to 1970, the population of the local study area declined. Since 1970, it has grown moderately. Much of the market for new homes has been for second homes and retirement homes. These buyers tend to be able to afford large down payments and to be more interested in a rustic setting than a large subdivision (RPC, 1981e).

There appears to be substantial capability for increased housing output in the local study area. This is true even without considering mobile homes. Many builders and contractors are underemployed because of the low demand. Additional construction labor can be drawn into home construction from the substantial pool of unemployed and seasonally-employed persons in the local study area. Any increased demand can be filled by major housing manufacturers located in Wausau, Hurley, Winchester, and Mercer. Because individual water wells and septic tanks are acceptable for most new construction in all jurisdictions outside city boundaries, the expense and time necessary to construct centralized storage and water treatment facilities and waste water treatment systems can be avoided (RPC, 1981e).

Availability of local construction and permanent mortgage funds varies. However, there are now local lending institutions

in the local study area that can use the secondary mortgage market to channel mortgage funds to the local study area at the prevailing market price. Any lack of mortgage funds at present is mainly a result of the potential homebuyers' inability to qualify for or afford mortgages at current interest rates (RPC, 1981e).

There are presently no major impediments to a substantial increase in the local study area's stock of mobile homes. There is no absolute ban on mobile homes in any town. Some towns and cities restrict mobile homes to established mobile home parks, while others restrict them to individual lots. As with permanent housing, mobile homes can use wells and septic tanks for water and wastewater purposes. There are a number of established dealers in the local study area, and there is no shortage of sites for families preferring mobile homes for financial or other reasons (RPC, 1981e).

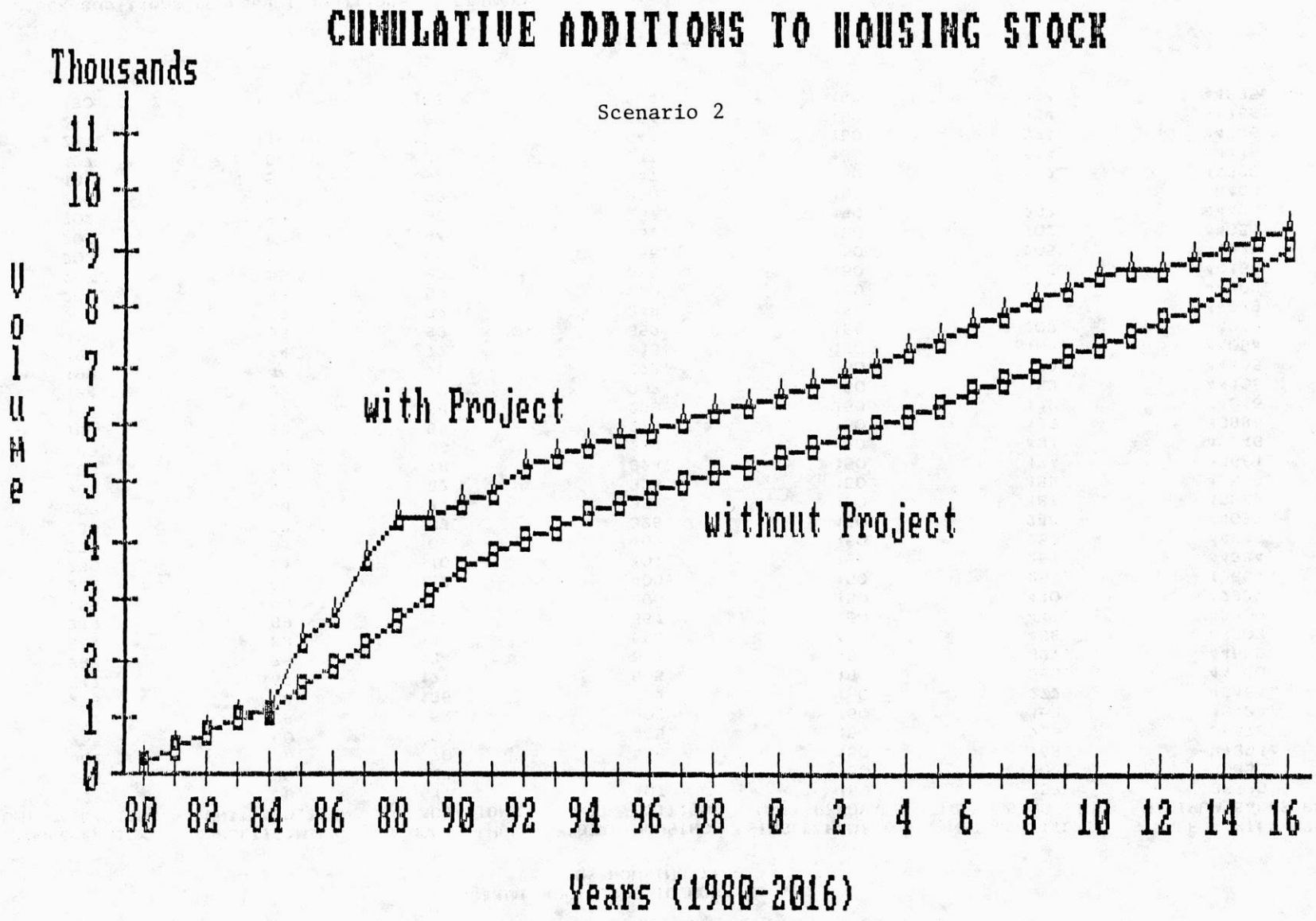
Demand for housing units in the without-project future is mainly generated by the formation of new households. Demand for new housing units also is generated by existing households living in housing units that are removed from the housing stock by decay, demolition, or conversion to nonresidential uses. In both without- and with-project forecasts, it is assumed that 150 housing units are removed from the local study area's total housing stock annually. This represents an annual removal of 1.0 percent

of local study area housing units that were over 20 years old at the beginning of the forecast period.

Information obtained from a survey of seasonal residents indicates that development of the Crandon Project is unlikely to affect demand for second homes (RPC, 1982b). Local study area builders have the construction capacity to continue past levels of second-home construction. Because of these conditions, it is assumed that the supply of second homes will not vary between without- and with-project scenarios. All projections of additions to local study area housing stock included in subsequent tables represent additions of primary residential units.

Figure 4-5 and Table 4-1 indicate projected additions to housing stock for the without-project future. Table 4-1 also indicates that the annual demand for new housing units is not expected to exceed 586 units. This level of peak demand occurs in 1988. Of the total units demanded in that year, only 341 are owner-occupied, permanent units. The remaining units demanded consist of renter-occupied units and mobile homes. Housing developers in the local study area have demonstrated the capacity to construct at least 700 units annually in the recent past (RPC, 1981e). Therefore, no housing shortages are projected during any year of the without-project future. The housing market model predicts that, because of conservative lending and development policies, only a minimal number of housing units (2.5 percent of those demanded) will be supplied on a speculative basis in excess

FIGURE 4-5



SOURCE: Research and Planning Consultants, Inc.

TABLE 4-1

WITHOUT—PROJECT SCENARIO

ANNUAL ADDITIONS TO HOUSING STOCK BY HOUSING TYPE

YEAR	SINGLE FAMILY UNIT ADDITIONS	MULTIFAMILY UNIT ADDITIONS	MOBILE HOME ADDITIONS	TOTAL HOUSING UNIT ADDITIONS	SINGLE FAMILY * UNIT REMOVALS	NET ADDITIONS TO HOUSING STOCK	SINGLE FAMILY HOUSING MINIMUM SALES PRICE
1980	382.	9.	17.	407.	150.	257.	36720.
1981	296.	20.	37.	353.	150.	203.	36853.
1982	302.	46.	70.	418.	150.	268.	37394.
1983	265.	60.	80.	405.	150.	255.	38578.
1984	212.	39.	52.	303.	150.	153.	40484.
1985	289.	98.	136.	522.	150.	372.	43464.
1986	317.	67.	121.	505.	150.	355.	44960.
1987	337.	75.	134.	547.	150.	397.	44655.
1988	341.	88.	157.	586.	150.	436.	43603.
1989	319.	89.	159.	567.	150.	417.	42909.
1990	295.	95.	171.	560.	150.	410.	42982.
1991	232.	65.	112.	409.	150.	259.	43664.
1992	230.	61.	110.	401.	150.	251.	44384.
1993	232.	61.	109.	402.	150.	252.	44546.
1994	230.	59.	109.	398.	150.	248.	44093.
1995	209.	46.	82.	337.	150.	187.	43562.
1996	207.	45.	82.	335.	150.	185.	43502.
1997	203.	43.	78.	324.	150.	174.	43661.
1998	189.	33.	59.	281.	150.	131.	43746.
1999	188.	32.	59.	279.	150.	129.	43885.
2000	193.	37.	68.	299.	150.	149.	44016.
2001	194.	39.	70.	303.	150.	153.	44105.
2002	199.	44.	79.	322.	150.	172.	44105.
2003	197.	44.	77.	318.	150.	168.	44054.
2004	206.	53.	93.	352.	150.	202.	44019.
2005	203.	53.	92.	348.	150.	198.	44039.
2006	203.	54.	93.	350.	150.	200.	44108.
2007	207.	59.	99.	365.	150.	215.	44154.
2008	203.	57.	95.	355.	150.	205.	44227.
2009	201.	56.	94.	352.	150.	202.	44351.
2010	202.	59.	96.	357.	150.	207.	44405.
2011	200.	57.	93.	350.	150.	200.	44400.
2012	198.	57.	92.	347.	150.	197.	44398.
2013	197.	56.	91.	344.	150.	194.	44416.
2014	241.	116.	187.	544.	150.	394.	44536.
2015	229.	105.	169.	504.	150.	354.	44766.
2016	230.	107.	166.	504.	150.	354.	44895.

NOTES

Housing stock additions represent additions of primary residences only. Projections do not include units held for occassional use, such as second homes.

* See text for an explanation of housing stock removals.

Source: Research and Planning Consultants, Inc.

of those demanded by new households and by existing households residing in units that are removed from the housing stock. As a result, vacancy rates are projected to remain low and stable throughout the without-project forecast period.

Minimum sales prices for new owner-occupied, permanent homes (in constant 1982 dollars) are projected to increase at a slow rate through the first decade of the without-project forecast period. After 1990, minimum sales prices stabilize.

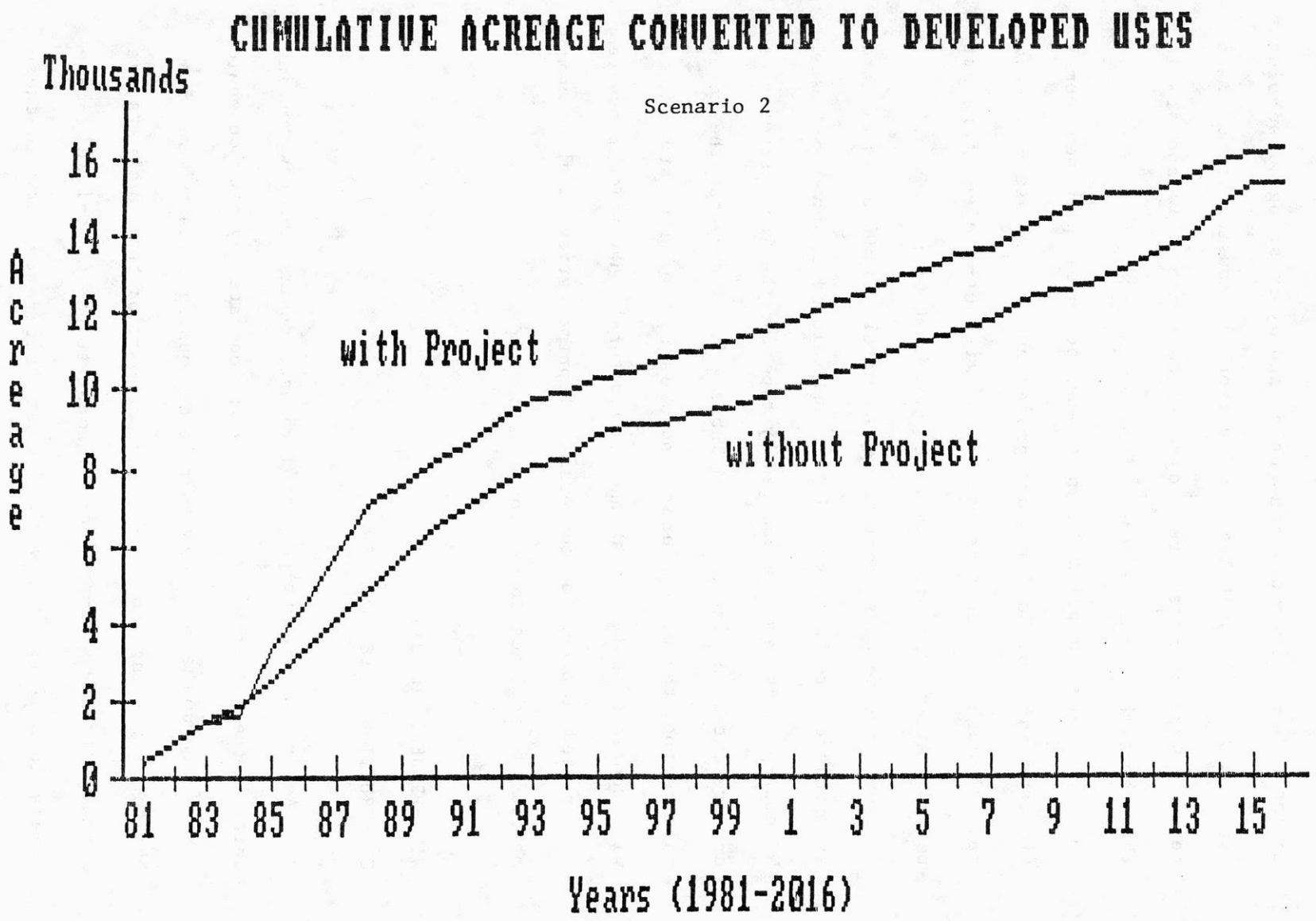
Over the forecast period, approximately 15,300 acres of land are projected to be converted from undeveloped to developed uses. Without-project land use changes by type for the local study area are presented in Figure 4-6 and Table 4-2. Throughout the forecast period, the predominant land uses in the local study area will continue to be forest and agricultural. No major pressure is expected to occur for conversion of prime agricultural or commercial forestlands to developed uses.

WITH-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

As in the without-project forecast, demand for new housing units in the with-project forecasts is generated by new household formation and the necessity to replace housing units removed from the total housing stock. For the purposes of this analysis, we compare the without-project forecast to the most-likely-case (Scenario 2) forecast, with the net difference between these

FIGURE 4-6



SOURCE: Research and Planning Consultants, Inc.

TABLE 4-2

WITHOUT-PROJECT SCENARIO

ACREAGE BY PROPERTY CATEGORY*

Local Study Area

YEAR	RESIDENTIAL	MERCANTILE	MANUFACTURING	UNDEVELOPED	PUBLIC	TOTAL
1980	43548.	7614.	6755.	2599888.	545918.	3203682.
1981	43893.	7622.	6790.	2599466.	545956.	3203687.
1982	44314.	7645.	6817.	2598949.	546003.	3203687.
1983	44710.	7704.	6857.	2598402.	546053.	3203687.
1984	44949.	7767.	6889.	2598036.	546086.	3203687.
1985	45534.	7831.	6913.	2597295.	546154.	3203686.
1986	46116.	7883.	6929.	2596579.	546219.	3203686.
1987	46763.	7921.	6938.	2595815.	546288.	3203685.
1988	47479.	7961.	6948.	2594974.	546365.	3203685.
1989	48152.	7995.	6957.	2594186.	546436.	3203687.
1990	48854.	8036.	6966.	2593361.	546511.	3203688.
1991	49300.	8076.	6976.	2592814.	546561.	3203688.
1992	49727.	8109.	6984.	2592302.	546607.	3203688.
1993	50153.	8139.	6989.	2591794.	546654.	3203688.
1994	50231.	8169.	6994.	2591670.	546665.	3203689.
1995	50790.	8198.	6998.	2591018.	546724.	3203688.
1996	51055.	8205.	6999.	2590718.	546751.	3203689.
1997	51056.	8209.	6998.	2590713.	546752.	3203689.
1998	51244.	8212.	6996.	2590505.	546771.	3203689.
1999	51430.	8212.	6993.	2590304.	546789.	3203687.
2000	51643.	8213.	6990.	2590072.	546810.	3203688.
2001	51862.	8215.	6991.	2589828.	546832.	3203687.
2002	52108.	8217.	6994.	2589551.	546858.	3203688.
2003	52349.	8220.	6996.	2589281.	546882.	3203688.
2004	52639.	8222.	6996.	2588961.	546911.	3203689.
2005	52922.	8223.	6996.	2588649.	546940.	3203689.
2006	53208.	8224.	6996.	2588332.	546968.	3203689.
2007	53334.	8225.	6995.	2588192.	546981.	3203688.
2008	53810.	8226.	6994.	2587669.	547029.	3203688.
2009	54099.	8228.	6995.	2587349.	547058.	3203688.
2010	54247.	8229.	6995.	2587184.	547073.	3203687.
2011	54590.	8230.	6998.	2586804.	547107.	3203688.
2012	54920.	8254.	7000.	2586411.	547143.	3203688.
2013	55244.	8285.	7003.	2586018.	547179.	3203689.
2014	55900.	8316.	7007.	2585258.	547248.	3203689.
2015	56488.	8348.	7012.	2584571.	547310.	3203689.
2016	56448.	8380.	7016.	2584531.	547314.	3203689.

Source: Research and Planning Consultants, Inc.

*Numbers may not total exactly as a result of rounding differences.

forecasts representing the potential effect of the Crandon Project (Figure 4-5). The Scenario 2 (the most-likely-case assumption) projection for with-project annual additions to housing stock by housing type is presented in Table 4-3.

When the construction phase begins, household formation is expected to increase over without-project levels, and demand for housing units also is expected to increase. Under the most-likely-case assumptions, a total of 1,371 new housing units will be needed during 1985, the first full year of Project construction. Of these new units, 522 are units which are projected to have been built even without the Project. An additional 150 units can be attributed to new residences for those displaced by the annual removal of 150 single-family units, deducted from the total housing stock each year to account for a one-percent annual removal rate for local study area housing units that were 20 years old at the beginning of the forecast period. The remaining 699 new housing units would result from Project-related population and increased household formation by the without-project population.

After 1985's peak year of 1,371 housing unit additions, the following five years have an annual average of 623 housing unit additions, substantially lower than the 1985 peak (Figure 4-5). A large percentage of inmigrating workers during the construction phase are construction workers who are single or who do not bring their families to the local study area. They will demand rental

TABLE 4-3

SCENARIO 2

ANNUAL ADDITIONS TO HOUSING STOCK
BY HOUSING TYPE

YEAR	SINGLE FAMILY UNIT ADDITIONS	MULTIFAMILY UNIT ADDITIONS	MOBILE HOME ADDITIONS	TOTAL HOUSING UNIT ADDITIONS	SINGLE FAMILY * UNIT REMOVALS	NET ADDITIONS TO HOUSING STOCK	SINGLE FAMILY HOUSING MINIMUM SALES PRICE
1980	382.	9.	17.	407.	150.	257.	36720.
1981	296.	20.	36.	353.	150.	203.	36853.
1982	302.	45.	70.	418.	150.	268.	37394.
1983	265.	60.	79.	405.	150.	255.	38578.
1984	213.	41.	54.	308.	150.	158.	40484.
1985	492.	374.	505.	1371.	150.	1221.	43079.
1986	300.	106.	175.	582.	150.	432.	45144.
1987	471.	220.	388.	1079.	150.	929.	45375.
1988	370.	169.	298.	837.	150.	687.	44681.
1989	150.	0.	0.	150.	150.	0.	43468.
1990	259.	76.	133.	468.	150.	318.	42452.
1991	204.	39.	68.	312.	150.	162.	42051.
1992	267.	100.	176.	543.	150.	393.	42203.
1993	211.	61.	103.	376.	150.	226.	42827.
1995	188.	39.	69.	296.	150.	146.	43690.
1995	180.	35.	65.	280.	150.	130.	44413.
1996	184.	32.	56.	272.	150.	122.	44743.
1997	202.	49.	87.	339.	150.	189.	44518.
1998	190.	37.	66.	293.	150.	143.	43913.
1999	188.	36.	65.	289.	150.	139.	44003.
2000	194.	42.	77.	313.	150.	163.	43945.
2001	193.	44.	79.	316.	150.	166.	44240.
2002	197.	50.	90.	337.	150.	187.	44634.
2003	197.	50.	89.	336.	150.	186.	44379.
2004	204.	59.	102.	365.	150.	215.	44486.
2005	204.	60.	103.	366.	150.	216.	44441.
2006	202.	60.	102.	364.	150.	214.	44321.
2007	205.	56.	66.	377.	150.	227.	44172.
2008	206.	57.	65.	378.	150.	228.	44659.
2009	201.	63.	106.	370.	150.	220.	44752.
2010	202.	66.	110.	379.	150.	229.	44915.
2011	167.	22.	36.	225.	150.	75.	44480.
2012	152.	3.	5.	160.	150.	10.	44456.
2013	252.	1.	97.	350.	150.	200.	44413.
2014	189.	52.	82.	322.	150.	172.	44389.
2015	187.	51.	79.	317.	150.	167.	44428.
2016	187.	51.	79.	317.	150.	167.	44453.

NOTES

Housing stock additions represent additions of primary residences only. Projections do not include units held for occassional use, such as second homes.

* See text for an explanation of housing stock removals.

Source: Research and Planning Consultants, Inc.

housing and hotel/motel-type accommodations. This demand will benefit seasonal residents and hotel/motel operators, but is expected to generate little demand for new housing.

No housing shortages are projected during the construction phase. Although demand for housing during the construction phase is greater than that experienced during the without-project future, local study area development capacity should be sufficient to keep pace with housing demands generated by Project-related population increases. The close proximity of major providers of manufactured housing further serves to increase local study area homebuilding capacity. This, combined with the presence of large numbers of second homes in the local study area, will reduce the risk of a possible housing shortage. As in the without-project forecast, only minimal production of surplus housing units is projected because of conservative lending and development patterns in the local study area.

OPERATION PHASE (1990-2011)

Throughout the period of mine and mill operation, the total number of local study area households is projected to exceed without-project units, and demand for housing also will be greater. As in the construction phase, no housing shortages are projected during the operation phase, and only minimal production of surplus housing is anticipated. Minimum sales prices for owner-occupied, permanent units during the operation phase are

expected to differ only slightly from those in the without-project future.

Project development affects the timing of land conversion from undeveloped to developed uses, but does not affect substantially the total amount of land converted (Figure 4-6). Scenario 2 (most-likely-case assumption) with-project land use patterns for the local study area are presented in Table 4-4. Throughout the operation phase, land is converted to developed uses at a more accelerated pace than is expected in the without-project future (Figure 4-6). At the close of the mine/mill complex operation, it is projected that approximately 1,600 additional acres of the 3,203,583 total acres (or 0.05 percent) in the local study area will have been converted to developed uses than would have occurred in the without-project future.

POST-OPERATION PHASE (2011-2016)

Following mine/mill closure, the total number of new households forming in the local study area is forecast to decrease substantially. Decreased demand for new housing units is projected to lead to a slowdown in construction of primary residences that should continue through the remainder of the with-project forecast period (Figure 4-5). During this period, minimum housing prices are forecast to decline slightly below without-project estimates.

TABLE 4-4

SCENARIO 2

ACREAGE BY PROPERTY CATEGORY*

Local Study Area

YEAR	RESIDENTIAL	MERCANTILE	MANUFACTURING	UNDEVELOPED	PUBLIC	TOTAL
1980	43566.	7614.	6755.	2599868.	545920.	3203682.
1981	43911.	7622.	6790.	2599446.	545958.	3203687.
1982	44332.	7645.	6817.	2598928.	546005.	3203686.
1983	44729.	7704.	6857.	2598382.	546055.	3203686.
1984	44774.	7767.	6889.	2598228.	546069.	3203687.
1985	46198.	7844.	6916.	2596546.	546222.	3203686.
1986	47178.	7921.	6939.	2595360.	546329.	3203688.
1987	48287.	7987.	6955.	2594052.	546448.	3203688.
1988	49381.	8060.	6970.	2592752.	546566.	3203689.
1989	49688.	8120.	6983.	2592334.	546604.	3203690.
1990	50271.	8142.	6991.	2591660.	546666.	3203689.
1991	50552.	8162.	6999.	2591320.	546697.	3203689.
1992	51194.	8172.	7002.	2590599.	546762.	3203690.
1993	51586.	8208.	7009.	2590122.	546806.	3203689.
1994	51673.	8242.	7015.	2589981.	546818.	3203690.
1995	52008.	8273.	7020.	2589573.	546855.	3203689.
1996	52186.	8277.	7020.	2589372.	546874.	3203690.
1997	52461.	8280.	7018.	2589069.	546901.	3203690.
1998	52671.	8280.	7015.	2588839.	546922.	3203689.
1999	52887.	8281.	7012.	2588605.	546943.	3203689.
2000	53126.	8282.	7010.	2588344.	546967.	3203688.
2001	53369.	8284.	7011.	2588074.	546992.	3203689.
2002	53641.	8286.	7014.	2587767.	547020.	3203688.
2003	53912.	8288.	7015.	2587467.	547047.	3203689.
2004	54226.	8289.	7015.	2587120.	547078.	3203688.
2005	54542.	8290.	7014.	2586773.	547110.	3203688.
2006	54854.	8292.	7013.	2586429.	547141.	3203689.
2007	54997.	8293.	7013.	2586270.	547156.	3203689.
2008	55514.	8294.	7013.	2585700.	547208.	3203688.
2009	55835.	8295.	7013.	2585345.	547240.	3203689.
2010	56168.	8296.	7016.	2584976.	547273.	3203690.
2011	56304.	8297.	7014.	2584827.	547287.	3203688.
2012	56322.	8311.	7014.	2584792.	547290.	3203689.
2013	56674.	8319.	7012.	2584398.	547326.	3203688.
2014	56977.	8331.	7014.	2584049.	547358.	3203688.
2015	57249.	8349.	7017.	2583726.	547387.	3203689.
2016	57209.	8382.	7022.	2583685.	547391.	3203689.

Source. Research and Planning Consultants, Inc.

*Numbers may not total exactly as a result of rounding differences.

Under the Scenario 2 assumptions at the end of the with-project forecast period, an additional 600 acres are projected to have been converted to developed uses than were converted under without-project assumptions (Figure 4-6). Development of the Crandon Project is not expected to result in any major pressure for conversion of prime agricultural or commercial forestlands to developed uses. In addition, continued development of vacation homes in the local study area could serve to reduce effects of Project closure on local study area builders and developers.

5. PUBLIC FACILITIES AND SERVICES ANALYSIS

Presented in this chapter are without-project and with-project forecasts of public facilities and services for the local study area, based upon a simulation of potential demands and costs of supply through the future if all of the historical expenditure patterns and assumed conditions were to hold true. The forecasts of with-project demands and expenditures for the local study area which are described in this chapter are based upon conditions reflected in Scenario 2. The differences between the without-project and with-project forecasts represent the effects of the Crandon Project (also referred to as the "Project") on these public facilities and services. The principal purpose of this analysis, therefore, is to show the range of possible effects of the Project, and not to predict actual expenditures with absolute precision. The categories of public facilities and services which are considered in this analysis include:

- Police protection
- Fire protection
- Streets and roads
- Water supply
- Wastewater treatment
- Solid waste disposal
- Library services
- Recreation
- General government
- Public education

- General operations and other services (health facilities and personnel and public health and social services)
- Utilities

The local study area is comprised of more than 50 local jurisdictions (Table 5-1), each offering differing facilities and services. In this chapter, we intend "jurisdiction" to mean those counties, cities, towns, or school districts which have been granted authority by the State of Wisconsin to provide general or specific services to the population within their specified boundaries and to levy taxes or charge fees for those general services they provide. Jurisdictions also have differing authorities, sanctioned and limited by the State of Wisconsin, to regulate and legislate. In this chapter, we divide these jurisdictions into five categories: counties, cities, towns, secondary service centers, and school districts. "Secondary service centers" are towns and villages distinguished from most towns by their larger populations (particularly, population concentrations in a single center within a town) and by a greater variety of available services made possible by a centralized population. In the local study area, the five jurisdictions identified as secondary service centers are Laona, Elcho, Three Lakes, and Wabeno towns, and White Lake Village.

The public facilities and services model (RPC, 1981d) draws on data from the demographic model (RPC, 1981b) and the housing model (RPC, 1982a) in this report (Figure 5-1). In turn, the data from this chapter on public facilities and services are used

TABLE 5-1

LOCAL STUDY AREA JURISDICTIONS

COUNTIES	Forest[a]	Langlade[b]	Oneida[c]
CITIES	Crandon	Antigo	Rhinelander
SECONDARY SERVICE CENTERS	Laona Wabeno	Elcho White Lake Village	Three Lakes
TOWNS	Argonne Blackwell Caswell Crandon Freedom Hiles Lincoln Nashville Popple River Ross	Ackley Ainsworth Antigo Evergreen Langlade Neva Norwood Parrish Peck Polar Price Rolling Upham Wolf River	Crescent Enterprise Lake Tomahawk Monico Newbold Pelican Piehl Pine Lake Schoepke Stella Sugar Camp Woodboro
SCHOOL DISTRICTS	Crandon Laona Wabeno	Antigo Elcho White Lake	Rhinelander Three Lakes

[a]Partial county which does not include Alvin or Armstrong Creek towns.

[b]Partial county which does not include Summit or Vilas towns.

[c]Partial county which does not include Minocqua, Woodruff, Hazelhurst, Little Rice, Cassion or Nokomis towns.

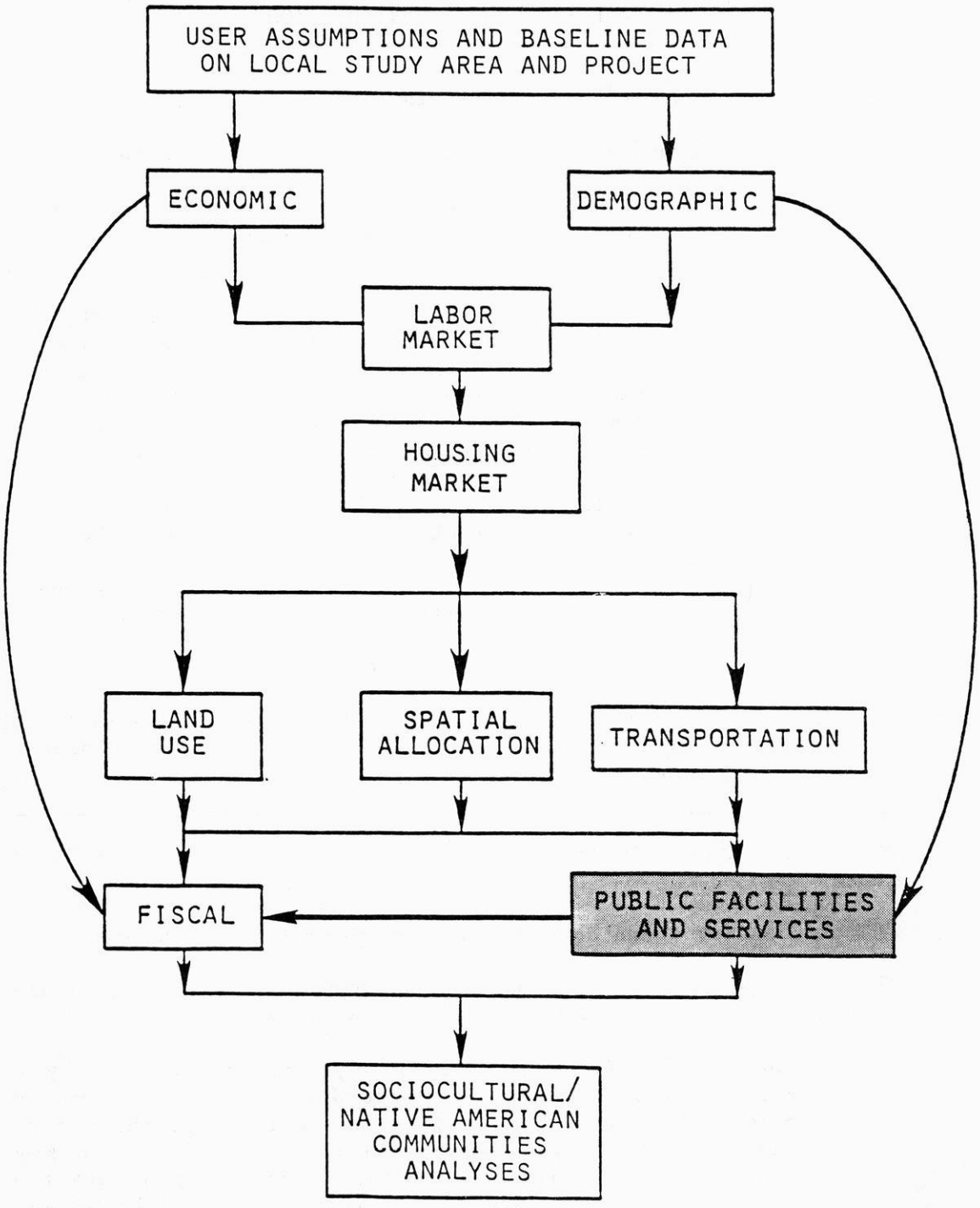
NOTE: The Crandon Project local study area contains only a portion of each county indicated above, and can generally be described as the geographic area defined by the sum of all towns indicated above. As a result, the following school districts also are contained partially within the local study area: Crandon, Wabeno, Antigo, Rhinelander, and Three Lakes.

SOURCE: Research and Planning Consultants, Inc.

FIGURE 5-1

PROJECT MODEL SYSTEM

(INTERRELATIONSHIP OF MODELS AND ANALYSES)



SOURCE: Research and Planning Consultants, Inc.

in the fiscal model (RPC, 1981c) and sociocultural system (RPC, 1980c).

The public facilities and services model (RPC, 1981d) used to forecast futures for the local study area is a quantitative model with two computerized modules and one manually-calculated module. The first module assesses demand for personnel and annual costs of operation and maintenance of public facilities and services. The second module estimates capital costs for school, water and wastewater facilities, and general government functions. The third module assesses those general services and utilities not amenable to computerized analysis.

The operation and maintenance module forecasts annual demand for personnel and costs of operating and maintaining facilities and services by jurisdiction for without- and with-project futures. The annual forecast of demand for personnel indicates when new staff will need to be hired. For each jurisdiction, costs for all services are added together to obtain the net annual operation and maintenance costs for public facilities and services in that jurisdiction. This module uses our description of existing conditions (RPC, 1981e) and projections on future population distribution described previously.

The capital expenditure module forecasts annual capital costs of school, water and wastewater facilities, and general government functions for without- and with-project futures. For the purposes of this analysis, we define capital costs as outlays

of public funds for the construction, purchase, or tangible improvement of fixed assets (such as buildings, vehicular and other equipment, recreational facilities, and public works infrastructure) on a nonrecurring basis. With respect to school, water and wastewater facilities, the module estimates when it will be necessary to increase the capacity of a physical facility, what size the increase should be, how large a package of general obligation or revenue bonds will be required to finance the facility or facilities, and how much the associated annual debt service will be. With regard to other capital improvement needs, the module also estimates the timing and level of additional outlays for a general range of purposes (financial administration, general control, public safety, public works, recreation and culture, and health and welfare) in response to changing population levels and annual rates of growth. The capital expenditure module uses the description of existing conditions (RPC, 1981e), forecasts of population distribution from the housing and land use model (RPC, 1982a), and building-cost estimates provided by engineering and architectural guides.

The general services and utilities module assesses those public facilities and services not amenable to computer analysis because of cross-jurisdiction service areas, private ownership, or sparse expenditure data. We describe, in general terms, the demand for their services, their ability to deliver services, trends in service programs, and plans for future development

under with- and without-project conditions. This module also uses the description of current conditions and projections of future population distribution from the demographic, housing, and land use forecasts.

Forecasts of public facilities and services are based on average 1977 to 1981 per capita demand levels reported by each jurisdiction (Wisconsin Department of Revenue, 1979 to 1983; annually, publication dates vary). Probable demand for additional personnel or capital expansion is established when the current service levels decrease below the threshold levels established by average 1977-to-1981 standards for that jurisdiction (Table 5-2). Additional personnel are added to maintain the per capita service rates, while capital expansion is forecast if the demand on current facilities exceeds 20 percent of the existing capacity. Even if capital expansion is forecast by the population threshold analysis, other factors such as density and type of development indicate that such expansion will not occur or is unlikely.

Ultimately, the public facilities and services model used by RPC generates five types of projections: staffing requirements by service, reserve capacity by facility, operating cost by service or facility, capital expansion by service or facility, and construction start dates to prevent capacity shortfall. Where demand is expressed in dollars, 1977 to 1981 actual expenditures have been converted to 1982 dollars prior to averaging. All projected expenditures are in 1982 dollars, as well.

TABLE 5-2

POPULATION THRESHOLDS BY SERVICE AND JURISDICTION

Jurisdiction	Paid Personnel		Water Supply	Wastewater Treatment
	Fire	Law Enforcement		
Service Centers				
Crandon	7,000	E	E	E
Antigo	E	E	E	E
Rhinelander	E	E	E	E
Laona	8,000	E	SD	SD
Wabeno	8,000	E	SD	SD
Elcho	8,000	E	SD	SD
White Lake Village	7,000	E	E	E
Three Lakes	8,000	E	SD	SD
Nonservice Centers				
Argonne	8,000	1,500	1,500	1,500
Blackwell	8,000	1,500	1,500	1,500
Caswell	8,000	1,500	1,500	1,500
Crandon	8,000	1,500	1,500	1,500
Freedom	8,000	1,500	1,500	1,500
Hiles	8,000	1,500	1,500	1,500
Lincoln	8,000	1,500	1,500	1,500
Nashville	8,000	1,500	1,500	1,500
Popple River	8,000	1,500	1,500	1,500
Ross	8,000	1,500	1,500	1,500
Ackley	8,000	1,500	1,500	1,500
Ainsworth	8,000	1,500	1,500	1,500
Antigo	8,000	3,000	2,700	2,700
Evergreen	8,000	1,500	1,500	1,500
Langlade	8,000	1,500	1,500	1,500
Neva	8,000	1,500	1,500	1,500
Norwood	8,000	1,500	1,500	1,500
Parrish	8,000	1,500	1,500	1,500
Peck	8,000	1,500	1,500	1,500
Polar	8,000	1,500	1,500	1,500
Price	8,000	1,500	1,500	1,500
Rolling	8,000	3,000	2,200	2,200
Upham	8,000	1,500	1,500	1,500
Wolf River	8,000	1,500	1,500	1,500
Crescent	8,000	3,000	2,200	2,200
Enterprise	8,000	1,500	1,500	1,500
Lake Tomahawk	8,000	1,500	1,500	1,500
Monico	8,000	1,500	1,500	1,500
Newbold	8,000	3,000	3,200	3,200
Pelican	8,000	5,000	3,900	3,900
Piehl	8,000	1,500	1,500	1,500
Pine Lake	8,000	5,000	3,200	3,200
Schoepke	8,000	1,500	1,500	1,500
Stella	8,000	1,500	1,500	1,500
Sugar Camp	8,000	3,000	2,300	2,300
Woodboro	8,000	1,500	1,500	1,500
Forest County	--	E	--	--
Langlade County	--	E	--	--
Oneida County	--	E	--	--

NOTE: E means the service is an existing one. SD means the service is supplied by a separate sanitary district.

SOURCE: Research and Planning Consultants, Inc.

The public facilities and services model relies upon certain assumptions. It is assumed that the federal share of capital costs for new or additional wastewater treatment facilities will be 55 percent, with no state contribution and the remaining 45 percent of the cost financed from local sources. No federal or state financing is assumed to be available for development of potable water supplies or school construction.

In areas currently without central water supply or wastewater treatment systems, we assume that private wells and septic systems will continue to be used at least until population levels reach specified threshold values (Table 5-2). Again, even though the public facilities and services model assumes the initiation of centralized water or wastewater systems when a jurisdiction's population reaches the specified threshold values, the initiation of such services actually depends on other factors, to be considered in this chapter.

The anticipated population growth in each of the towns of Pelican, Crescent, and Pine Lake reaches and exceeds the respective assigned threshold level for institution of centralized water and wastewater services in scenarios with and without the Crandon Project. Thus, the public facilities and services model output for those three jurisdictions contains capital and operating expenditures associated with the presumed service initiations which are included in the jurisdictions' total expenditures shown in the Technical Appendix. The existence of other, important

factors discussed in this chapter make these presumed developments highly unlikely, and for purposes of graphic illustration, all water or wastewater capital and operating expenditures have been excluded from the total expenditure levels for each of these three towns (as depicted in Figures 5-15, 5-17, and 5-18). Similarly, those jurisdictions which presently rely upon volunteer public safety personnel are assumed to continue that reliance until their population levels reach the appropriate threshold values (Table 5-2).

Population threshold values are different for each service being considered, and may be different within any service category for individual jurisdictions. These threshold levels are derived from an analysis of literature containing studies of services and population groups in the national region containing Wisconsin. They have been adjusted upwards or downwards as appropriate to the local study area and the individual jurisdictions (RPC, 1981e; Burchell and Listokin, 1978; Stenehjem and Metzger, 1976). Levels were adjusted upwards in situations where a specific jurisdiction had exceeded the normative threshold, yet had not instituted the service. Levels were adjusted downward in situations where a jurisdiction had not reached the normative threshold, but had already instituted the service at a lower population level; downward adjustments also were made where a jurisdiction was considered as a service center and comprised the dominant unit of population.

It also is assumed in the model that the average public service operating and maintenance cost levels observed from 1977 to 1981 will remain constant on a per capita, constant dollar basis, and that physical demands on water and wastewater systems also will remain constant on a per capita basis. When physical expansions are estimated for public facilities, the size and cost of increments the model utilizes are derived in a modular fashion based on marginal population levels and standardized components. Finally, we assume that all capital outlays are financed with debt instruments (revenue or general obligation bond issues), and that any outlay of $15,000 or less will be amortized fully within the year the debt is incurred. It is recognized, however, that government officials may exercise other financing options, including lump-sum cash outlays or other forms of time payment appropriate to the specific circumstances.

WITHOUT-PROJECT FORECAST (1980-2016)

In this forecast of local study area conditions affecting public facilities and services in the without-project future, the level of demand for public facilities and services is determined annually based on the population residing in each jurisdiction.

Residents and public officials of the local study area generally are satisfied with their public facilities and services, according to the "Report on Current Conditions" (RPC, 1981e). That report, which measured the existing situation in the local

study area based on surveys (RPC, 1982b) and the most recent data then available, has important inferences about the types of public facilities and services analyzed in this chapter.

It indicates that the services most impacted by population growth are streets and roads, water, wastewater, and education. In all these services, local study area jurisdictions have substantial reserve capacities and much of the local study area's ability to provide water and wastewater service is based on the use of private wells and septic tanks.

Overall, streets and roads in the local study area appear to be in good condition. All jurisdictions except the City of Crandon reported adequate roads needing minor repairs. Officials in Crandon stated that 65 percent of their roadways need resurfacing. In contrast, a majority of local study area residents rated current road maintenance in the local study area as less than good (RPC, 1982b).

The majority of permanent residents in the local study area rated their public schools as good or very good. The Rhinelander and Antigo school districts were considered by local study area residents to have the highest-quality schools.

Public services such as police, fire, and general government vary greatly among jurisdictions. Many towns rely on volunteer and part-time employees. These present arrangements seem acceptable to most residents (RPC, 1981e).

Because of the vast differences in service levels among similar jurisdictions in the local study area, it is not possible to project changes in those service levels based on the whole local study area or by comparing jurisdictions. Instead, it is necessary to determine what the service levels are within a single jurisdiction and then compute how frequently and to what degree those public services would have to change to maintain their current levels (usually based on a per capita ratio, such as one police officer for every 600 residents) as population increases. These ratios vary greatly from jurisdiction to jurisdiction.

The slow growth in population projected to occur in the local study area under without-project conditions suggests that service requirements also will increase slowly. In addition, the local study area has a well-developed system of public services such that, with few exceptions, there appears to be no immediate need for expansion. Most new and existing housing units can rely safely on private wells and septic tanks, and should allow local jurisdictions to maintain current levels of basic public facilities and services.

Even though expansion requirements for public facilities and services should increase at a relatively moderate pace in the local study area, there will be some changes, nevertheless. If per capita expenditures are held constant, the population growth which is predicted to occur will increase operation and mainte-

nance expenditures at rates comparable to each jurisdiction's population growth. In addition, some jurisdictions will require capital expenditures, principally in the general government categories. The increasing population should enable the jurisdictions to maintain parity between revenues and expenditures by holding the per capita tax rates at current levels in constant dollar terms.

Included in this chapter are figures depicting adjustments in public facilities and services for jurisdictions identified as most-impacted. The data tables from which these figures were derived are published separately in the "Forecast of Future Conditions Data Summary" (EMC, 1983c), which also includes data tables projecting changes in public facilities and services for other jurisdictions not identified as most-impacted. All of the following text is referenced to the separate volume identified as the "Forecast of Future Conditions Data Summary" (EMC, 1983c).

Police Protection

Police protection is provided by the counties, cities, and secondary service centers in the local study area. The communities other than cities and secondary service centers rely on the county officers for law enforcement in their respective jurisdictions. Additional officers will be required in order to maintain current levels of personnel per capita in the cities and counties as population increases. Projections indicate Langlade County

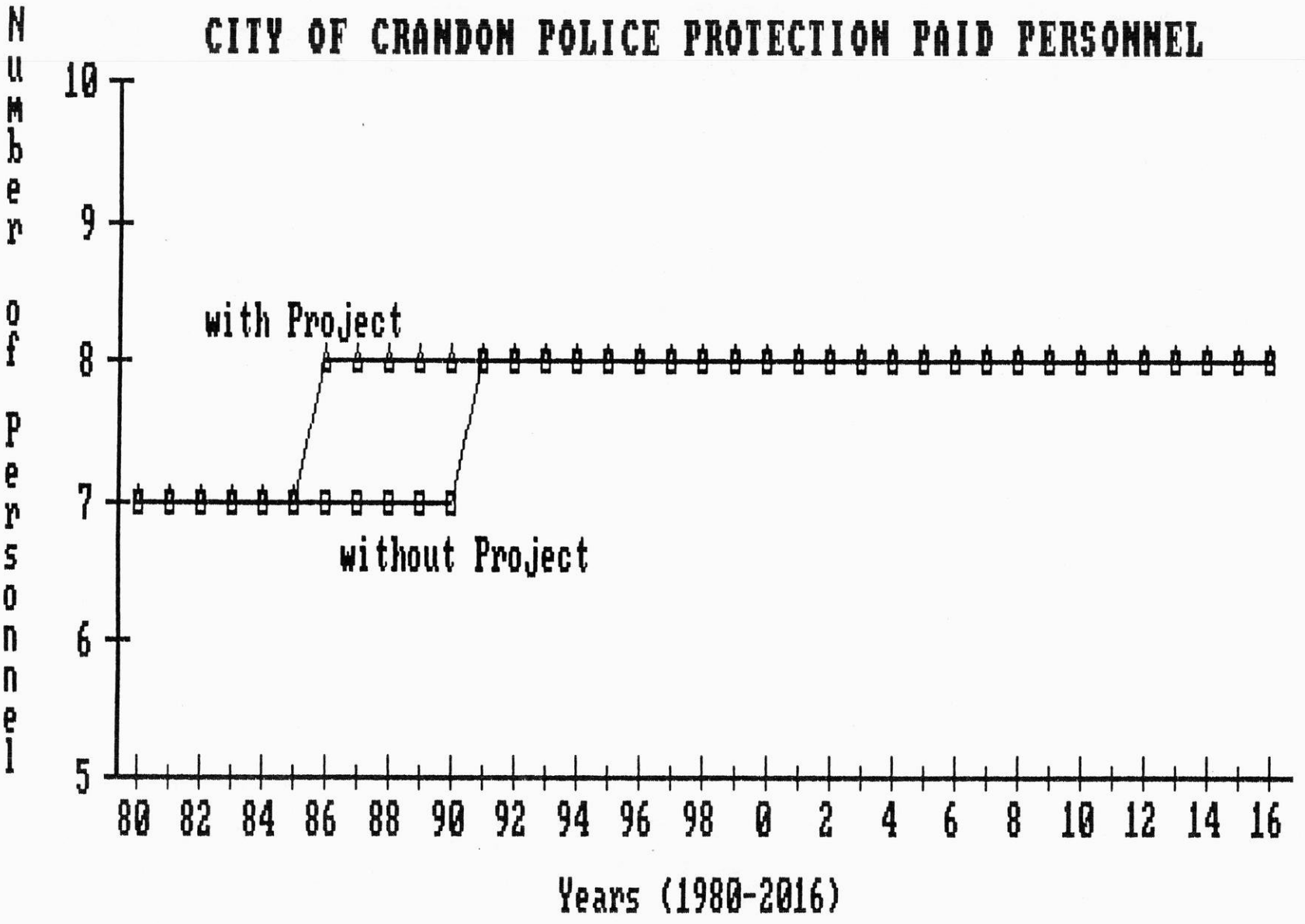
will need to add two officers over the 1980 to 2016 forecast period to maintain their current police/population ratio, while Oneida County would be expected to increase its force by five officers over that 36-year span. To continue their current police/population ratios over the same forecast period (1980 to 2016) in the without-project scenario, the City of Crandon is projected to add one officer (Figure 5-2) and the City of Antigo is projected to add two officers, while the City of Rhinelander may decrease its police force by one officer.

Our projections also indicate that, in the latter part of the forecast period, two towns will reach the population threshold (Table 5-2) for initiating police protection. The Town of Newbold is forecast to hire three officers when it first begins providing police protection (Figure 5-3) and the Town of Pelican is projected to create its police force with four officers (Figure 5-4).

Fire Protection

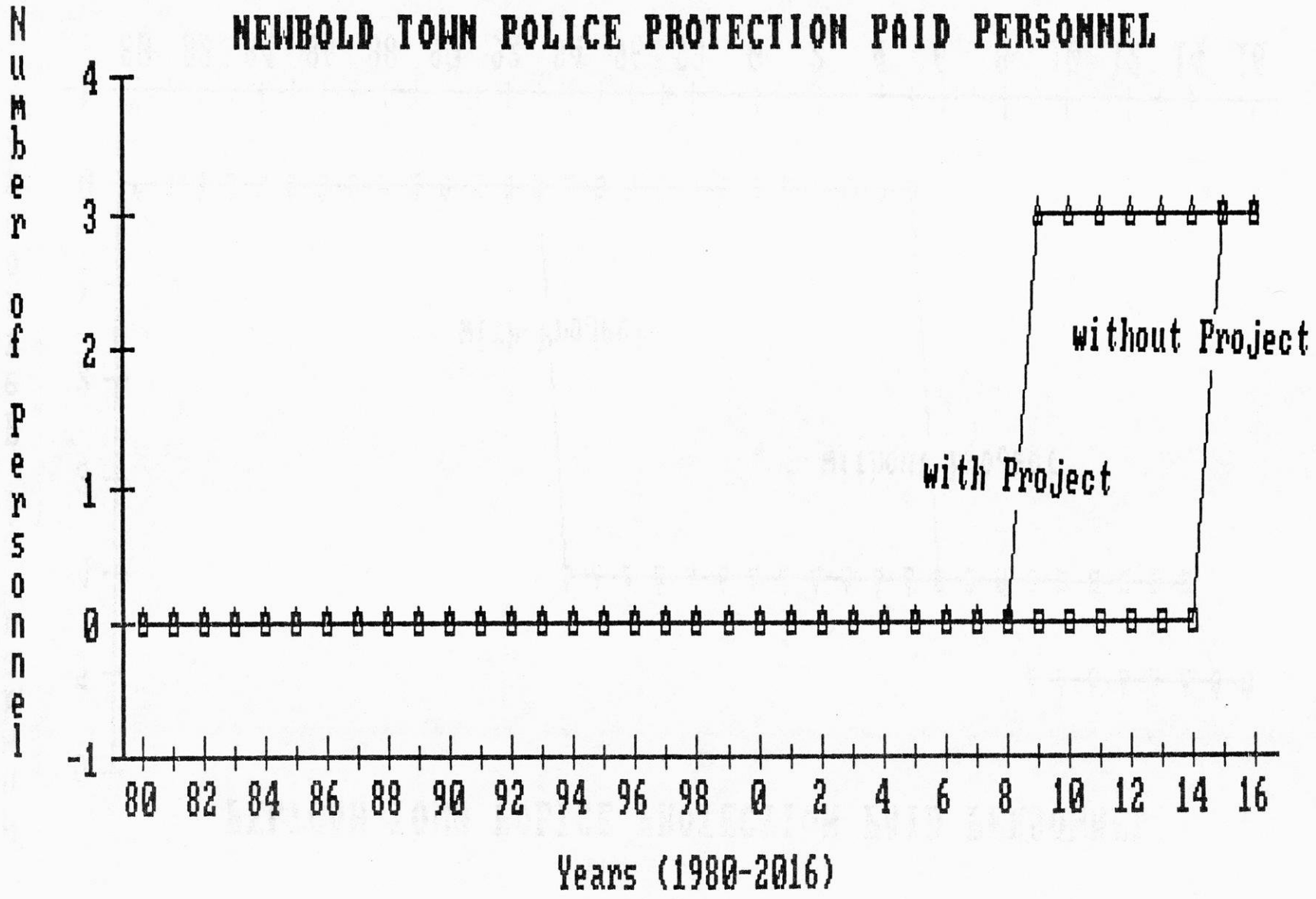
Fire protection is provided on a volunteer basis by the five secondary service centers and the City of Crandon. Only the cities of Antigo and Rhinelander operate full-time, paid fire departments. In the jurisdictions that maintain volunteer fire protection systems, total expenditures are projected to be stable during the forecast period as the current level of services is

FIGURE 5-2



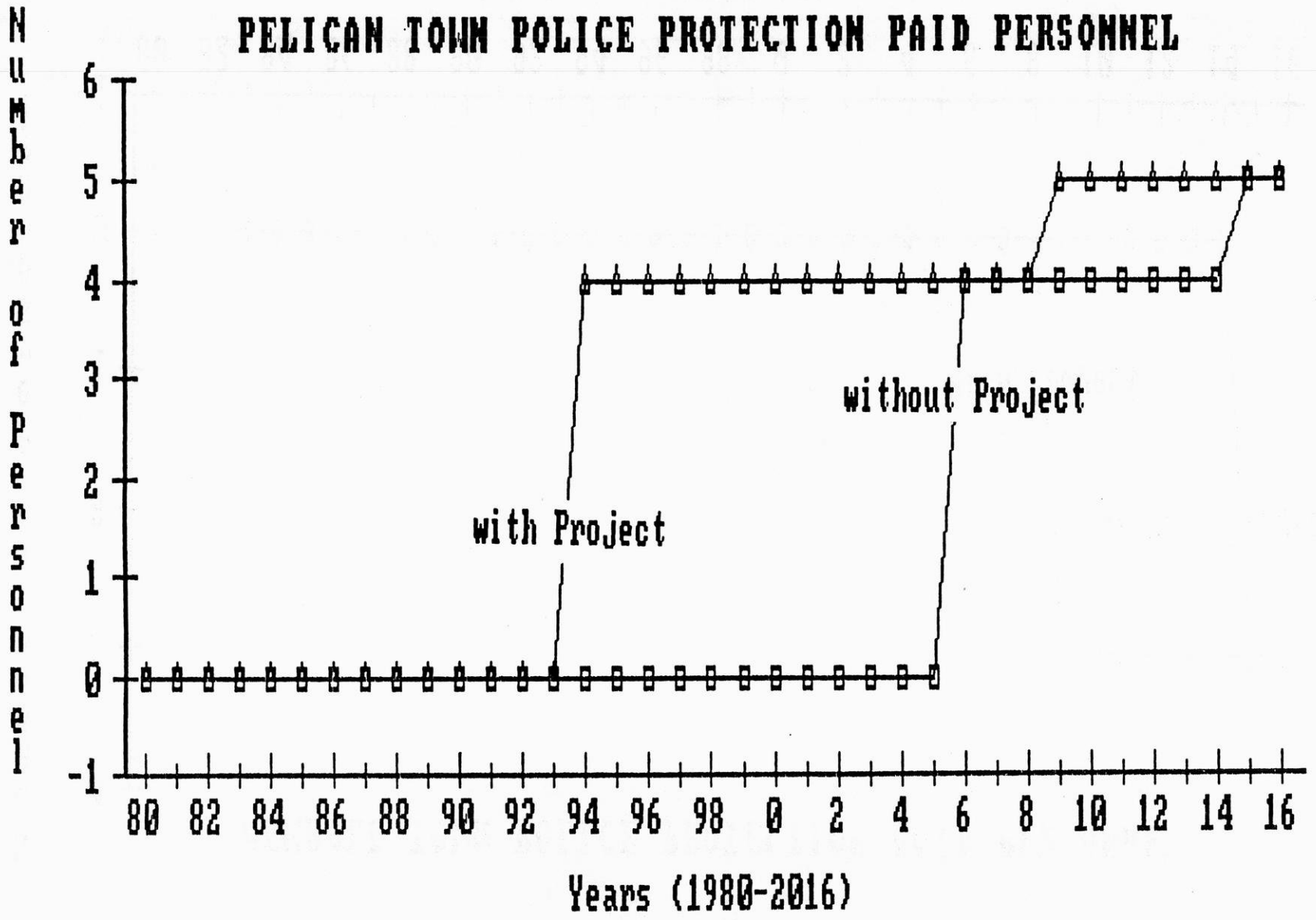
SOURCE: Research and Planning Consultants, Inc.

FIGURE 5-3



SOURCE: Research and Planning Consultants, Inc.

FIGURE 5-4



SOURCE: Research and Planning Consultants, Inc.

maintained relatively constant to population growth in each jurisdiction.

For the cities of Antigo and Rhinelander, total expenditures for fire protection are forecast to increase little with a maximum annual increase of approximately 4.0 percent. Antigo is projected to add two firemen during the forecast period to hold steady at its current ratio of paid firefighters-to-population.

Streets and Roads

To project expenditures for normal street and road maintenance, the public facilities and services model considers current per capita expenditures by each jurisdiction and then plots a forecast based on holding those per capita expenditures at their current levels as population grows in that jurisdiction.

A separate transportation model (see Transportation Analysis) was used independently of the public facilities and services model to estimate traffic volumes on a portion of the system of rural federal, state, and county highways within the local study area. The resulting traffic volumes were used to assess potential congestion levels and roadway improvements attributable to the incremental Project traffic, and not to establish a basis for a regional highway improvement program under conditions without the Project. Growth in highway traffic, as described in that chapter, should be moderate and in keeping with projections of population and employment growth.

Though the transportation model operates independently of the public facilities and services model, its conclusions are consistent with the projections in this chapter on public facilities and services. Our projections based on per capita expenditures for routine street and road maintenance suggest that all of the cities in the local study area will experience a pattern of stable expenditures for streets and roads. Between the three cities (Rhinelander, Antigo, and Crandon), the largest increase in expenditures for any one year in the future is projected to be approximately 2.0 percent. All of the secondary service centers are forecast to have increased expenditures for streets and roads in order to maintain their current level of per capita expenditures, but these will be very gradual, with the largest increase in any projected year being less than 1.0 percent.

Water Supply and Wastewater Treatment

Centralized water supplies are being provided by municipal utility districts in the three cities and by sanitary districts in the five secondary service centers. Based on current usages, projected population growth, and facility capacities, all of the existing water supply systems are expected to have adequate capacities to service their customers throughout the without-project forecast period (1980 to 2016). These same factors of current usages, projected population growth, and facility capacities also were used to determine that wastewater treatment cur-

rent usages, projected population growth, and facility capacities also were used to determine that wastewater treatment facilities in all of these cities and secondary service centers will be adequate to meet customer demands to the end of the forecast period.

Our model also indicates that, in this without-project forecast, three towns, Crescent, Pine Lake, and Pelican, are expected to reach the population thresholds (Table 5-2) which might cause them to consider initiating centralized water and wastewater services during the latter part of the forecast period. The development of separate, centralized utilities in these towns is linked to assumptions inherent in the housing, land use, and spatial allocation models regarding limitations on the City of Rhinelander's ability to extend its service areas into adjoining towns.

However, population changes are not the only factors which determine whether or not a jurisdiction chooses to institute centralized water and wastewater services. Other important factors include density and type of development, percent of the popuation which can be expected to use a centralized system, topography of the area as it affects the cost of installing such a system, groundwater conditions, and whether soil conditions are amenable to the continued use of septic tanks for accommodating new development.

The public facilities and services model does not consider these factors, relying instead solely on the population threshold analysis. But, as stated in the Introduction, the model outputs are only an aid to arriving at a professional opinion as to projections of future occurrences. Accordingly, the population threshold analysis must be considered in light of these other factors.

Even though the absolute population threshold values for the initiation of centralized water and wastewater services are reached by the towns of Crescent, Pine Lake, and Pelican, consideration of other factors indicates that these three towns probably will not provide centralized water and wastewater services. And, even if these services were instituted, they would be financed through user fees and other revenue sources, rather than through the property tax system.

Still, as noted previously, RPC has retained the cost calculations for initiation of the centralized water and wastewater services in the appropriate printouts of the "Forecast of Future Conditions Data Summary" (EMC, 1983c) for the towns of Crescent, Pine Lake, and Pelican in order to allow readers to see clearly the costs for financing such systems through the property tax. Even though these printouts include cost calculations for centralized water and wastewater systems, it should be emphasized that the initiation of such services is not projected by RPC. Nor is it expected that these services would affect property

taxes, because construction would be financed by user fees or other revenue sources. Consequently, we have excluded any water or wastewater expenditures from the total expenditure levels in all of these three towns (depicted in Figures 5-15, 5-17, and 5-18).

Other towns in the local study area currently do not provide centralized water and wastewater services. We do not project that they will begin providing these services during the forecast period.

Solid Waste Disposal

All cities and secondary service centers provide solid waste disposal services except for the City of Rhinelander, which currently contracts with Oneida County. As the population increases, total expenditures needed to maintain current per capita operating and maintenance expenditure levels are forecast to remain fairly stable over the forecast period. The largest annual increase between future consecutive years is approximately 3.0 percent and the majority of annual changes in total expenditures are less than 1.0 percent. None of the towns provide solid waste disposal services and we do not project that they will initiate these services during the forecast period.

A regional analysis of solid waste disposal capacity by landfilling or other methods is well outside the scope of this effort, and no analysis of capital requirements for new or addi-

tional disposal capacity has been performed to incorporate such an effort in the public facilities and services model.

Library Services

Library services are provided by the three cities and four of the five secondary service centers in the local study area. The Town of Elcho presently is part of the City of Antigo library system. Over the forecast period, total expenditures for library services in the three cities and in four of the secondary service centers are projected to remain stable with approximately 2.0 percent being the largest annual increase and the majority of jurisdictions having annual increases of less than 1.0 percent.

Recreation

Recreational facilities are funded by the three cities and five secondary service centers in the local study area. Average per capita expenditures in 1982 constant dollars for recreation facilities vary greatly among jurisdictions with a low of approximately $1.00 in Elcho and a high of more than $30.00 in Rhinelander. Total recreation expenditures for the local study area jurisdictions are projected to remain stable for all but the cities of Antigo, Rhinelander, and Crandon, which have less than 1.0 percent annual increases each year.

General Government

Expenditures for general government are projected to remain stable over the forecast period with annual increases of generally less than 1.0 percent. General government expenditures are considered in two categories. The general government operating and maintenance category refers to local government administration and support activities, such as purchasing, finance, tax collection or assessments, boards and commissions, personnel matters, or other internal functions. The general government capital expenditure category incorporates a broader definition of purpose, however. It incorporates the needs for capital outlays in service categories outside of the administrative and control functions indicated above, such as public safety, public works, health and welfare, and recreation and culture. All of the counties, cities, and secondary service centers except White Lake Village are projected to have modest annual increases in general government expenditures resulting from increased debt service associated with these capital expenditures during the forecast period. Several of the towns also may have small capital outlays of $15,000 or less, which are assumed to be paid in full during the same year the outlay is made.

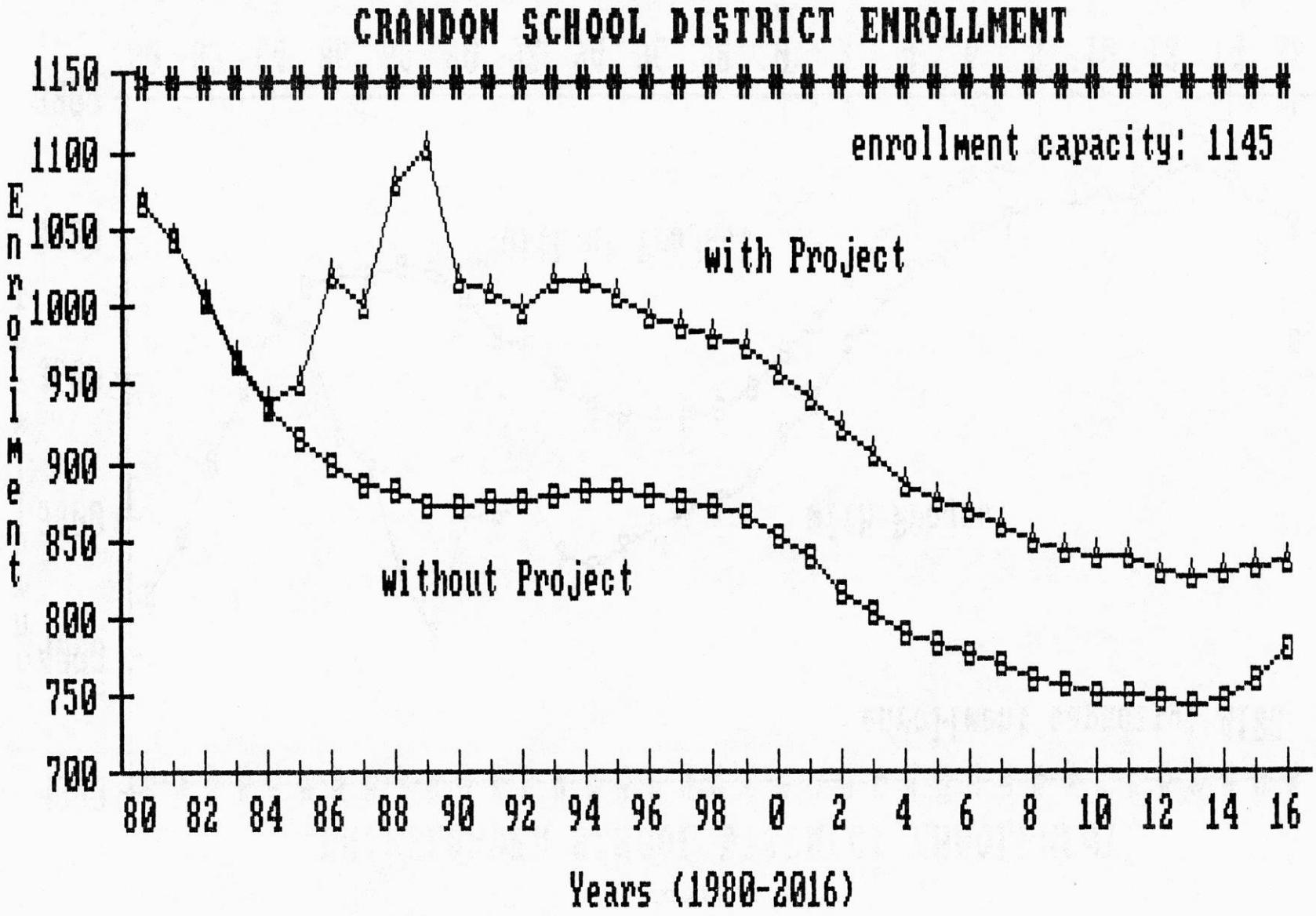
Public Education

The education system for the local study area is composed of eight school districts. Projections for the local study area indicate that, without development of the Crandon Project, declining or stable enrollment trends are forecast for all school districts during the first 10 years of the forecast period (1980 to 1990). Then, enrollment is projected to increase gradually for all school districts, except for those with enrollments from the three cities, where larger enrollment increases are predicted. Toward the end of the forecast period, enrollment begins to decline, then stabilizes in the last few years for all eight districts. Enrollment changes for the Crandon and Rhinelander school districts are illustrated in Figures 5-5 and 5-6.

In Figure 5-6, without-project enrollment is forecast to exceed with-project enrollment after 2014. This is a result of population changes explained in the post-operation section of the Demographic Analysis.

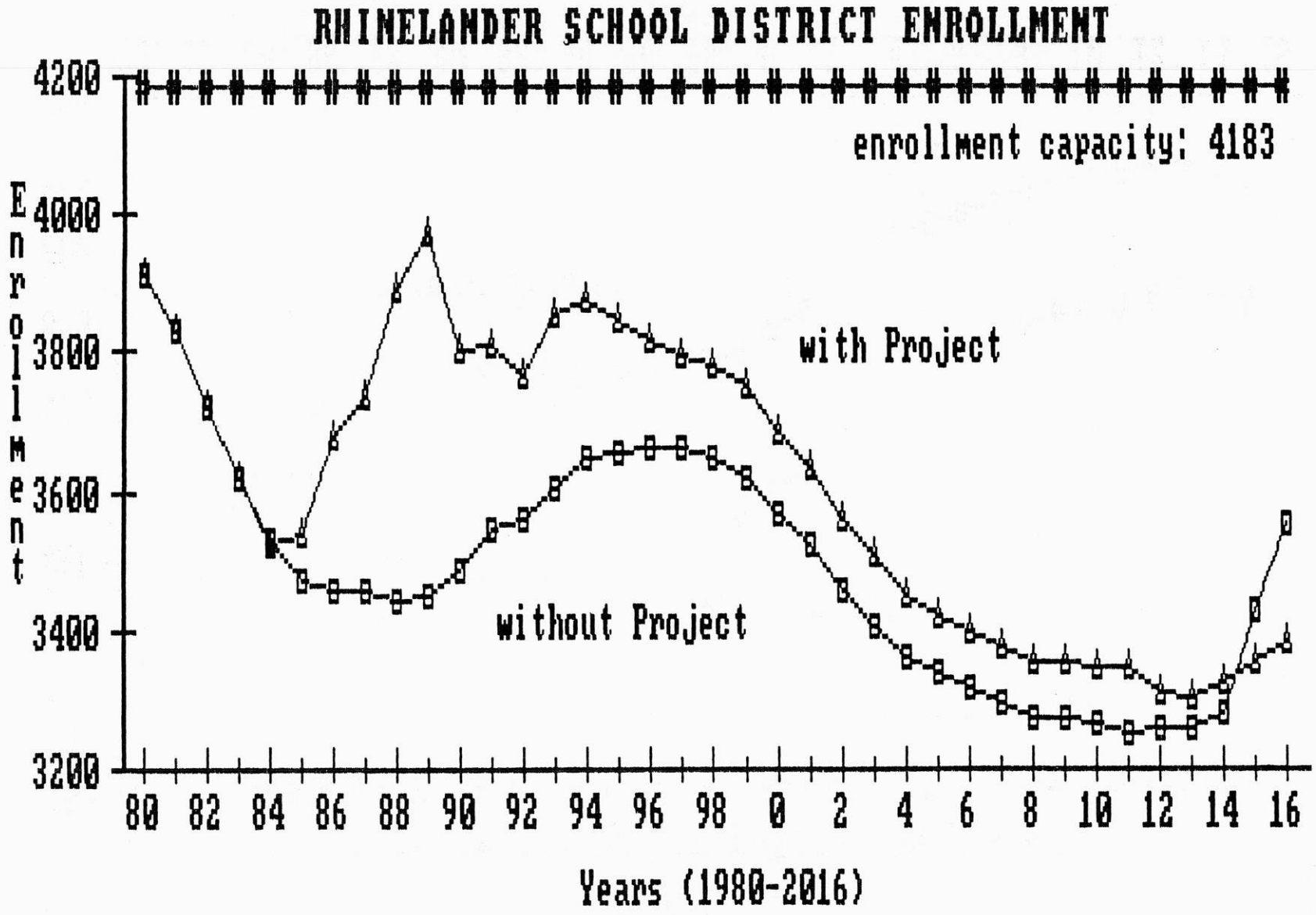
At present, all eight school districts have capacity for additional students. The districts are projected to continue to have adequate physical capacities from existing facilities for the duration of the forecast period. Still, some of the districts may choose to replace existing facilities with more modern ones.

FIGURE 5-5



SOURCE: Research and Planning Consultants, Inc.

FIGURE 5-6



SOURCE: Research and Planning Consultants, Inc.

General Operations and Other Services

The general operations and other services category includes expenditures by counties, cities, secondary service centers, and towns in the local study area for all public facilities and services not discussed previously. This would include expenditures for public health, social services, emergency medical services, and other miscellaneous services provided in some measure by a jurisdiction. Expenditure projections for this category are based on per capita costs. These expenditures are forecast to increase gradually with population growth in all jurisdictions. Between the three county governments, the largest annual increase between consecutive years is projected to be approximately 2.0 percent.

Utilities

Utilities are provided on an areawide basis and include electricity, heating fuel, and telephone services. In the local study area, availability of these services is excellent and is governed by the ability of the user to purchase the service. No limitations on utility services are projected throughout the forecast period.

WITH-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

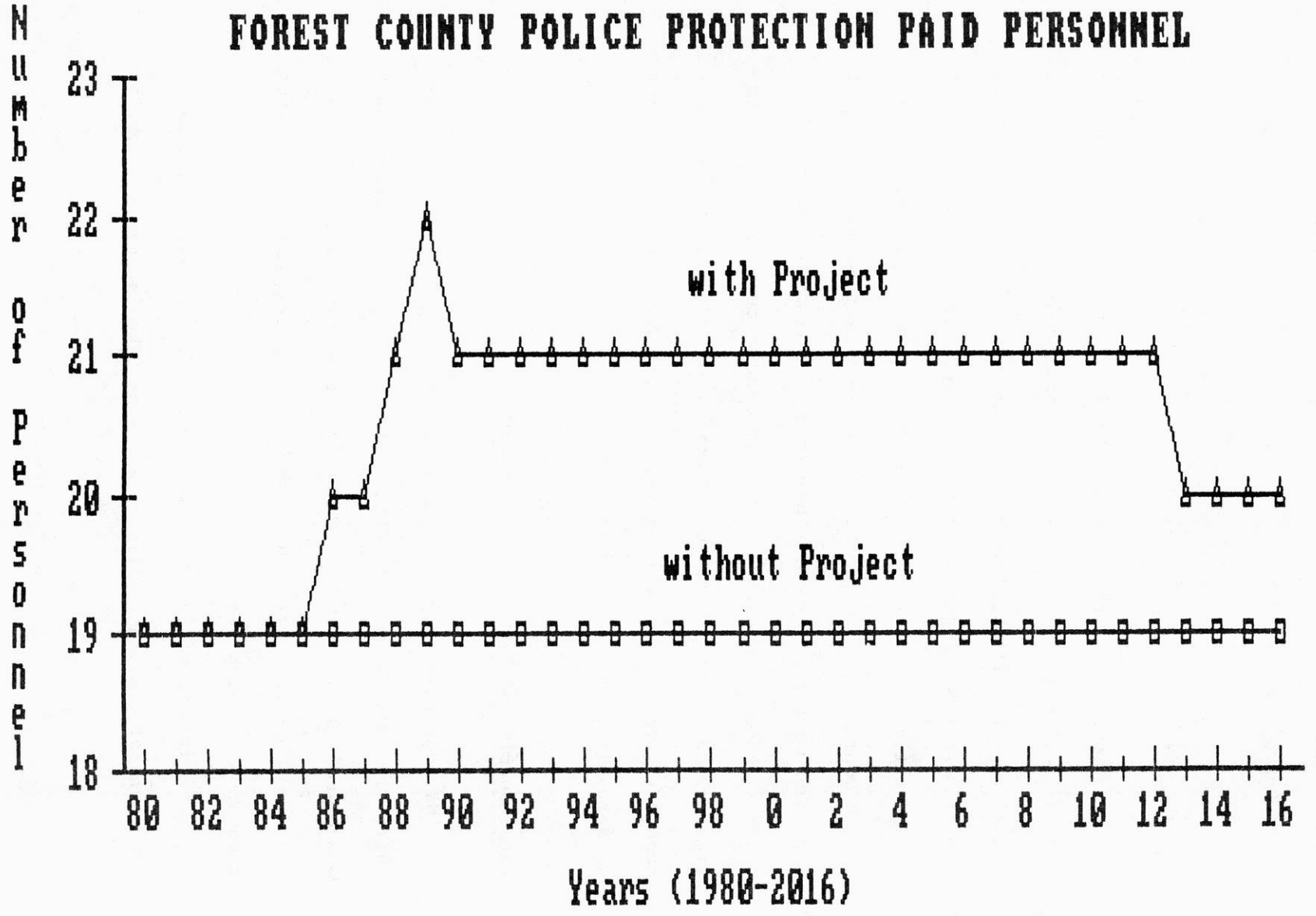
Police Protection and Fire Protection

The with-project forecasts also rely on maintaining current per capita service or expenditure levels as the population changes. As population increases in most of the jurisdictions, law enforcement agencies in those jurisdictions will have to add additional paid personnel to maintain current ratios of police officers-to-population.

In Forest (Figure 5-7) and Oneida counties, the with-project forecast predicts the addition of three more county law enforcement officers in each county during the construction phase than in the same time period in the without-project forecast. In Langlade County, the Project forecast indicates an increase of two law enforcement officers during the construction phase.

The cities of Crandon (Figure 5-2) and Antigo each are predicted to need one additional law enforcement officer during the construction phase, and two additional paid firefighters are projected for the City of Antigo. The City of Rhinelander is projected to need an additional policeman and an additional paid fireman through the construction phase as compared to the same time period in the without-project forecast. For the other jurisdictions in the local study area, the effects of the Crandon

FIGURE 5-7



SOURCE: Research and Planning Consultants, Inc.

Project are forecast to be similar to those anticipated by the without-project forecast.

Streets and Roads

The effect of the Crandon Project on expenditures for streets and roads by cities and secondary service centers is minor. In the cities, the Project substantially increases total expenditures for streets and roads only in the City of Crandon. In the cities of Antigo and Rhinelander, total road expenditures in the construction phase of the with-project scenario are not expected to differ by more than approximately 2.5 percent from those forecast for without-project conditions during the same time period. Most of the jurisdictions are forecast to have less than 5.0 percent increases in total street and road expenditures as a result of the Crandon Project.

Water Supply and Wastewater Treatment

No additional capital improvements are projected to be required for any water supply facilities during this period under with-project conditions, although expenditures associated with this service are expected to increase in accordance with the greater population levels.

Initiation of centralized water and wastewater systems in the towns of Crescent, Pelican, and Pine Lake is indicated by the

population threshold analysis. But, as discussed earlier in this chapter, other factors considered by RPC indicate that such services probably will not be initiated in these towns. If a decision were made to initiate centralized water and wastewater services, they probably would be funded through user fees and not through property taxes.

Solid Waste Disposal, Library Services, and Recreation

Because of the projected increased population associated with the Crandon Project, total expenditures for solid waste disposal, library services, and recreation are forecast to increase to maintain the current per capita expenditure levels. Expenditures for these services are projected to increase by the same percentage as the increase in each jurisdiction's population.

General Government

In some jurisdictions (i.e. Forest, Langlade, and Oneida counties, the City of Antigo, and the towns of Antigo, Pelican, Pine Lake, Sugar Camp, and Three Lakes), the Crandon Project will increase notably the funding levels for general government capital projects, as well as advancing the timing of some outlays. Where population increases rapidly with the initiation of Project construction, the increase in residents and the accelerated rate

of growth requires larger outlays in an earlier year to match the expanding populations.

General Operations and Other Services

The Crandon Project is not predicted to change substantially the without-project forecast of demand for public health and social services, health facilities, and personnel. The additional population may place a greater emphasis on the shortage of nurses in the local study area. However, hospital capacity and the availability of other medical services will not be strained by projections of any of the scenarios.

As discussed previously in the Demographic Analysis chapter of this report, nine jurisdictions have been identified within the local study area as impacted due to population growth induced by the Project or the location of the Project within jurisdictional boundaries. These nine jurisdictions are:

Town of Lincoln	Town of Nashville	City of Crandon
Town of Crescent	Town of Newbold	Town of Pelican
Town of Pine Lake	Forest County	Crandon School District

As appropriate for the six towns, the City of Crandon, and Forest County, Figures 5-2 through 5-4, 5-7 and 5-8, 5-10 and 5-11, and 5-13 through 5-16 display information on the annual levels of paid police officers and total expenditures (inclusive of debt service) for each jurisdiction under conditions without and with the Crandon Project. Figures 5-5, 5-11, and 5-12 display information for the Crandon School District on annual levels

of enrollment, total expenditures (inclusive of debt service), and teachers and professional administrators. Figures 5-8 and 5-9 provide information for the Rhinelander School District's annual levels of total expenditures and professional and administrative personnel.

During its construction phase, the Crandon Project will experience the highest level of direct Project employment in 1989 as a result of overlaps between construction and operation workers and, consequently, the greatest level of additional Project-related population is expected to reside within the local study area during that year. As a result, the Crandon Project is expected to affect the nine jurisdictions in the following ways:

- accelerate the hiring of an additional police officer (Figure 5-2) and increase annual total expenditures (Figure 5-10) by nearly 13 percent over comparable levels in 1989 without the Project in the City of Crandon (with lesser increases in other years);

- increase enrollments (Figure 5-5) and total expenditures (Figure 5-11) by more than 26 percent above comparable levels in 1989 in the Crandon School District with lower increases in earlier years, and requiring additional teaching and professional administrative personnel (Figure 5-12) in comparison to conditions without the Project;

- increase total expenditures by up to approximately 43 percent above comparable levels without the Project in 1989 for the Town of Lincoln (Figure 5-13);

- increase annual total expenditures by as much as nearly 42 percent above comparable 1989 without-project levels in the Town of Nashville (Figure 5-14);

- increase the annual level of total expenditures in the Town of Crescent (Figure 5-15) by as much as 148 percent in 1989 above comparable levels without the Project;

- increase the annual total expenditures (Figure 5-16) in the Town of Newbold by more than 12 percent in 1989 above without-project levels;

- increase the annual level of total expenditures in the Town of Pelican (Figure 5-17) by approximately 15 percent in 1989 in comparison to conditions without the Project;

- increase the annual level of total expenditures in Pine Lake Town (Figure 5-18) by nearly 94 percent in 1989 above without-project values; and

- increase the need for and accelerate the hiring of additional police officers (Figure 5-7) in Forest County, and increase the level of total expenditures (Figure 5-19) by approximately 14 percent in 1989 above comparable levels without the Project.

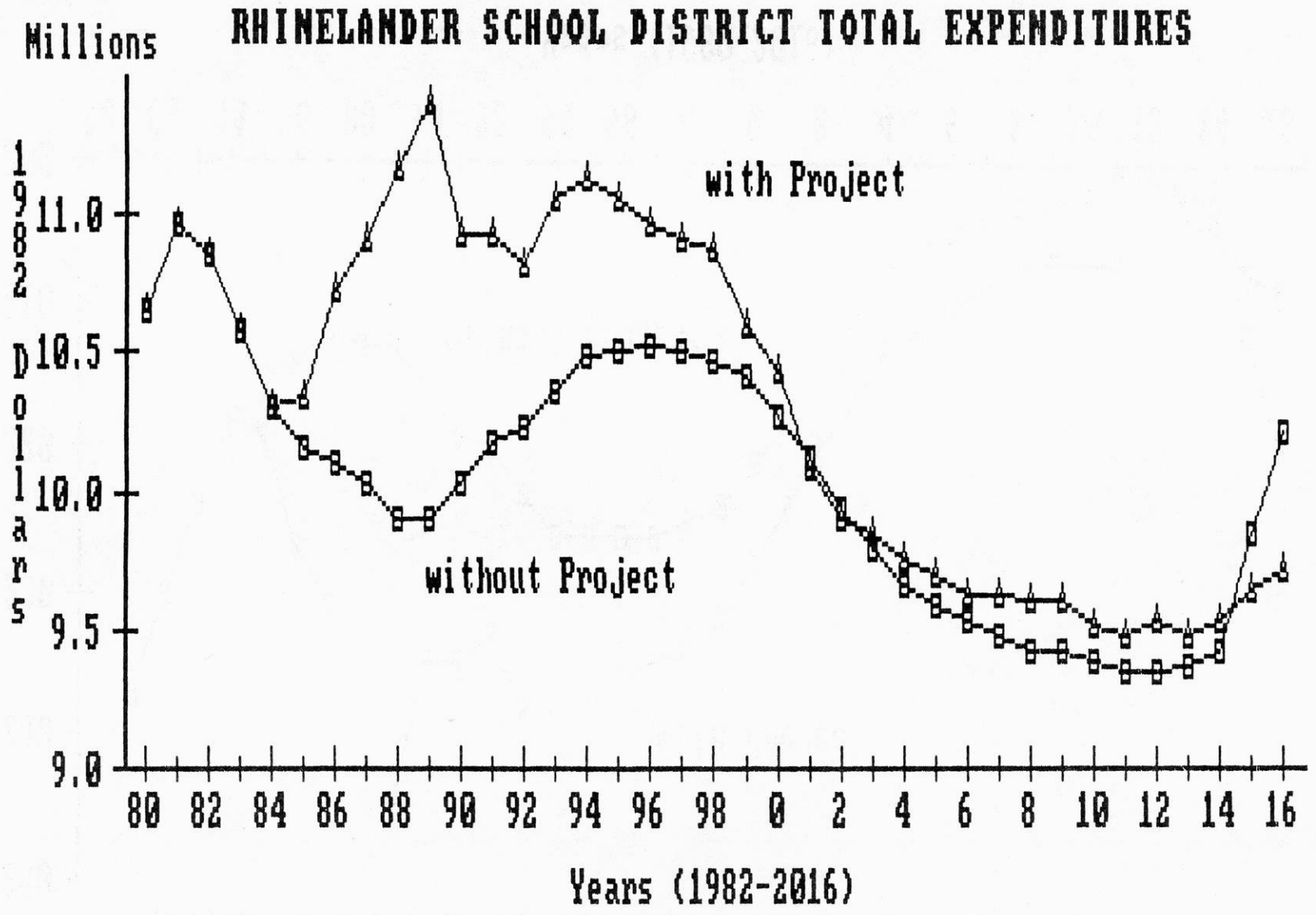
OPERATION PHASE (1990-2011)

As with the construction phase, the operation-phase effects of the Crandon Project on public facilities and services are related closely to population changes.

Police Protection

Other than causing jurisdictions to hire additional police officers earlier (in keeping with population growth) than they would have in the without-project forecasts, the Project should have no effect during this phase on the jurisdictions with existing paid police protection. Over the course of the forecast period, the Project should not result in any more police officers being hired than are expected to be hired in the without-project future. For the towns of Newbold (Figure 5-3) and Pelican (Fig-

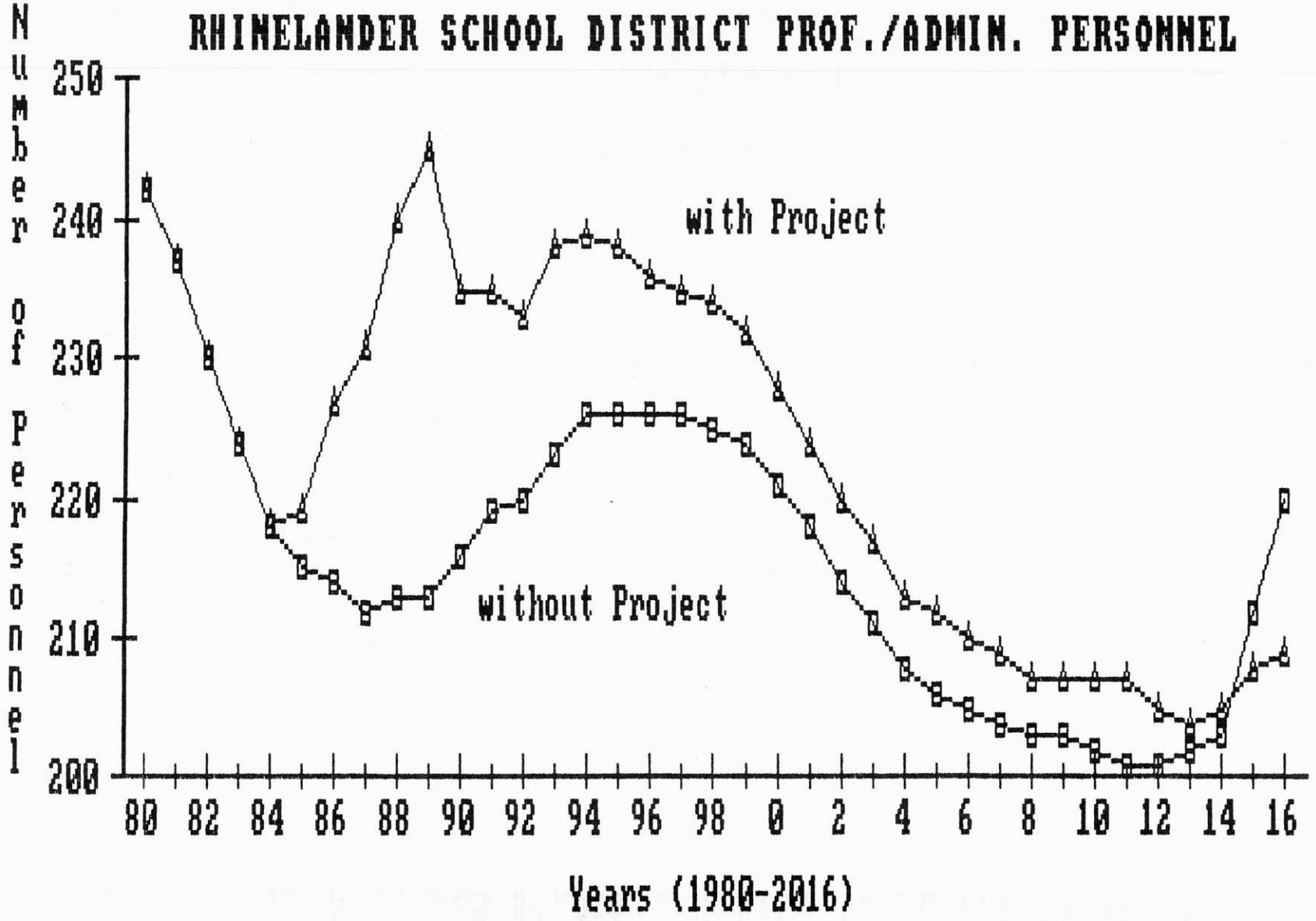
FIGURE 5-8



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

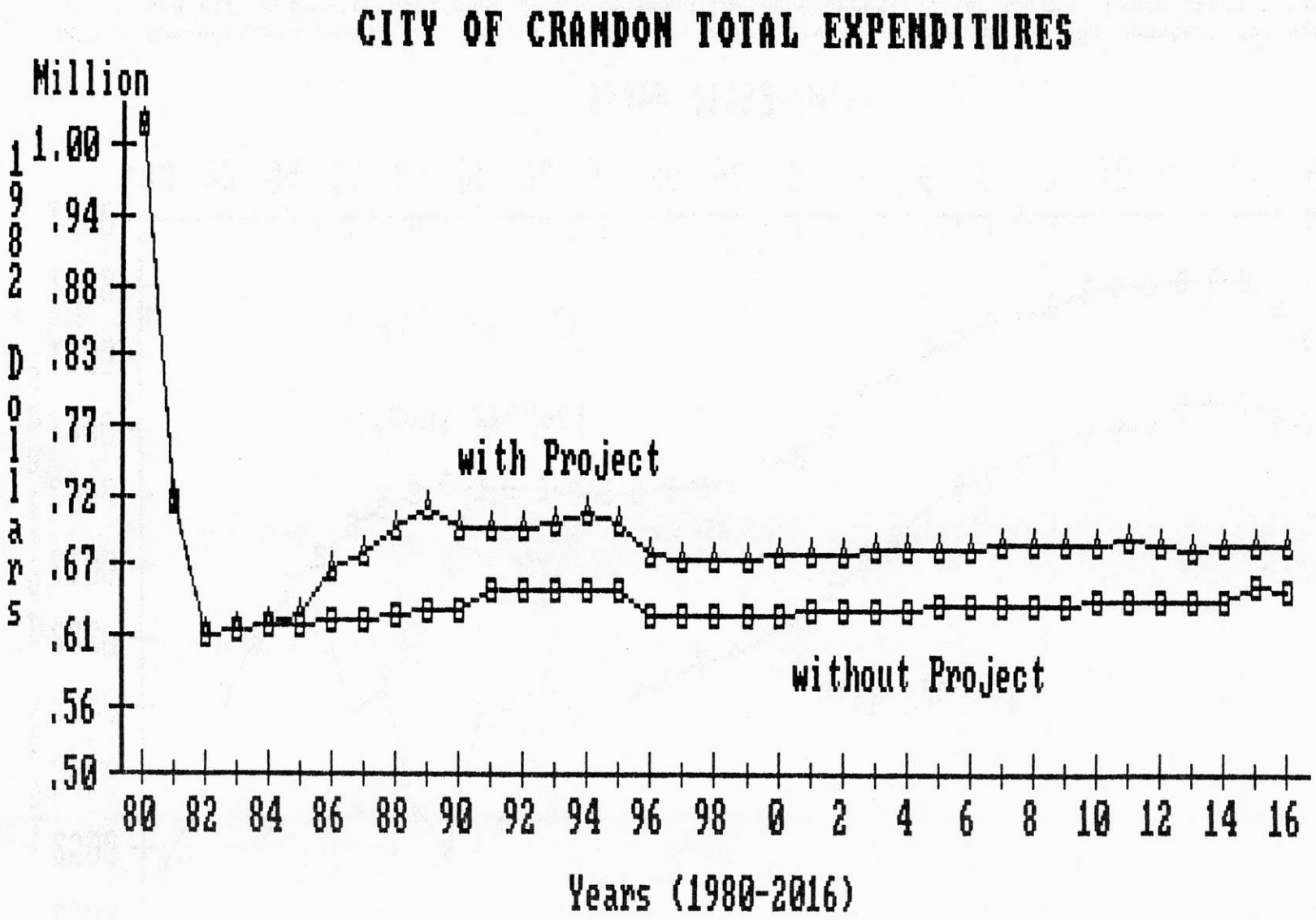
SOURCE: Research and Planning Consultants, Inc.

FIGURE 5-9



SOURCE: Research and Planning Consultants, Inc.

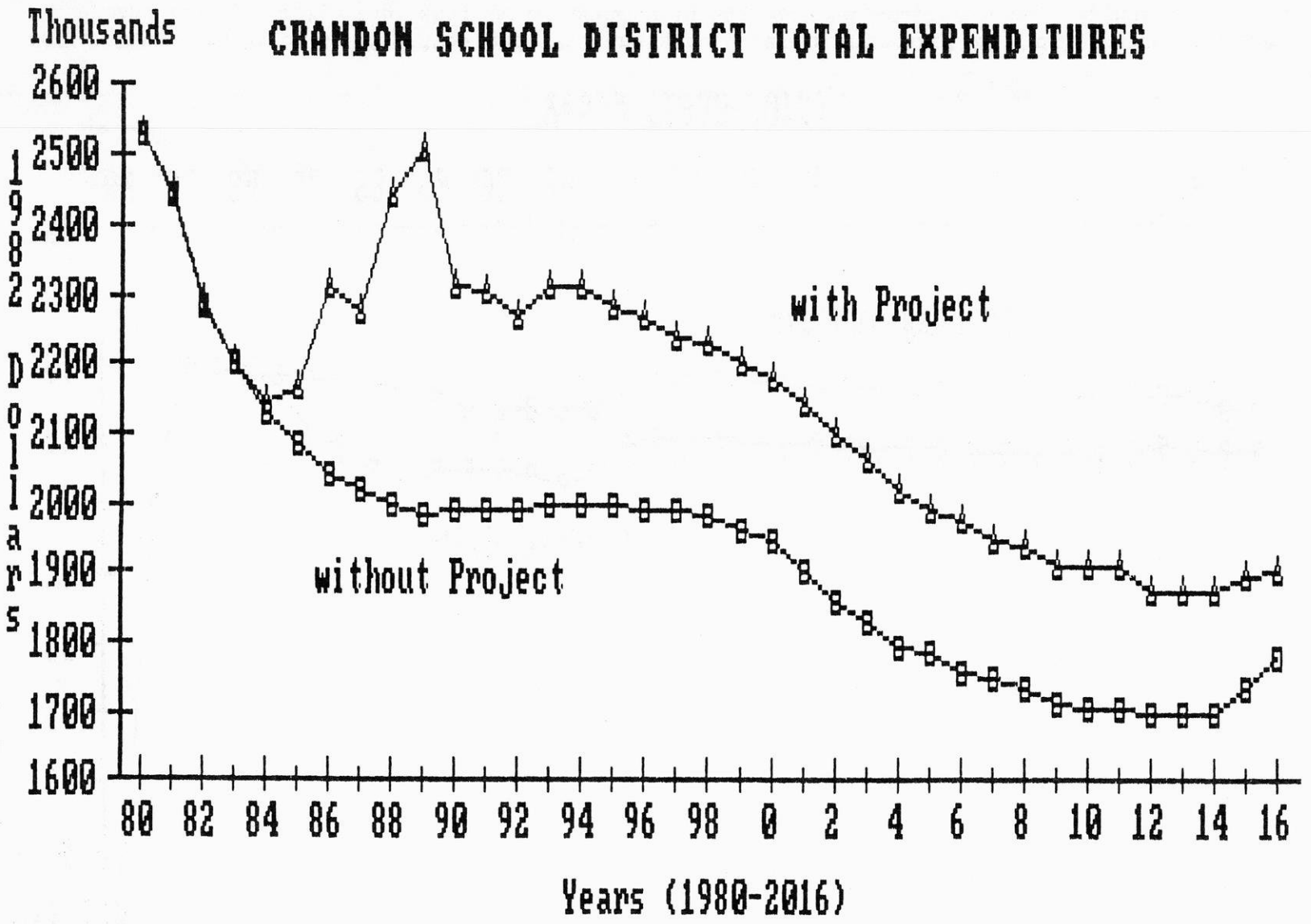
FIGURE 5-10



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

SOURCE: Research and Planning Consultants, Inc.

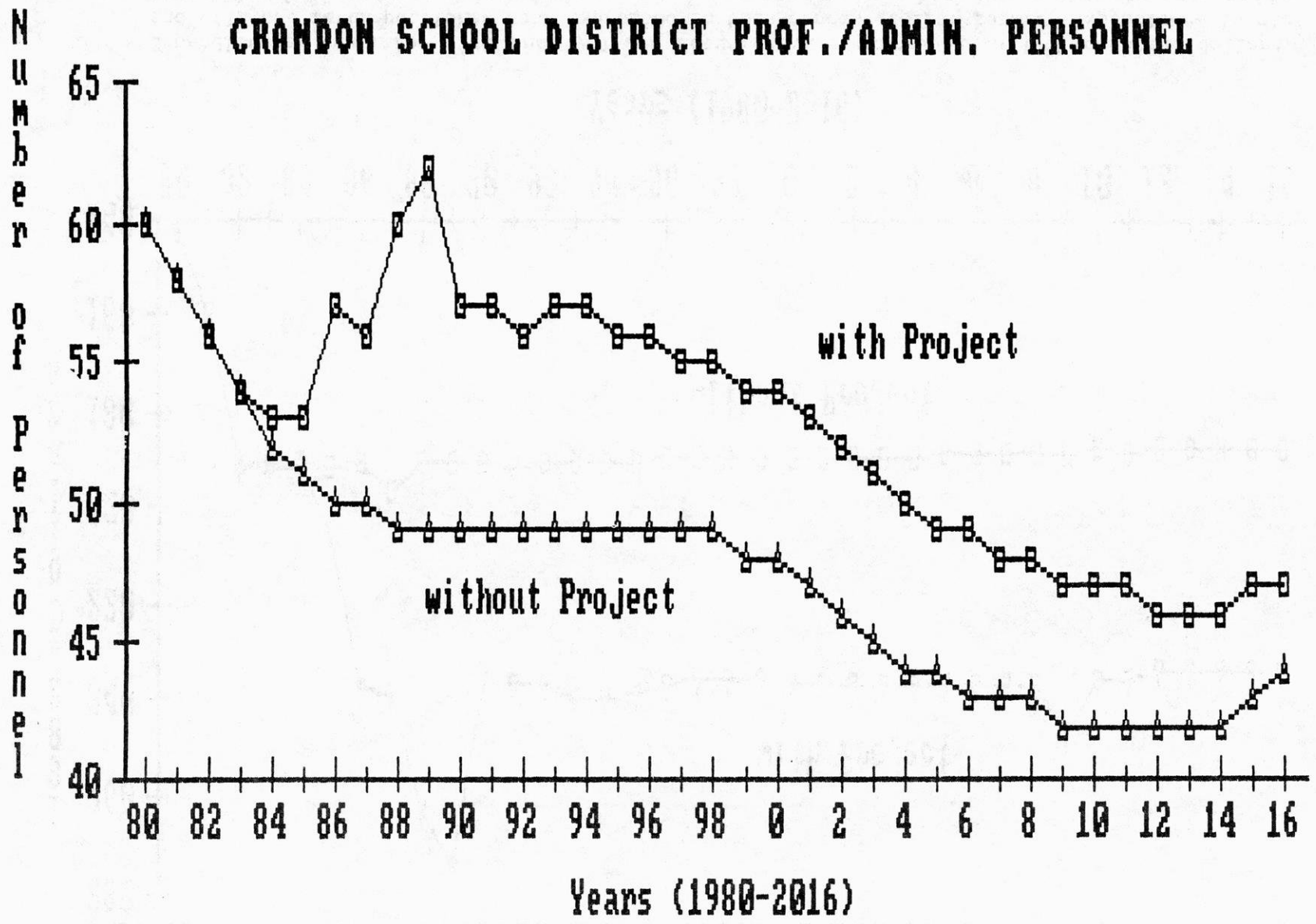
FIGURE 5-11



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

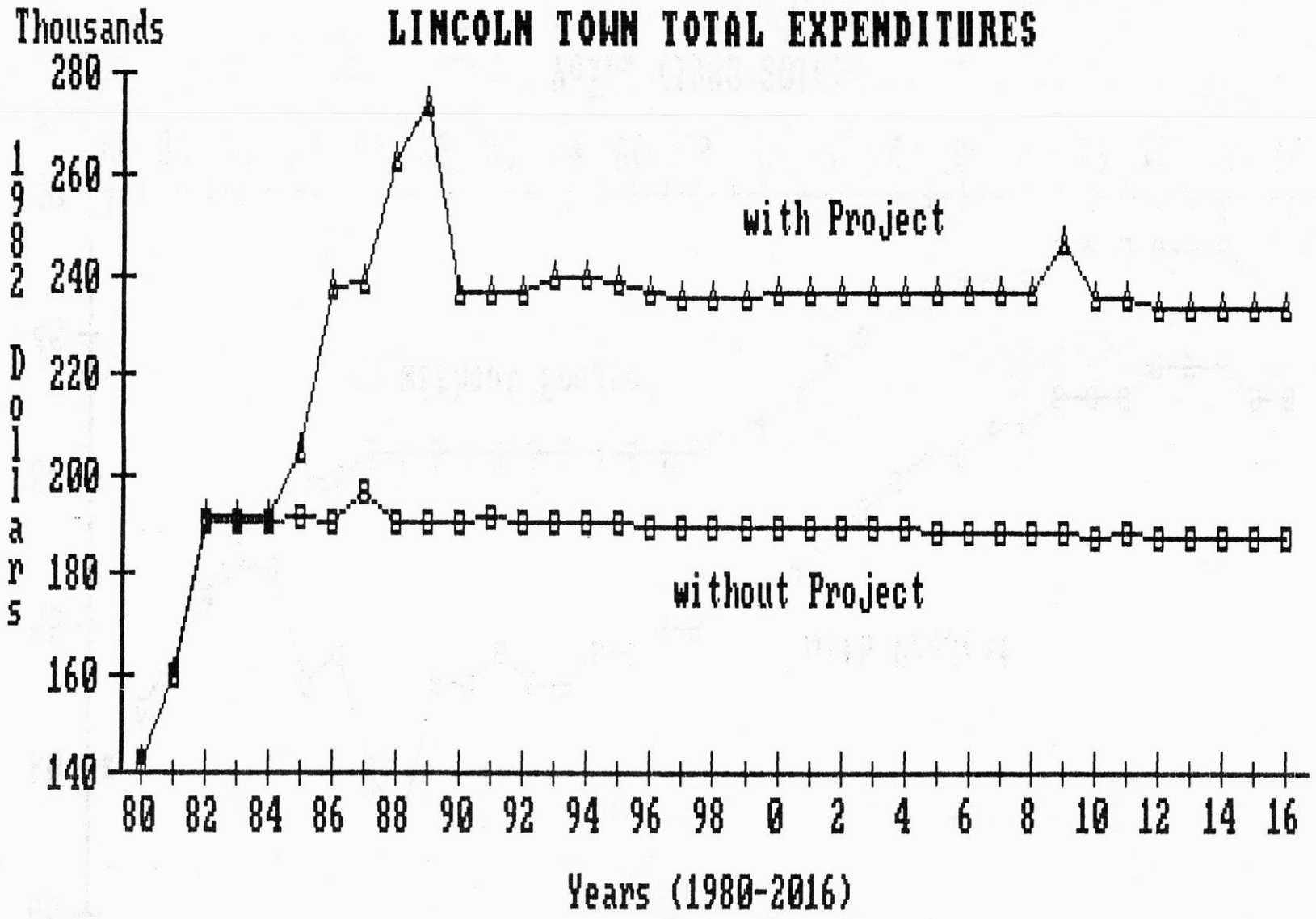
SOURCE: Research and Planning Consultants, Inc.

FIGURE 5-12



SOURCE: Research and Planning Consultants, Inc.

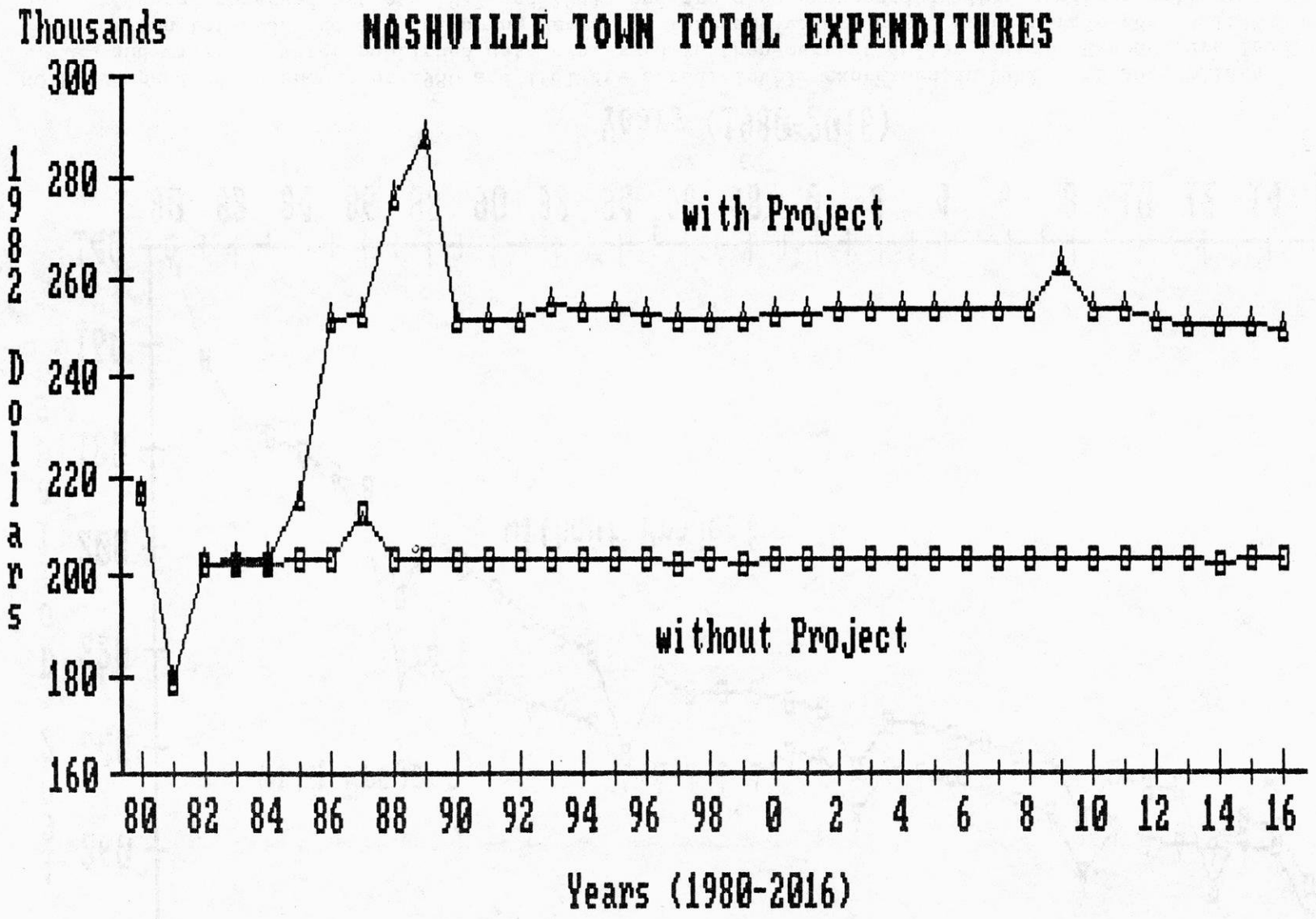
FIGURE 5-13



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

SOURCE: Research and Planning Consultants, Inc.

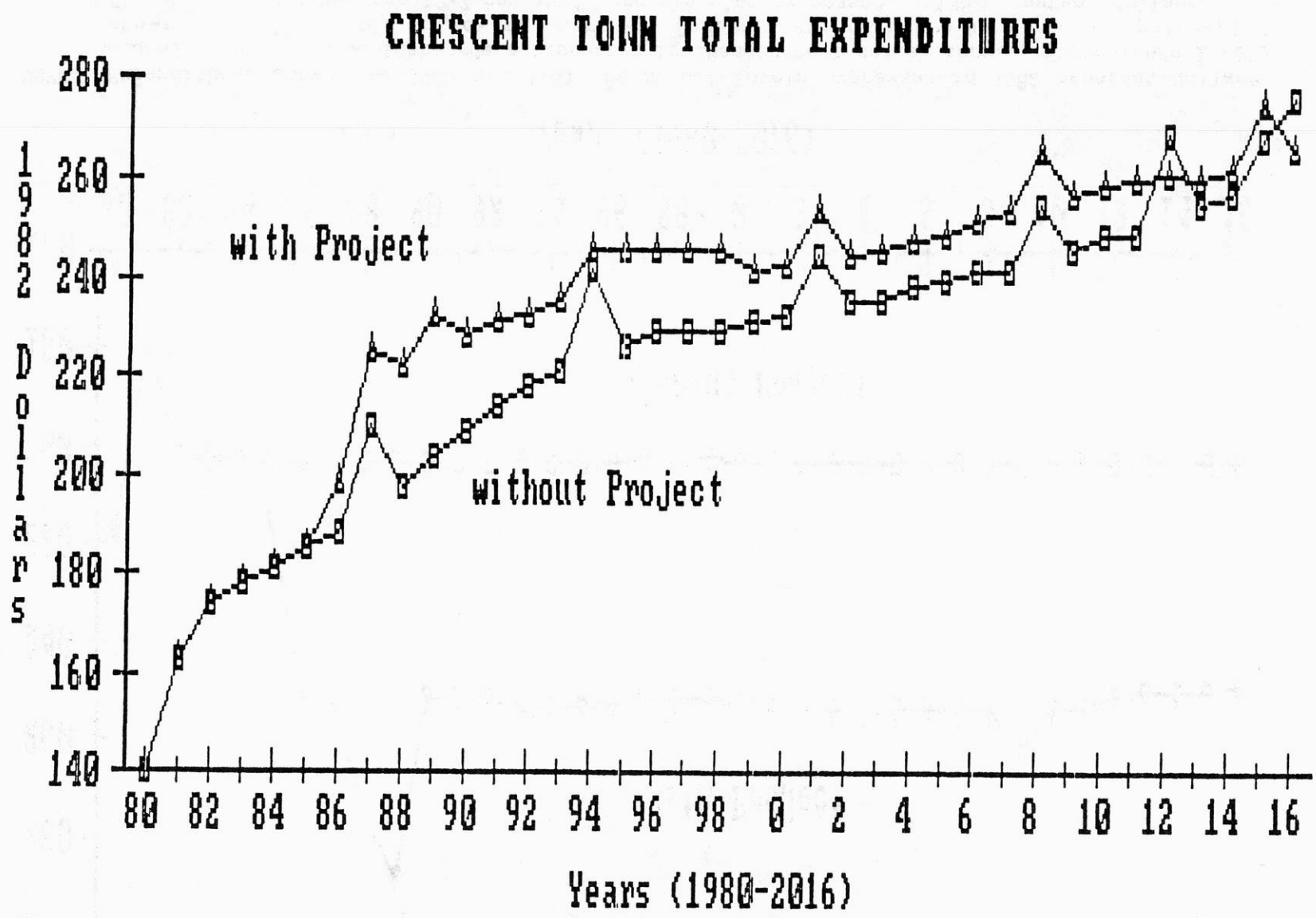
FIGURE 5-14



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

SOURCE: Research and Planning Consultants, Inc.

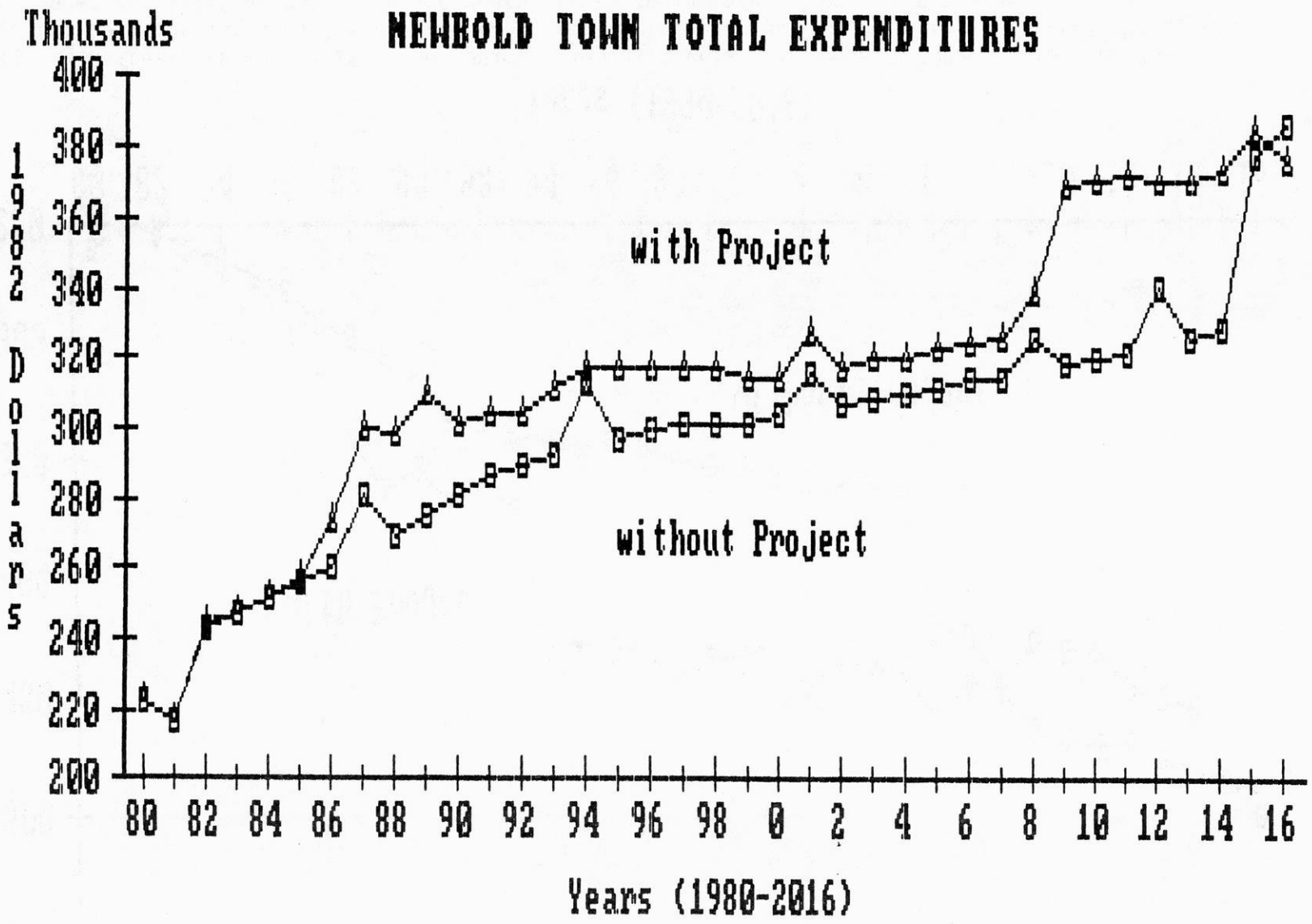
FIGURE 5-15



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

SOURCE: Research and Planning Consultants, Inc.

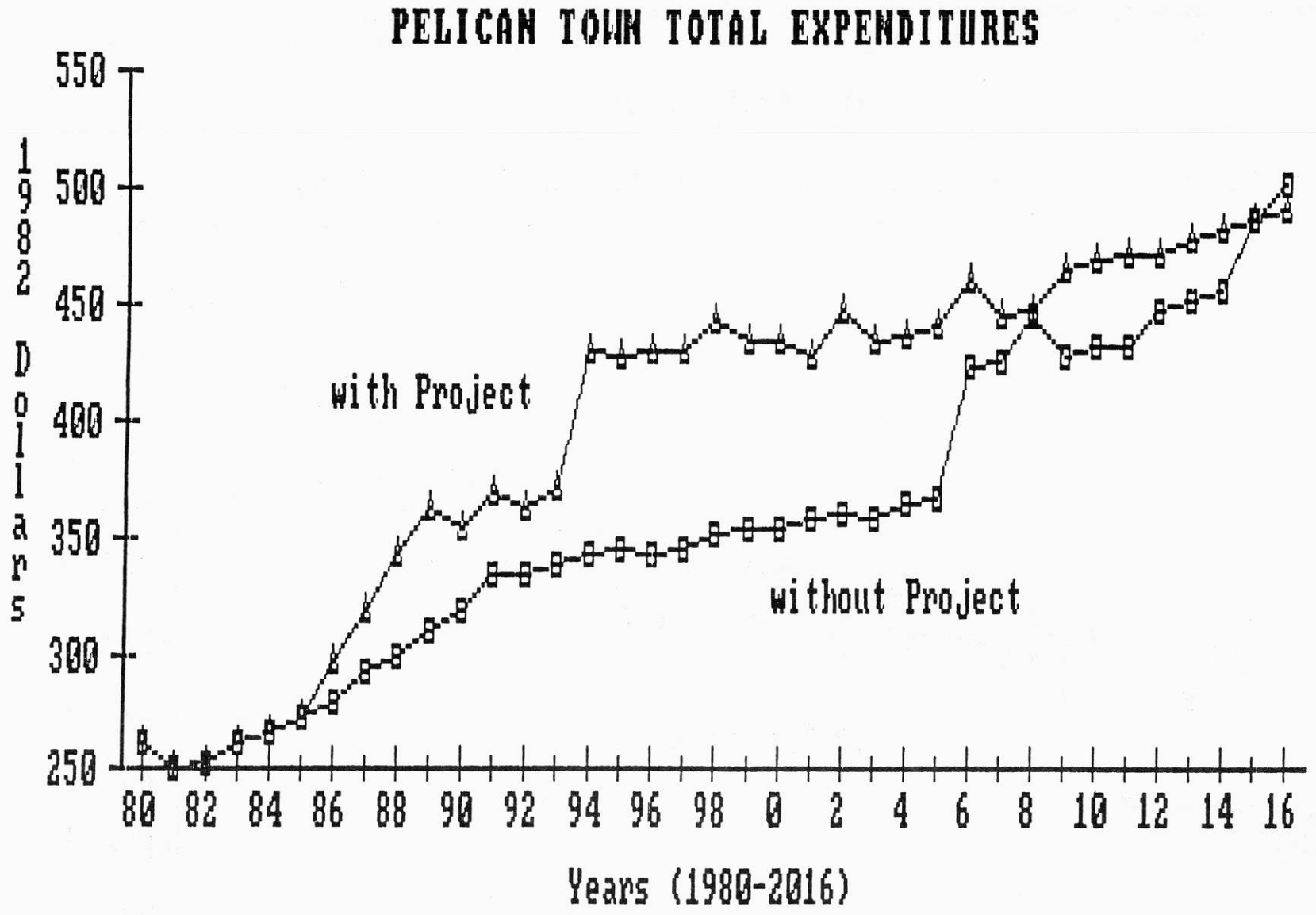
FIGURE 5-16



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

SOURCE: Research and Planning Consultants, Inc.

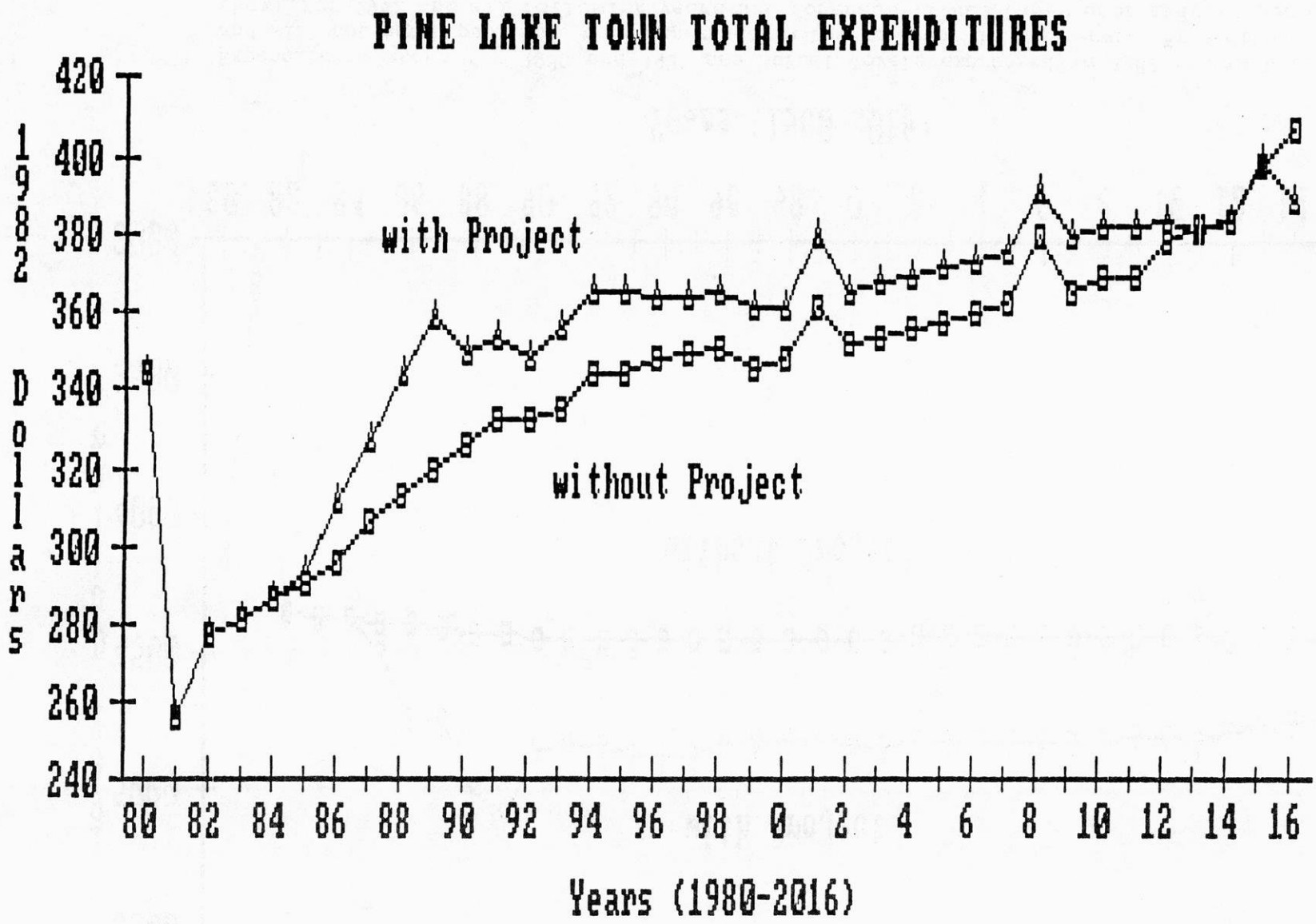
FIGURE 5-17



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

SOURCE: Research and Planning Consultants, Inc.

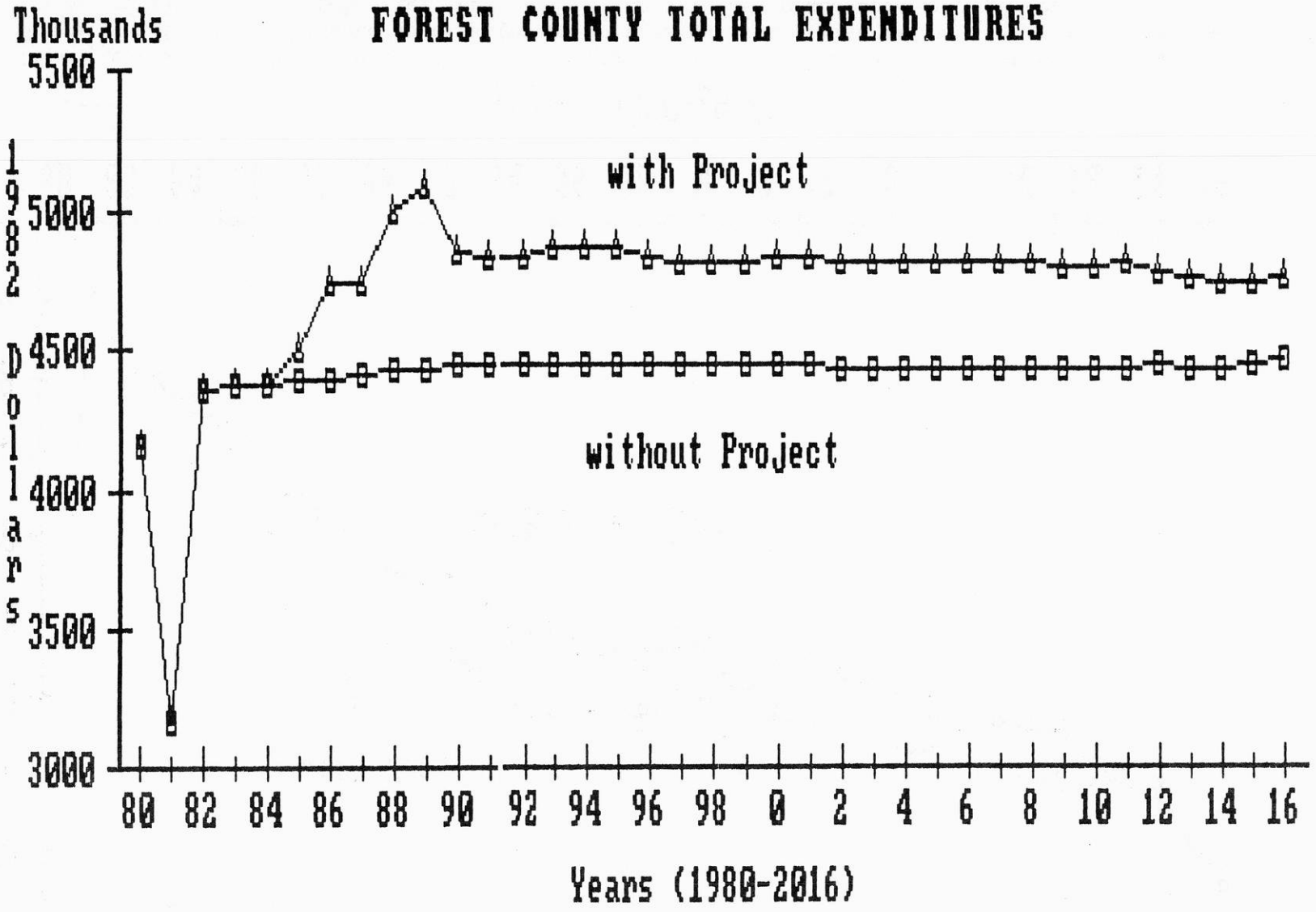
FIGURE 5-18



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

SOURCE: Research and Planning Consultants, Inc.

FIGURE 5-19



NOTE: Expenditures shown for 1980 and 1981 are actual levels expressed in 1982 constant dollars, and will not match published data expressed in then-current dollar terms. Expenditure levels shown for 1982 and all following years are forecast values based upon average per capita figures observed between 1977 and 1981, and are also expressed in 1982 constant dollars.

SOURCE: Research and Planning Consultants, Inc.

ure 5-4), the with-project forecast predicts an earlier initiation of paid police protection than in the without-project forecast.

Fire Protection

The effects of the Crandon Project on fire protection are similar to those outlined for police protection. The Project will provide its own on-site security and fire protection. The Project is not forecast to change substantially fire protection personnel requirements for the City of Rhinelander, but will accelerate the addition of the fire personnel in Antigo. In the secondary service centers, the Crandon Project should have little or no effect on fire protection.

Water Supply and Wastewater Treatment

Water supply facilities in the local study area are projected to remain unchanged in the with-project analysis. No existing facilities are projected to require capacity expansion.

The effects of the Crandon Project on wastewater treatment facilities in the local study area are similar to the effects on the water supply systems. The expected without-project conditions of capacity, costs, and financing are substantially duplicated in the with-project forecast.

Even though the population threshold analysis indicates a possible need for intiation of centralized water and wastewater systems in the towns of Crescent, Pine Lake, and Pelican, other factors such as density and type of development discussed earlier in this chapter indicate that initiation of such services may not occur in these towns.

Public Education

The Project is not expected to have substantial effects on the projected expenditures for the local study area school districts. The school districts are projected to have adequate capacity during the operation phase of the with-project forecast period. The increase in enrollment, creating increased expenditure levels, is accentuated more toward the beginning (construction phase) of the with-project forecast period, but the operation phase produces larger declines in enrollment than in the without-project forecast. This is a result of the local study area's temporary increase in enrollments caused by short-term population expansion during the construction phase, followed by the outmigration of construction workers and a decline in population and enrollment growth during the operation phase, as compared to the construction phase. As expected, this effect is experienced to differing degrees in the various school districts.

General Operations and Other Services

The effects of the Crandon Project on public health and social services are predicted to be minimal during the operation phase. However, an additional staff person is forecast for Forest County in 1996 for all scenarios.

Information on enrollment total expenditures and personnel charges within the Crandon School District is displayed in Figures 5-5, 5-11, and 5-12. The Crandon School District is expected to experience increased enrollments as a result of the Crandon Project.

During the operation phase, the Project is expected to affect these jurisdictions in the following ways when compared to conditions without the Project:

- maintain an increased need for additional police officers (Figure 5-7) in Forest County, and increase annual total expenditures (Figure 5-19) by roughly 9 percent;
- increase annual total expenditures (Figure 5-18) in Town of Pine Lake through approximately 2006;
- increase annual total expenditures in Town of Pelican (Figure 5-17) by approximately 10 percent, and accelerate both the institution of paid police officers and the subsequent hiring of additional officers (Figure 5-4);
- increase annual total expenditures (Figure 5-16) in Town of Newbold by approximately 4 percent, and accelerate the institution of paid police officers (Figure 5-3);
- increase annual total expenditures (Figure 5-15) in Town of Crescent by approximately 3 percent;
- increase annual total expenditures (Figure 5-14) in Town of Nashville by approximately 24 percent;

- increase annual total expenditures (Figure 5-13) in Town of Lincoln by approximately 50 percent;
- increase the levels of enrollments (Figure 5-5) in the Crandon School District by approximately 12 percent, teaching and administrative personnel by approximately 10 percent (Figure 5-12), and annual total expenditures (Figure 5-11) by approximately 15 percent in the early years of the operation phase; and
- increase the annual level of total expenditures (Figure 5-10) in the City of Crandon by approximately 8 percent.

POST-OPERATION PHASE (2011-2016)

Population is projected to decrease during the first few years after closure of the mine/mill complex, resulting in a commensurate decline in the demand for most public services. A few services, however, may experience some increase in demand as a result of increased unemployment of local study area residents. Services most likely to experience increased demand include public health and social services. Some increase in police caseloads also may occur if unemployment-related effects of closure lead to increased stress for local study area residents (Hansen, et al., 1981). However, as previously noted, proper planning can minimize most adverse effects of closure.

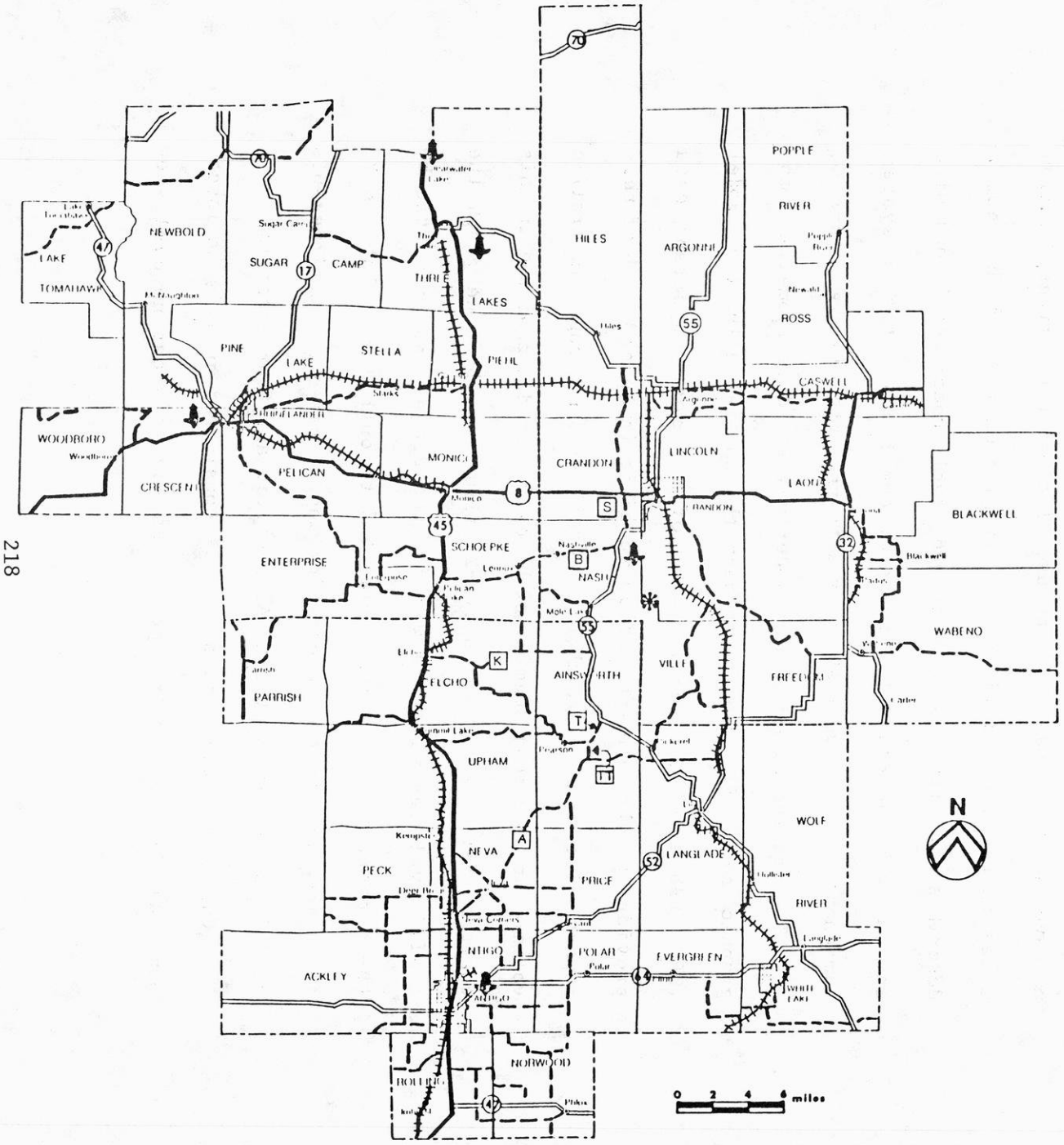
6. TRANSPORTATION ANALYSIS

Major transportation facilities in the local study area for the Crandon Project (also referred to as the "Project") include highways, railroad lines, and airports. The Project is expected to have various impacts on the use of these three transportation modes in the local study area, and this chapter of the report describes the differences in demand levels under conditions with and without the Project. A map of the transportation system components in the local study area is presented in Figure 6-1.

The Transportation Analysis derives its data from the demographic model (RPC, 1981b) through the spatial allocation model (RPC, 1982a) (Figure 6-2). Some of the most important data provided by the transportation model is in Appendix B of this report. Tables B-1 through B-21 detail annual changes in traffic volume for each road segment or highway corridor analyzed in this chapter. Figures B-1 through B-21 illustrate by line graph the traffic volumes with and without the Project as indicated by their respective tables, Tables B-1 through B-21. Table B-22 furnishes data on the forecast of annual passenger enplanements at Rhinelander/Oneida County Airport for all four scenarios.

Unlike the other major topics considered in this socioeconomic assessment, the Transportation Analysis has no published

FIGURE 6-1



TRANSPORTATION

- County Boundary
- Township Boundary
- Incorporated Area
- Unincorporated Village
- Crandon Project Discovery Site
- U.S. Highway
- State Highway
- County Road
- Airport
- Railroad

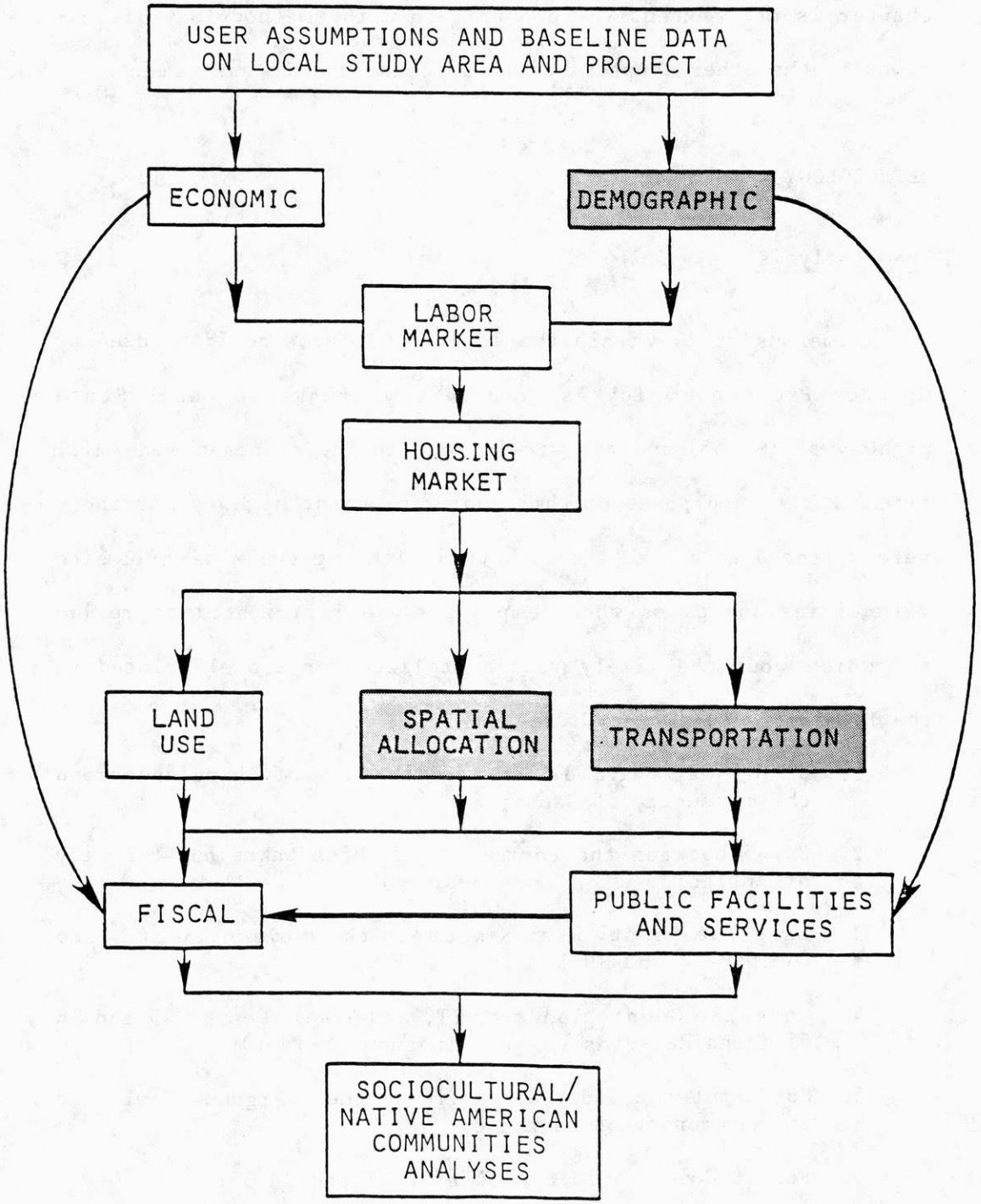
Source: County Highway Maps

SOCIOECONOMIC ASSESSMENT
CRANDON PROJECT
EXXON MINERALS COMPANY
prepared by **rpc**, inc. austin

FIGURE 6-2

PROJECT MODEL SYSTEM

(INTERRELATIONSHIP OF MODELS AND ANALYSES)



SOURCE: Research and Planning Consultants, Inc.

methodology paper to precede it. Therefore, the description of the methodology for the Transportation Analysis provided in this chapter is more extensive in detail than the methodology discussions in the other chapters of this socioeconomic assessment.

METHODOLOGY

Road Analysis

Numerous roads within the local study area could be used by Crandon Project employees or delivery trucks to reach State Highway 55 (SH 55) and the access road to the proposed mine/mill site. For the purposes of this analysis, eight highway corridors were selected to create a road network linking the mine/mill site with cities and towns where employees are anticipated to reside and which would be likely routes utilized for travel related to the Project. These corridors are:

1. US Highway 8 (US 8) between the City of Rhinelander and the community of Laona;
2. US 45 between the community of Three Lakes and the City of Antigo;
3. Langlade County Road K between the community of Elcho (on US 45) and SH 55;
4. Langlade County Roads A, TT, and T between US 45 and SH 55 (considered as one continuous corridor);
5. SH 55 between Jones Creek (in northern Argonne Town) and the community of Langlade;
6. Forest County Road S between US 8 and SH 55;

7. Oneida and Forest counties' Road B between US 45 and SH 55; and

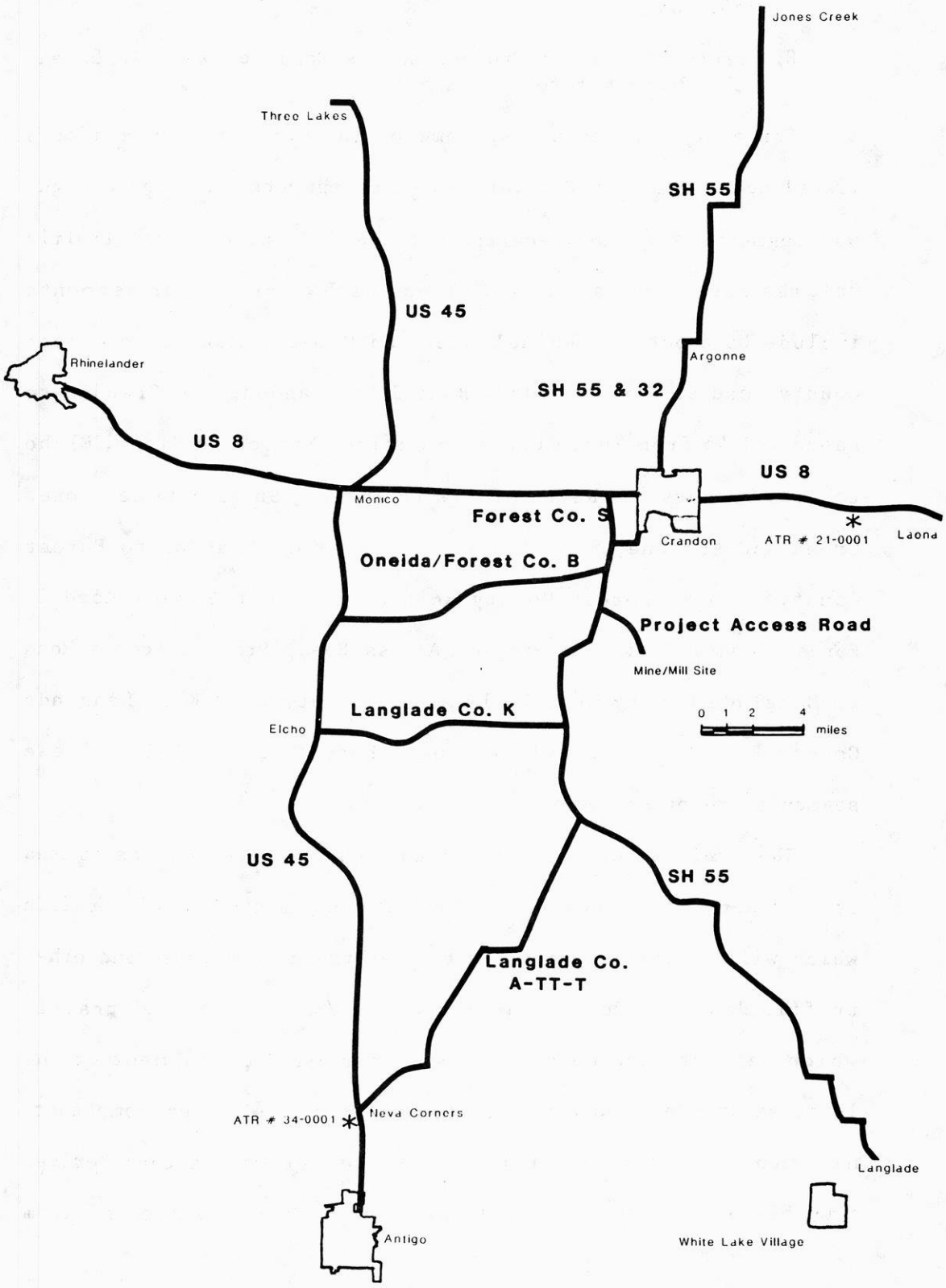
8. Proposed Crandon Project Access Road, between SH 55 and the Project site.

For analytical purposes, some of the more lengthy corridors listed above were divided into shorter segments, and these highway segments were the geographic bases for which future traffic volumes have been estimated. These highway-corridor segments include US 8 between Rhinelander and Monico, Monico to Forest County Road S, Forest County Road S to Crandon, and Crandon to Laona; US 45 from Three Lakes to Monico, Monico to Elcho, Elcho to Neva Corners and Neva Corners to Antigo; SH 55 between Jones Creek and Argonne, from Argonne to Crandon, Crandon to Forest County Road S, Forest County Road S to Forest County Road B, Forest County Road B to Project Access Road, Project Access Road to Langlade County Road K, Langlade County Road K to Langlade County Road T, and Langlade County Road T to Langlade. These segments are presented in Figure 6-3.

The traffic forecasts for each segment have been estimated by considering two fundamental traffic components, namely traffic which will be related directly to the Project (employee and other traffic destined for the proposed mine/mill site) and traffic which reflects the population and economic development of the local study area. Non-Project traffic, or the latter component, has been estimated by the use of separate growth factors derived from historical data for the local study area as a whole and from

FIGURE 6-3

HIGHWAY CORRIDORS AND SEGMENTS



SOURCE: Research and Planning Consultants, Inc. (RPC)

specific data on population and employment levels in cities and towns produced by the demographic model (RPC, 1981b), spatial allocation model (RPC, 1982a), and the housing market model (RPC, 1982a).

The historical growth rate we employ in this transportation model is an annual average value developed from analysis of published data (Wisconsin Department of Transportation, annual publication dates vary) from two automatic traffic recording (ATR) stations maintained in the local study area by the Wisconsin Department of Transportation (WisDOT):

- ATR No. 21-0001 (Forest County), installed in October 1958 on US 8 approximately 0.8 mile west of Laona Airport Road and 3.2 miles west of the intersection of US 8 and SH 32 in Laona; and

- ATR No. 34-0001 (Langlade County), installed in February 1938 on US 45 approximately 0.4 mile north of the intersection of County Road N and 3.6 miles north of the intersection of US 45 and SH 64 in Antigo.

Two other ATR stations also exist in the local study area, but were not used in the historical analysis because of data limitations. ATR No. 34-0002 was installed on SH 55 near Crystal Lake (approximately 1.1 miles north of the SH 64 intersection) in September 1982, and no published data are available for this station. ATR No. 43-0001 on SH 17 (Oneida County) was installed in June 1960 near Sugar Camp roughly 2.3 miles south of County Road A. Data for this station were not included in the trend analysis because its historical data base was shorter than those available from the two ATR stations used.

The annual average daily traffic (AADT) volumes for stations 21-0001 and 34-0001 were combined on an annual basis for the period 1959 through 1981, creating a generalized data base for the 23-year period which exhibits an annual average increase in AADT of slightly over 2 percent. Traffic volumes from year to year for both the combined station data or the individual stations' data vary to greater or lesser degrees from this average value. Although there have been years where traffic volumes decreased, the long-term trend for traffic growth at either station has been increasing.

This average growth factor has been applied to the non-Project traffic component on an annual basis in each of the highway segments on the assumption that identified long-term trends will continue and will reflect changes in traffic on lesser-traveled roadways in the local study area. For each road segment, however, this average growth factor is modified according to annual changes in population and employment (exclusive of Project employment) in the cities and towns served by the particular segment. This procedure results in estimated traffic for the non-Project volume component for each segment.

Project-related traffic volumes were generated directly from the annual number of construction- and/or operation-phase employees allocated to the cities and towns served by a particular highway segment by the spatial allocation, housing, and land use models referenced above. Based on RPC's analysis of vehicular

occupancy levels observed for construction and operation workers at nuclear power stations within the United States (Malhotra and Manninen, 1981), the average vehicular occupancy assumed for Project employees' work-trips to and from the mine/mill site is approximately 1.6 persons per vehicle. The number of vehicle-trips equivalent to the annual average number of employees and the assumed occupancy rate were then assigned to the various roadway segments on the basis of minimum-distance routes from residential locations to the mine/mill site. As a result, all Project employees are assumed to travel daily to the mine/mill site and return to their residences by means of the roadways included in the network of highway segments and corridors described previously.

Data on AADT volumes for each of the highway segments examined are available in published form (WisDOT, annual publication dates vary). On a countywide basis, WisDOT has performed traffic counts in the local study area approximately every three years. The counting cycles, however, are different for the three counties which encompass the local study area: Forest and Oneida counties were last counted in 1979 and 1982 (only 1979 data were available at the time of this analysis) and Langlade County was last counted in 1978 and 1981 (both sets of data are available).

To establish comparability between the traffic-volume data and the population and employment data, the base year used in the traffic forecast was 1980, necessitating the estimation of 1980

AADT volumes for each highway segment from the 1979 and/or 1981 statistics. To do this, we used the annual data for the ATR station in each county (previously noted) as appropriate to develop the 1980 estimates. Proportional changes in AADT numbers between 1979 and 1980 for the stations in Forest and Oneida counties were applied to the 1979 volumes along the segments within those boundaries, and the change between 1980 and 1981 for the existing station in Langlade County was applied to the segment volumes within that county. This procedure assumes that the ATR stations provide accurate trend data for all other roadways within their respective counties.

The resulting estimates of 1980 AADT volumes at various locations along each segment then were used as the basis for developing a weighted average AADT volume for the overall segment, where the weighting factor used was mileage. The end product of this series of calculations for each segment was the estimated average 1980 AADT volume used as the base-year traffic count. Consequently, the forecasts for each segment are projections of this overall average traffic level.

The proportion of larger, heavier vehicles (buses and trucks, excluding pickup trucks and small vans) within the overall average traffic volume on any segment is based upon the information collected by WisDOT in manual classification studies at the ATR stations within the local study area. For road segments other than those containing the ATR stations, we assigned

specific proportional values for these larger, heavier vehicles based upon applying professional judgment to the local ATR data, the specific character and service area of a highway segment, and the role of that highway in the state and national highway systems. Through the forecast period, this base-year proportion was modified in the model by changes in the employment levels of cities and towns in the segment's service area. Estimates of daily truck traffic associated with the Crandon Project were provided by EMC (EMC, 1980a), and these were incorporated into the heavy-vehicle proportions on those segments which offered the minimum-distance path to the mine/mill site.

Rail Analysis

EMC plans to use railroad transportation for the shipment of all ore concentrate from the mine/mill complex, as well as shipment to the Project site of the majority of raw materials needed in the production of both raw and concentrated ores (EMC, 1983a). Rail transportation also will be used to ship raw materials and equipment to the mine/mill site during the construction phase.

The proposed Crandon Project will be served by the Minneapolis, St. Paul and Sault Ste. Marie Railway, known less formally as the Soo Line, by means of their secondary mainline which extends southward from Argonne to Langlade and out of the local study area. The only quantitative estimates of rail traffic on this line which have been made are those directly related to

Crandon Project operations, which are based upon information supplied by EMC (EMC, 1983a; 1983b, 1980c). Since an assessment of rail traffic unrelated or indirectly related to the Crandon Project for conditions either with or without the Project lies far outside the scope of this report, our analysis of conditions on the Argonne line without the mine/mill complex is limited to a general description of the current status of the rail line's operations.

Estimates of rail traffic with the mine/mill in operation are derived from annual figures on ore production and raw-material consumption by specific commodity, assumptions on the types of railcars likely to be used in the shipment of these materials, and other assumptions on the frequency of service provided to the Project by the Soo Line (EMC, 1983b; 1982a).

Air Analysis

Air traffic in the local study area consists of civilian passenger and freight movements. The passenger movements can be separated into commercial passenger enplanements and general aviation operations, and this analysis has concentrated solely upon the commercial enplanements through the Rhinelander/Oneida County Airport. This facility provides the only regularly-scheduled commercial service in the local study area.

A series of linear regression analyses for the period from 1970 to 1981 were used as the basis for developing the model used

to forecast passenger enplanements at this airport. Data on annual passenger enplanements published by the Federal Aviation Administration were used as the dependent variable in this analysis (U.S. Department of Transportation, annual, 1970 to 1981) and annual data on local study area population and employment and statewide population and employment levels were used as the independent variables.

Of those tested, the best regression fit was provided by using statewide employment and local study area employment, yielding a high R-squared value of 0.927. The relationship between local passenger enplanements and levels of local employment is a direct linkage, conceptually, while the relationship with statewide employment is not as straightforward. Even though statewide employment is indicated as a highly important independent variable in this analysis, this statistic is very general and is composed of numerous employment categories. Any of these categories or other, related statistics could yield independent variables whose conceptual linkage to passenger enplanements at this airport might be more direct. Consequently, statewide employment is considered to be a valid, general substitute variable in this analysis. It seems reasonable, for example, that a higher level of employment statewide may stimulate business-related air travel of industrial and other salespersons, and it may also create higher levels of disposable income for vacation-related air travel through this airport by both seasonal and

nonresidents destined for locations within or outside of the local study area.

WITHOUT-PROJECT FORECAST (1980-2016)

Road Analysis

Growth in daily traffic volumes on all highway segments should be moderate throughout the forecast period, as presented in Appendix B, Figures B-1 through B-21, which depict the various segments' average AADT volumes. The proportion of trucks and buses in these segments' traffic volumes also should remain relatively stable.

Of the segments analyzed, the greatest increases in traffic volumes are projected to occur on US 8 between Rhinelander and Monico (Appendix B, Table and Figure B-1) and on US 45 between Antigo and Neva Corners (Appendix B, Table and Figure B-8), primarily because of their proximity to the urbanization and larger populations within these areas. As a result, highway improvements may become necessary on US 8 eastward from Rhinelander and northward from Antigo on US 45, particularly on the developing fringes of these urban areas where more intensive use of land for residential, commercial, or industrial purposes may occur. Improvements might include additional lanes for through and/or turning traffic, grade separations at major crossings with other highways or railroads, or construction of additional road-

ways to serve these developing fringe locations and provide a greater number of alternate routes within or through the urbanized locations.

The early identification of potential problem locations, application of low-cost operational improvements, and advanced planning for more substantial improvements should insure that these roadway segments would remain highly functional and experience reduced congestion. Assuming that seasonal variations in traffic volumes continue much as they have in the past, the peak traffic (with daily volumes above the AADT level) should occur in the period from May through September, with the highest traffic volumes in July and August.

Rail Analysis

The Soo Line seems likely to continue train operations over the Argonne line during the years ahead, particularly as intermodal traffic between the Sault Ste. Marie and Chicago trunks continues to increase in volume. Substantial track rehabilitation with new rail and ties has occurred on this line during the past several years, and no further major physical improvements are anticipated after rehabilitation of the line between Crandon and Argonne is completed (EMC, 1983b).

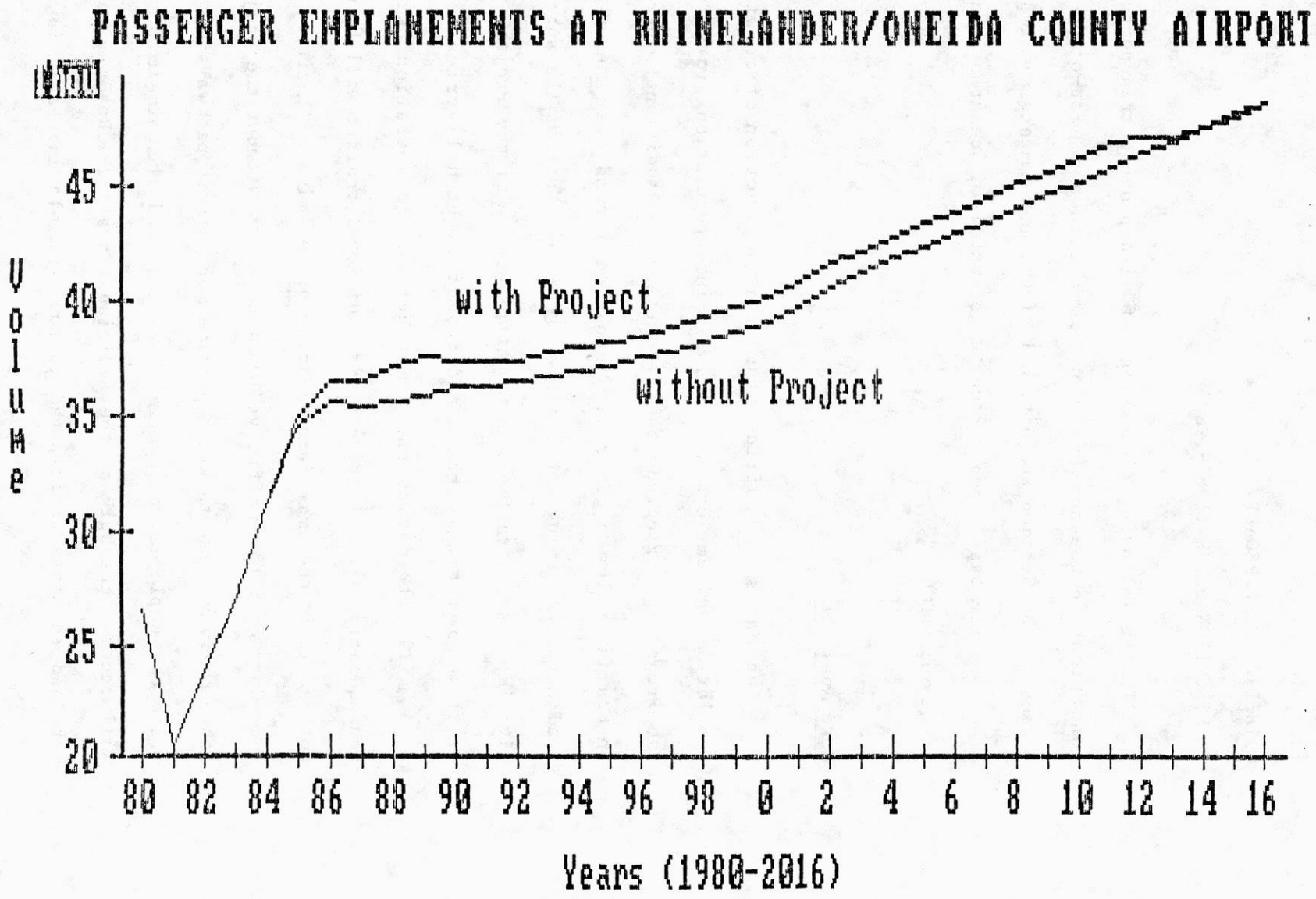
Operations on the Chicago trunk line presently consist of two trains daily, one northbound and one southbound, transporting mixed carload and containerized freight. Unless major industries

which utilize rail transportation locate in the local study area, major changes in freight activity over this line will be associated only with regional economic conditions. With the recent investment in rehabilitating the physical condition of this line, it does not appear likely that the Soo Line would initiate abandonment proceedings in the foreseeable future.

Air Analysis

Annual passenger enplanements through the Rhinelander/Oneida County Airport decreased sharply in 1981 from the level in 1980 (Figure 6-4; see Appendix B, Table B-22). This decrease is a result of the combination of worsening economic conditions and problems within the national air traffic control system. We assumed that demand for air travel was restricted artificially by the necessary governmental controls upon the aviation industry following the strike by, and subsequent dismissal of, the majority of the air traffic controllers. We also assumed that the latent demand for air travel will be allowed to reassert itself as the air traffic control system becomes restaffed and modernized, and as national economic conditions favor an upturn in the business cycle. Under these assumptions, annual passenger enplanements through the airport are projected to increase rapidly until 1986 and then grow at a moderate pace through the remainder of the forecast period.

FIGURE 6-4



SOURCE: Research and Planning Consultants, Inc.

WITH-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

In the following discussions of with-project transportation conditions in the construction, operation and post-operation phases of the Crandon Project, all of the assessments and impacts described are based upon forecasts generated in Scenario 2 (most-likely impact).

Road Analysis

Increases in traffic volumes are a function of growth in population and employment levels. Since population growth with the Project is expected to be moderate, the additional increase in traffic volumes generally should be spread over the entire road network serving the local study area. Most of the substantive impacts on traffic volumes attributable to the Project will be from commuting workers and from freight deliveries to the mine/mill site during the construction and operation phases. Consequently, the effects of this additional traffic will be most noticeable in the immediate vicinity of the mine/mill site.

Compared to traffic volumes forecast without the Project, those roadway segments which provide more direct pathways between projected employee residential locations and the mine/mill site will receive the bulk of the additional traffic. Roadway corridors and segments anticipated to have notable increases in AADT

levels as a result of the Project include US 8 from Rhinelander to Laona; US 45 from Three Lakes to Monico and from Neva Corners to Antigo; Langlade County Road K from US 45 at Elcho to SH 55; Langlade County Roads A, TT, and T between US 45 at Neva Corners to SH 55; SH 55 from Argonne to Langlade County Road T; Forest County Road S between US 8 and SH 55; and Oneida and Forest Counties' Road B between US 45 and SH 55 (see Appendix B, Tables and Figures B-1 through B-21).

The potential for peak traffic congestion to occur on these roads as a result of the Project is not expected to be substantial, with some exceptions. In general, any Project-induced congestion should occur at times of the workday around shift changes, with the most intense effects occurring in the latter part of the construction phase when employment levels are expected to peak. Information comparing the forecast 1989 AADT volumes for each segment is provided in Table 6-1, which also identifies those segments where daily volumes directly associated with Project employees and deliveries may result in a greater degree of traffic congestion during limited periods.

The additional traffic generated by the Project also will compound any existing seasonal traffic congestion during the May to September periods, particularly in July and August. Since Project traffic will exist throughout the entire year, however, the ambient traffic levels from October through April will be much lower than during seasonal peaks and the level of congestion

TABLE 6-1

TRAFFIC VOLUME IMPACT BY HIGHWAY SEGMENT:
CONSTRUCTION PHASE PEAK (1989)

Highway Corridor	Segment Limits		Overall AADT Volume[1] Without Project	Overall AADT Volume[1] With Project	Difference in AADT Volume	Difference in AADT Percent	Direct Project AADT[2] Volume	Direct Project AADT[2] As Percent of Total Difference	Potential for Project-Induced Traffic Congestion[3]
US 8	Rhinelander	- Monico	6,260	7,270	1,010	16.1	475	47.0	Within urbanized areas near Rhinelander only if Project employee traffic coincides with ambient peak daytime flows, particularly during vacation season.
	Monico	- Forest Co. Road S	2,830	3,860	1,030	36.4	595	57.8	At the intersection with Forest County Road S around shift changes.
	Forest Co. Road S	- Crandon	3,820	4,440	620	16.2	0	0.0	
	Crandon	- Laona	2,970	3,720	750	25.3	300	40.0	Within the central portion of the City of Crandon around shift changes.
US 45	Three Lakes	- Monico	1,380	1,610	230	16.7	130	56.5	
	Monico	- Elcho	3,390	3,740	350	10.3	0	0.0	
	Elcho	- Neva Corners	3,590	3,960	370	10.3	95	25.7	
	Neva Corners	- Antigo	8,730	9,560	830	9.5	235	28.3	Within urbanized areas near Antigo only if Project employee traffic coincides with ambient peak daytime flows, particularly during vacation season.
Langlade County Road K	Elcho	- SH 55	1,040	1,280	240	23.1	125	52.1	At the intersection with SH 55 around shift changes.
Langlade Co. Rd. A-TT-T	US 45	- SH 55	1,030	1,370	340	33.0	260	76.5	At the intersection with SH 55 around shift changes.
SH 55	Jones Creek	- Argonne	360	430	130	19.4	10	7.7	
	Argonne	- Crandon	2,100	2,370	270	12.9	15	5.6	
	Crandon	- Forest Co. Road S	1,310	2,030	720	55.0	475	66.0	Within the central portion of the City of Crandon and at the intersection with Forest County Road S around shift changes.
	Forest Co. Road S	- Forest Co. Road B	1,170	2,530	1,360	116.2	1,150	84.6	At both intersections of SH 55 with Forest County Roads S and B, respectively, around shift changes, and extending throughout this segment for very brief periods at those times.
	Forest Co. Road B	- Project Access Rd.	1,070	2,720	1,650	154.2	1,450	87.9	At both intersections with Forest County Road B and the Project Access Road around shift changes (concentrated at the latter one), and extending throughout this segment for short periods at those times.

(continued)

SOURCE: Research and Planning Consultants, Inc.

TABLE 6-1 (continued)

Highway Corridor	Segment Limits	Overall AADT Volume[1] Without Project	Overall AADT Volume[1] With Project	Difference in AADT Volume	Difference in AADT Percent	Direct Project AADT[2] Volume	Direct Project AADT[2] As Percent of Total Difference	Potential for Project-Induced Traffic Congestion[3]
	Project Access Rd. - Langlade Co. Rd. K	640	1,140	500	78.1	420	84.0	At both intersections with the Project Access Road and Langlade County Road K around shift changes (concentrated at the former one), and extending southward from the intersection with the Project Access Road for short periods at those times.
	Langlade Co. Rd. K - Langlade Co. Rd. T	1,020	1,450	430	42.2	320	74.4	At both intersections with Langdale County Roads K and T, respectively, around shift changes.
	Langlade Co. Rd T - Landlade	530	650	120	22.6	65	54.2	At the intersection of Langlade County Road T and SH 55 around shift changes.
Forest County Road S	US 8 - SH 55	520	1,290	770	148.1	675	87.7	At both intersections of Forest County Road S with SH 55 and US 8 around shift changes, extending northward and southward from the respecive intersections above for brief periods.
Oneida/ Forest Co. Rd. B	US 45 - SH 55	280	620	340	121.4	295	86.8	At the intersection of Forest County Road with SH 55 around shift changes.

NOTES: [1]Segment average, rounded to nearest 10 vehicles per day.
[2]Rounded to nearest 5 vehicles per day.
[3]No entry indicates that the potential level of traffic congestion induced by the Crandon Project is not substantial.

SOURCE: Research and Planning Consultants, Inc.

resulting from Project-related traffic should be limited or inconsequential during that period.

A specific area where localized congestion may occur is within downtown Crandon, resulting principally from the discontinuous alignment of the through east-west and north-south highways in a developed area of commercial and mixed land uses. The effects of Project traffic within Crandon, however, should result in relatively-brief congestion concentrated immediately prior to and following primary shift changes (Appendix B, Tables and Figures B-1 through B-21).

Road congestion also may occur throughout the construction phase on Forest County Road S, particularly at the intersections with US 8 and SH 55, and along SH 55 from Forest County Road S to Langlade County Road K (Appendix B, Tables and Figures B-1 through B-21). Congestion on Forest County Road S will occur if, as is expected, this road is traveled frequently by Project employees traveling to and from the north-central and northwestern portions of the local study area. Use of this road to bypass the City of Crandon is likely to occur because of the shorter, more direct route it could offer to SH 55 and the Project Access Road relative to the longer drive through Crandon. Congestion along Forest County Road S would be concentrated primarily before and after shift changes at its intersections with US 8 and SH 55 and to a lesser degree along the roadway between those two intersections. This may decrease roadway safety in this section of

Forest County Road S without adequate controls for accommodating peak traffic volumes.

Along SH 55 between Forest County Road S and Langlade County Road T, congestion may become a major problem for short periods before and after shift changes. For the most part, areas of congestion along this road will be limited to the intersections of SH 55 with Forest County Roads S and B, the Project Access Road, and Langlade County Roads K and T (Appendix B, Tables and Figures B-1 through B-21).

However, during the most intense traffic periods immediately before and after shift changes, these areas of congestion may extend for longer distances along SH 55 northward and southward from the Project Access Road. Because of the higher volume of Project traffic forecast to utilize roadways to the north of the Access Road, the area of peak congestion is expected to extend farther northward than to the south (Appendix B, Tables and Figures B-1 through B-21).

When peak traffic volumes result in congestion for both directions of travel, driving speeds may become restricted and the potential for accidents could increase. The potential level of accident severity in a situation with volumes and restricted speeds which are directionally balanced typically will decrease as speeds lower. However, if the peak traffic volume is unbalanced so that one direction of travel encounters restricted speeds while the other direction does not and speed or passing

controls are not enforced, the potential level of severity in an accident typically would increase. The area of congestion along this segment will be concentrated at the intersection of SH 55 and the Project's main access road, although vehicles queued to turn and enter the access road may cause the area of congestion to lengthen along SH 55 for extremely short periods of time. Congestion of a much lesser degree may occur at the intersections of SH 55 with Langlade County Roads B, K, and T, respectively, in a fashion similar to the SH 55 and Forest County Road S intersection (Appendix B, Tables and Figures B-1 through B-21).

Truck traffic generated by the Project should not pose major problems on any roadway within the local study area, except on SH 55 in the vicinity of the Project Access Road if truck deliveries coincide with changing work shifts. The existence of one large, heavy vehicle can be the equivalent of two or three passenger vehicles, and, as a result, traffic during peak periods could encounter more congested conditions because of the presence of large vehicles.

Major problems of congestion and decreased roadway safety along SH 55 likely will be minimized if adequate provision is made at the intersection with the Project Access Road for: through-traffic lanes, separated lanes for turning traffic, visibility improvements (sight distance and night illumination), and traffic control during shift changes. These same considerations will apply to the intersections of Forest County Road S with SH

55 and US 8, and also may be appropriate at the intersections of SH 55 with Forest County Road B and Langlade County Roads K and T.

Highway improvements required for Crandon Project development most likely will be limited to operational controls (warning signs and passing restrictions) and intersection improvements involving the addition of turning lanes and installation of traffic controls and/or illumination at the key areas indicated above. With the increased utilization of Forest County Road S because of the Project's development, there also is a possibility that the roadway's pavement will need to be replaced with an improved and strengthened surface. Other than the proposed Project Access Road and the possible improvements mentioned above, no major highway modifications, such as extensive road-widening or the construction of urban-area bypasses, should be required as a result of Project development.

Rail Analysis

The Crandon Project will have increased rail shipments in the local study area during the construction phase, as materials used in the construction of the mine/mill complex will be brought to the site following completion of the railroad spur from the Soo Line's nearby branch. Some of the heavy machinery and equipment to be used in the mine and mill also will be transported directly by rail. The shipments of this equipment and the con-

struction materials are not predictable at this level of analysis, but, in general, should constitute one-time-only movements of railcars into and out of the local study area. Consequently, the Project's greatest effects on rail traffic will occur during the operation phase.

Air Analysis

The Crandon Project will increase annual enplanements of scheduled commercial passengers through the Rhinelander/Oneida County Airport throughout the construction phase (Figure 6-4), but this increase is not forecast to exceed 6 percent of the annual level without the Project (see Appendix B, Table B-22). The increases are not expected to create operational problems at the airport, unless the additional traffic reinforces any existing pattern of extreme seasonal activity.

OPERATION PHASE (1990-2011)

Road Analysis

During the operation phase, the Crandon Project's effects on roadway traffic volumes will be similar to those experienced during the construction phase, but the effects will not be as great as during the peak years of population and employment growth projected for the latter part of the construction phase. The increases in traffic will occur on those roads serving as

direct commuting routes for EMC employees. These would be the same roads mentioned in the preceding subsection on road traffic during the construction phase (Table 6-2).

Since traffic volume increases are not expected to be great, the effects of Project-related traffic will not be as great during the initial years of the operation phase. As non-Project traffic volumes increase with growing population and employment during the latter years of the forecast period (as documented in the without-project forecast earlier in this chapter), the impact of traffic directly associated with the Crandon Project is likely to become diluted within the overall traffic growth along local study area roads. During this latter part of the forecast period, some roads may become congested as a result of this general growth, making roadway improvements desirable. These potential traffic problems can be minimized or eliminated with timely planning, however. As a result, no major highway modifications should be required, other than those suggested in the discussion of traffic conditions in the without-project scenario.

Rail Analysis

The Crandon Project by itself will not require any new or additional train movements over the Soo Line's Argonne mainline (Minneapolis, St. Paul and Sault Ste. Marie, 1983). However, the Project will increase substantially the number of railcars transported over this line, increasing the average train length by

TABLE 6-2

TRAFFIC VOLUME IMPACT BY HIGHWAY SEGMENT:
OPERATION PHASE (1999)

Highway Corridor	Segment Limits		Overall AADT Volume[1] Without Project	Overall AADT Volume[1] With Project	Difference in AADT Volume	Difference in AADT Percent	Direct Project AADT[2] Volume	Direct Project AADT[2] As Percent of Total Difference	Potential for Project-Induced Traffic Congestion[3]
US 8	Rhinelander	- Monico	7,480	7,920	440	5.9	265	60.2	
	Monico	- Forest County Rd. S	3,470	4,050	580	16.7	305	52.6	At the intersection with Forest County Road S around shift changes for brief periods.
	Forest Co. Road S	- Crandon	4,490	4,920	430	9.6	0	0.0	
	Crandon	- Laona	3,440	3,840	400	11.6	105	26.3	Within the central portion of the City of Crandon around shift changes only if those times coincide with ambient peak daytime flows, particularly during vacation season.
US 45	Three Lakes	- Monico	1,590	1,670	80	5.0	40	50.0	
	Monico	- Elcho	3,900	4,060	160	4.1	0	0.0	
	Elcho	- Neva Corners	4,100	4,240	140	3.4	30	21.4	
	Neva Corners	- Antigo	10,180	10,540	460	4.6	160	34.8	
Langlade County Road K	Elcho	- SH 55	1,190	1,290	100	8.4	40	40.0	
Langlade Co. Rd. A-TT-T	US 45	- SH 55	1,170	1,380	210	17.9	175	83.3	At the intersection of Langlade County Road T and SH 55 around shift changes.
SH 55	Jones Creek	- Argonne	410	450	40	9.8	5	12.5	
	Argonne	- Crandon	2,420	2,590	170	7.0	10	5.9	
	Crandon	- Forest County Rd. S	1,520	1,870	350	23.0	185	52.9	Within the central portion of the City of Crandon around shift changes only if those times coincide with ambient peak daytime flows, particularly during vacation season.
	Forest Co. Road S	- Forest County Rd. B.	1,340	1,970	630	47.0	510	81.0	At both intersections of SH 55 with Forest County Roads S and B around shift changes, and extending briefly throughout this segment if those times coincide with ambient peak dayflows during vacation season.
	Forest Co. Road B	- Project Access Road	1,230	1,940	710	57.7	590	83.1	At both intersections with Forest County B and the Project Access Road (concentrated around the latter one) around shift changes, and extending briefly throughout this segment if those times coincide with ambient peak daytime flows during vacation season.

(continued)

SOURCE: Research and Planning Consultants, Inc.

TABLE 6-2 (continued)

Highway Corridor	Segment Limits	Overall AADT Volume[1] Without Project	Overall AADT Volume[1] With Project	Difference in AADT Volume	Difference in AADT Percent	Direct Project AADT[2] Volume	Direct Project AADT[2] As Percent of Total Difference	Potential for Project-Induced Traffic Congestion[3]
	Project Access Rd. - Langlade Co. Road K	730	1,020	290	39.7	235	81.0	At both intersections with the Project Access Road and Langlade County Road K (concentrated around the former one), and extending briefly southward from the Project Access road if those times coincide with ambient peak daytime flows during vacation season.
	Langlade Co. Rd. K - Langlade Co. Rd. T	1,170	1,430	260	22.2	200	76.9	At both intersections with Langlade County Roads K and T briefly around shift changes.
	Langlade C. Rd. T - Langlade	610	650	40	6.6	15	37.5	At the intersection of Langlade County Road T and SH 55 around shift changes.
Forest County Road S	US 8 - SH 55	590	970	380	64.4	325	85.5	At both intersections of Forest County Road S and SH 55 and US 8 for brief periods around shift changes.
Oneida/ Forest Co. Rd. B	US 45 - SH 55	320	420	100	31.3	80	80.0	At the intersection of Forest County Road B for brief periods around shift changes.

NOTES: [1]Segment average, rounded to nearest 10 vehicles per day.
[2]Rounded to nearest 5 vehicles per day.
[3]No entry indicates that the potential level of traffic congestion induced by the Crandon Project is not substantial.

SOURCE: Research and Planning Consultants, Inc.

varying degrees according to the level of ore concentrate production, the utilization of raw materials, and the frequency in the final mine/mill site pickup and delivery schedule agreed to by EMC and the Soo Line. Regular railcar traffic associated with the Project should increase from minimal levels prior to the initiation of mill processing to a 1993 peak before declining slightly to a "steady-state" level which should remain fairly constant from 1994 through 2010 (Tables 6-3 and 6-4). Following the 1994 to 2010 period, regular railcar traffic should decrease rapidly as the Project mining and milling operations cease. During the steady-state period, the Crandon Project is expected to generate over 14,000 railcar interchanges annually (Table 6-3), providing a substantial incentive to the Soo Line to maintain the Argonne trackage in good condition.

Since it is not known with any degree of certainty where raw materials to be used at the Project will originate or where ore concentrates produced will be transported, the shipments are assumed to be transported to the north and south of the Project along the Soo's line in an equal distribution. Should the traffic be concentrated more so in one direction than the other, some additional impacts may occur along the line in the more dominant direction with correspondingly fewer impacts occurring in the less dominant direction. Impacts of any consequence which are expected to occur are limited primarily to increased delays for motorists at railroad-roadway grade crossings. Motorist safety

TABLE 6-3

CRANDON PROJECT RAIL TRANSPORTATION ASSESSMENT:

ANNUAL RAILCAR MOVEMENTS[a]

YEAR	CONCENTRATE	RAW MATERIAL	TOTAL
1990	7,532	736	8,268
1991	9,568	938	10,506
1992	13,648	1,054	14,702
1993	13,672	1,248	14,920
1994 -- 2009	13,034	1,288	14,322
2010	13,034	1,240	14,274
2011	528	774	1,302
2012	0	360	360
2013	0	0	0

[a]A single railcar movement is defined as the entry to or exit from the Crandon Project site by one railcar. In other words, the delivery of a railcar by the Soo Line to the Project constitutes one movement, and the delivery of that same railcar to the Soo Line from the Project (after loading of concentrate or unloading of raw materials) constitutes a second railcar movement. The above figures consequently represent the total number of annual car interchanges between the Project and the Soo Line.

SOURCE: Research and Planning Consultants, Inc.

TABLE 6-4

CRANDON PROJECT RAIL TRANSPORTATION ASSESSMENT:

AVERAGE DAILY RAILCAR MOVEMENTS

YEAR	MINIMUM SHIPPING FREQUENCY[a] CONCENTRATE	RAW MATERIAL	TOTAL	MAXIMUM SHIPPING FREQUENCY[b] CONCENTRATE	RAW MATERIAL	TOTAL
1990	29	3	32	21	2	23
1991	37	4	41	27	3	30
1992	53	4	57	38	3	41
1993	53	5	58	38	4	42
1994 thru 2010	50	5	55	36	4	40
2011	2	3	5	2	2	4
2012	0	1	1	0	1	1

[a]The minimum frequency is assumed to be 5 days per week, or 260 days per year. Values are rounded to the nearest whole number, and include both incoming and outgoing railcar movements.

[b]The maximum frequency is assumed to be 7 days per week, or 360 days per year. Values are rounded to the nearest whole number, and include both incoming and outgoing railcar movements.

SOURCE: Research and Planning Consultants, Inc.

at railroad crossings is not likely to be affected substantially because of the moderate rail-operating speeds (40 mph maximum) established for this line and ongoing WisDOT programs to upgrade traffic control devices at major roadway-railroad intersections.

Air Analysis

The Crandon Project is projected to increase annual commercial passenger enplanements through the Rhinelander/Oneida County Airport by 1 to 3 percent above levels forecast without the Project (Figure 6-4; Appendix B, Table B-22). Consequently, with adequate planning for the terminal and support facilities at the airport, no additional problems from the Project operation phase should occur.

POST-OPERATION PHASE (2011-2016)

Once the mine/mill facility has closed and site reclamation activities have been completed, levels of transportation activity again will be dependent primarily upon the growth of population and economic activity within the local study area. Thus, road and rail traffic and air passenger enplanements likely will conform to levels close to those forecast to occur without the Project within a few years after closure. As a result, the local study area's transportation systems are not expected to experi-

ence any substantial effects following closure of the Crandon Project.

7. SOCIOCULTURAL ANALYSIS

In this chapter, the probable effects of the Crandon Project (also referred to as the "Project") on the sociocultural system (or "system" in this chapter) of the local study area are measured through the use of without-project and with-project forecasts. The differences between the without-project and with-project forecasts represent the projected effects of the Crandon Project on the sociocultural system of the local study area.

The methodology for the Sociocultural Analysis (RPC, 1980c) consists of a baseline description (based on historical and current conditions), and a forecast of future conditions without and with the Project. Each of these steps requires various assumptions, data, and methods of analysis.

The baseline description is based on three types of information:

1. Quantitative descriptions of sociocultural conditions.
2. Surveys conducted as a separate element of the socioeconomic assessment (RPC, 1982b).
3. Direct observation of people and events in the local study area.

We forecast future conditions without the proposed Crandon Project and under several phases of Project development. Our forecasts emphasize quantitative information to the greatest

extent possible. However, many sociocultural characteristics do not lend themselves to quantitative description, much less to quantitative forecasting. Our major forecasting techniques will:

1. utilize available data on past trends in the local study area;
2. identify any major patterns; and
3. describe possible futures for the different scenarios of Project development.

Many sociocultural conditions result from a variety of economic, demographic, and physical factors. Thus, this analysis also will utilize other elements of the Socioeconomic Assessment. Those elements include the economic, demographic, housing and land use, public facilities and services, and fiscal analyses.

This relationship between the Sociocultural Analysis and the other analyses in this report is illustrated by our Project modeling system (Figure 7-1).

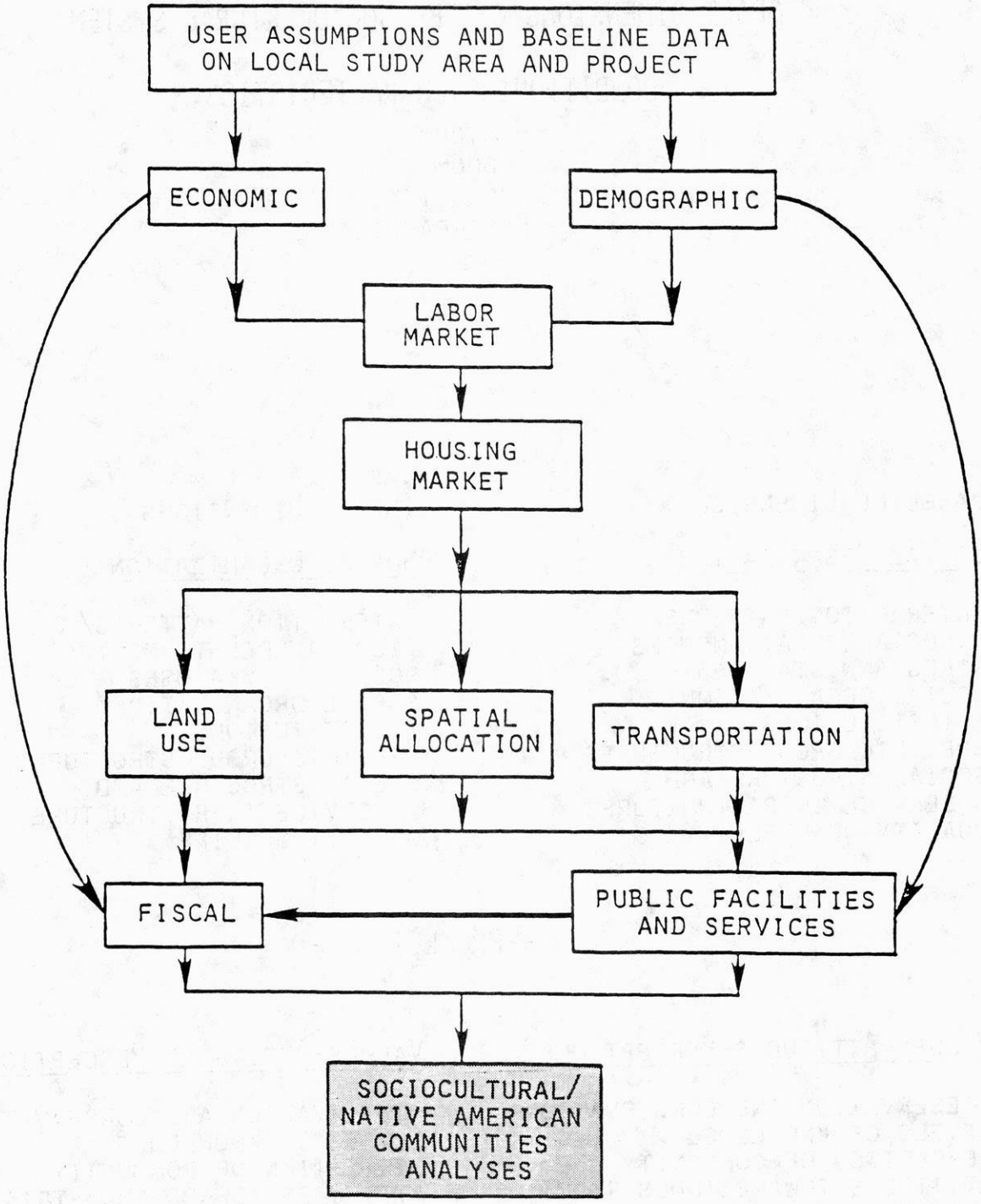
SOCIOCULTURAL SYSTEMS

The possible sociocultural impacts of any large-scale development, such as the Crandon Project, are seen most accurately if viewed as occurring within the context of community social systems (Murdock and Leistritz, 1979). Such systems are composed of closely-integrated subsystems that interactively form the basic sociocultural characteristics of a community. Although there is no one widely-accepted social-science definition of a sociocultural system, Figure 7-2 indicates many of the most commonly-

FIGURE 7-1

PROJECT MODEL SYSTEM

(INTERRELATIONSHIP OF MODELS AND ANALYSES)



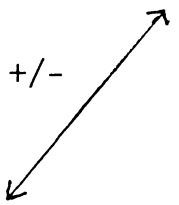
SOURCE: Research and Planning Consultants, Inc.

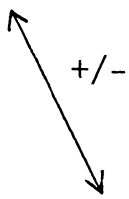
FIGURE 7-2

KEY CONDITIONING CHARACTERISTICS AND IMPACT DIMENSIONS OF THE SOCIOCULTURAL SYSTEM

CONDITIONING CHARACTERISTICS

HISTORY
ECONOMIC
ECOLOGICAL
DEMOGRAPHIC





BASELINE DIMENSIONS

SOCIAL ORGANIZATION

INTERACTION PATTERNS/
SOCIAL RELATIONSHIPS
ROLES AND STATUSES
SOCIAL ORGANIZATION/
INSTITUTIONS
SPECIFIC GROUP STRUCTURES
SOCIAL STRUCTURE AND
SERVICE INFRASTRUCTURE
QUALITY OF LIFE

IMPACT DIMENSIONS

SOCIAL ORGANIZATION

INTERACTION PATTERNS/
SOCIAL RELATIONSHIPS
ROLES AND STATUSES
SOCIAL ORGANIZATION/
INSTITUTIONS
SPECIFIC GROUP STRUCTURES
SOCIAL STRUCTURE AND
SERVICE INFRASTRUCTURE
QUALITY OF LIFE

-----PROJECT----->

VALUES-ATTITUDES-PERCEPTIONS

PRESERVATION AND CONSERVATION
LEVELS OF KNOWLEDGE
PERCEPTION OF COMMUNITY
ATTITUDES TOWARD INDUSTRIAL
DEVELOPMENT
PERCEIVED SATISFACTION AND
QUALITY OF LIFE

VALUES-ATTITUDES-PERCEPTIONS

PRESERVATION AND CONSERVATION
LEVELS OF KNOWLEDGE
PERCEPTION OF COMMUNITY
ATTITUDES TOWARD INDUSTRIAL
DEVELOPMENT
PERCEIVED SATISFACTION AND
QUALITY OF LIFE

SOURCE: Research and Planning Consultants, Inc.

identified components of a sociocultural system that should be evaluated in an impact analysis (Murdock and Leistritz, 1979).

The two basic components included in the sociocultural system are the social organization of the impact area (i.e. local study area) and the values, attitudes and perceptions of its residents. These two major components of the sociocultural system are conditioned by the area's historical, economic, ecological, and demographic contexts. These conditioning factors, together with the social organizational and attitudinal structure of an area, form not only the major determinants of the existing characteristic of an area's system, but its likely future course of sociocultural change and its likely response to large-scale developments.

Because the parts of a sociocultural system interrelate and interact, changes in one part of a system create changes in other parts of the system. Changes such as those resulting from a project, in a sense, "ripple" throughout the system's parts. If these effects are too extensive, the system may be disrupted and its form and substance may be altered permanently, whereas less extensive changes may be accommodated by the system without extensively disrupting or altering the system. From a system's perspective, then, to forecast the possible effects of any large-scale project, it is essential to identify:

1. the major conditioning, social organizational, and attitudinal components of the system;
2. the interrelationship between the parts of the system;

3. those parts of the system that may be affected by the project and the magnitude of any effects; and

4. the likely manner in which such effects will affect the overall sociocultural system of the impacted area and the extent to which the system will be disrupted by or accommodate any Project-related changes.

Thus, in this chapter, the basic conditioning characteristics of the local study area most likely to affect the sociocultural impacts of the Project are first examined (extensive, detailed analyses of these patterns were presented in the "Report on Current Conditions," RPC, 1981e) as a basis for interpreting the with- and without-project forecasts. Then the without- and with-project forecasts are evaluated and discussed for each of the two major components (social organizational and attitudinal) of the sociocultural system, and for the projected overall effects of the Project on the sociocultural system of the local study area.

CONDITIONING CHARACTERISTICS

The conditioning factors evaluated for this report are only some of the historical, demographic, economic, and ecological characteristics that have shaped the sociocultural characteristics of the local study area. The ones selected are those we believe to be relevant to the determination of Project effects. Thus, emphasis is on the local study area's history of resource use and development, on its level of past and present economic

dependence on natural resource developments, and on its past and recent experiences with population growth.

The history of development of the local study area economy can be characterized as one based on its use of natural resources. Its partial settlement in the 1760s by the French was as a region for fur trapping. Its later settlement was largely for the exploitation of its forests. When its timber was largely depleted in the 1920s, another resource-dependent industry--agriculture--expanded, and today the counties comprising the local study area are dependent on the forestry and wood-products industry, agriculture, and the newest form of resource usage--tourism and recreation. Its manufacturing industry is centered on wood products and its service base also is dependent largely on the industries using local natural resources. In sum, then, the local study area's history is one that nas been formed by natural-resource availability and use (RPC, 1981e).

Three aspects of the local study area's history of economic and ecological development also seem likely to affect residents' attitudes concerning the effects of the Project. First, because the economic history of the region has involved resource exploitation, the Project, because it is also resource-dependent, is more likely to be accepted. Second, because of the long history of resource dependence in the local study area, the cycles of resource use and dependence are understood quite well. That is, residents of the local study area are very aware of the develop-

ment cycles that often accompany resource development. This may make them both wary of the Project's long-term effects and more likely to think in terms of potential changes in levels of resource usage. Finally, the local study area's long history of resource usage is likely to both heighten respondents' knowledge of the potential for environmental degradation and for resource renewal. Thus, the deforestation that occurred in the region by the 1920s remains a vivid part of the local study area's history (RPC, 1981e) and is likely to make residents keenly aware of the need to use care in modern-day resource utilization. In addition, the increase in tourism in the local study area and its heavy dependence on the maintenance of the quality of natural resources is likely to lead components of the tourism industry to resist developments that might affect natural resources.

At the same time, however, the local study area has had experience with successful environmental restoration (RPC, 1981e). The reforestation of the local study area since the 1920s has created awareness of the ability of reclamation and similar efforts to restore environmental quality after resource exploitation has occurred. In sum, the history of resource exploitation in the local study area seems likely to make its residents willing to accept resource use, aware of the need to develop the resource environment very carefully, but also aware that such resources can be restored and reclaimed with careful resource management.

The demographic history and characteristics of the local study area also seem likely to affect the ways in which the Crandon Project will be perceived. This history is one of long-term population decline and heavy outmigration of youth in a majority of the local study area, with recent but modest increases from the inmigration of elderly retirees and some reverse migration of younger households (RPC, 1981e, Table 2.10-6). The local study area also has a large population base, relative to the expected population-related effects of the Project, and the size of this population base is likely to diminish the relative magnitude of impacts.

The local study area declined in population from 1950 to 1970, with rates of outmigration of over 20 percent occurring in Forest and Langlade counties and nearly 8 percent outmigration in Oneida County (RPC, 1981e, Table 2.10-2). Rates of outmigration decreased from 1960 to 1970, with Oneida County experiencing a small rate of net inmigration (RPC, 1981e, Table 2.10-2). From 1970 to 1980, all counties in the local study area experienced population increases and net inmigration with that in Oneida County and in the Rhinelander area being especially large (RPC, 1981e, Table 2.10-2).

Both the long-term and recent patterns of population change seem likely to affect residents' reactions to the Project. The long-term patterns of population decline and heavy outmigration are commonly found in rural resource-dependent areas and are

often associated with strong preferences for economic growth and development (Murdock and Leistritz, 1979). Particularly in Forest and Langlade counties, this history is likely to lead to long-term residents favoring economic growth such as that likely to accompany Project development. In fact, in the survey of residents conducted by RPC in 1980, 88 percent believed the local study area needed economic growth (RPC, 1982b, Table B-36).

The recent population increase in the local study area, however, has been based largely on the migration of persons from urban areas who have located in the local study area in part to avoid the problems associated with urban areas. These new residents seem likely to resist developments that may involve risk to the local study area's environment or sparsely-settled living conditions.

For purposes of this analysis, it is easy to recognize the ways in which the western communities frequently studied for their "boomtown" conditions (communities such as Gillette, Wyoming, or Rock Springs, Wyoming) are analogous to the local study area as a whole (see also Demographic Analysis). Though the Project's local study area is comprised of numerous communities, both the local study area and the western boomtown areas would be of similar sizes in including areas within acceptable commuting times of the development sites. Many of those who would move into the boomtown areas of Wyoming would not actually settle in the towns themselves but in the areas surrounding the towns. In

those western areas, however, there likely would be only one principal community within a range of many miles and the increased population in the surrounding vicinity would be dependent on that one western town for many services and activities.

The local study area is one with over 50,000 residents, however, and, in that sense, quite unlike the very sparsely-settled areas of the Western United States from which the "boomtown" images of growth have been derived (see with-project section in the Demographic Analysis). Project-related population increases are not expected to exceed 5,800 or roughly 10 percent of the base population during the Project's construction phase even in the peak year of the maximum-impact Scenario 3 (see Demographic Analysis, Table 3-3). Since that Project-related population increase occurs over a nine-year span (1980-1989), it would fail to meet the 10-percent annual population growth criteria for a boomtown. Overall, the demographic history of the local study area seems likely to lead to two different perspectives on the impacts of large-scale developments such as the Project--widespread support among long-term residents and more modest support among newer residents. These patterns, in fact, are reflected in the findings from the baseline survey (RPC, 1982b, Appendices B and D), where length of residence and support for the Project appear to be positively correlated.

Comparing the historical, economic, ecological, and demographic bases of the local study area with those of other areas

which have experienced large project development would seem to suggest that large-scale resource developments are likely to be well-understood and widely-accepted by residents (RPC, 1982b). These factors also suggest that both longtime and new residents will demand care in the construction and operation of such developments and that knowledge of the long-term nature of such management is likely to be possessed by the local study area's residents. Finally, these characteristics indicate that the relative size of population increases expected to result from the Project compared to the local study area's population is such that the "boomtown" effects often associated with large-scale developments are not likely to occur (see with-project section in the Demographic Analysis). Overall, then, these conditioning factors appear likely to create a context of qualified support for, and an ability to absorb, both without-project and with-project patterns of future growth.

WITHOUT-PROJECT FORECAST (1980-2016)

Without the Project, the local study area is forecast to experience only modest population growth. According to the Demographic Analysis (Table 3-1), the local study area's population in the without-project scenario is forecast to increase from 51,690 in 1980 to 54,815 in 1990 (a 6 percent increase from 1980), to 56,077 in 2000 (an 8.5 percent increase from 1980), and to 59,044 in 2016 (a 14.2 percent increase from 1980 or an aver-

age annual population growth rate of approximately 0.4 percent). The three major trade centers of the local study area would show equally modest population increases. The City of Crandon would grow from 1,969 in 1980 to 2,070 in 1990, to 2,095 in 2000, and to 2,171 in 2016 (a 10.3 percent increase from 1980) (Appendix A, Table A-1). The City of Rhinelander would increase from 7,873 in 1980 to 7,962 in 1990, decrease to 7,851 by 2000, and to 7,721 in 2016 (a decline of 2 percent from 1980), and the City of Antigo would increase from 8,653 in 1980 to 9,222 in 1990, to 9,460 in 2000, and to 10,103 in 2016 (a 16.8 percent increase from 1980) (Appendix A, Table A-1). Thus, modest growth rates of less than 1 percent per year are forecast for the without-project scenario.

Similarly, the local study area's economic growth without development of the Project is forecast to be modest. Employment will increase by approximately 7,000 persons from 1980 to 2016 with an average annual increase of less than 1 percent (Economic Analysis, Table 2-4). Unemployment rates would remain relatively high (over 10 percent) for several years during the forecast period and income would increase at an annual rate of just over 1 percent (Economic Analysis, Table 2-5). Finally, the local study area's dependence on the forest products industry and on tourism would continue. In sum, economic growth would be limited in the local study area in the absence of other development.

Thus, the without-project economic and demographic projections indicate relatively stable conditions in the local study

area. Such conditions also seem likely to characterize the nature of sociocultural changes in the local study area in the absence of development. Potential trends in the subject areas noted in Figure 7-2 are described briefly below.

Social Organization

Without-project forecasts provide little evidence to suggest substantial changes in social interaction patterns in the local study area in the absence of development.

Roles and statuses in the local study area are likely to continue to be based on informal as much as on formal criteria. Thus, the roles of business, timber, agricultural, and recreational interests are likely to retain their present balance in the local study area.

The without-project organizational and institutional structure is one based on the local study area's forest, agricultural, and tourism-based economy and on its rural and familial-oriented sociocultural system. That is, the local study area is one in which most social organizations attempt to relate to, and reinforce attachments to, the local study area's major industries and to basic religious, small-town, and family-oriented values. Under without-project forecasts, it is unlikely that these factors will change substantially because population increases are modest (Demographic Analysis, Table 3-3). As a result, although present trends in social organizational memberships are likely to contin-

ue, substantial increases in memberships also are unlikely to occur. Thus, local study area institutions should show little change. The informal, kinship, and economic-based factors that dominate interaction patterns in the local study area should continue.

However, the influence of one group--elderly retirees--is forecast to increase somewhat. In the without-project scenario, the elderly population continues to increase (from 15 percent in 1980 to over 17 percent in 2016) (Demographic Analysis, Table 3-2) and, if inmigrants from urban areas continue to account for a substantial part of that growth, then their potential influence may increase. Although it is extremely difficult to project the actual influence of this group in the future, the fact that they were attracted to the local study area because of its present conditions suggests that increases in their numbers will not lead to substantial pressures for changes in the without-project sociocultural system. Rather, given the size of the overall population base of the local study area and the relative number of retirees expected to move to the area (Demographic Analysis, Table 3-2), such new residents are likely to assimilate, rather than substantially alter, the sociocultural system that presently predominates in the local study area.

As with other rural areas, however, social values in the local study area can be expected to become increasingly integrated with urban areas of the nation. As such, it is likely to

similarly reflect the patterns of increasing rural-urban homogeneity that are occurring throughout the nation (Dillman and Hobbs, 1982).

The Public Facilities and Services Analysis and Fiscal Analysis chapters of this report discuss the quantitative dimensions of local study area services including the nature of service delivery in the local study area. The local study area is one with well-developed medical, educational, retail, and other service bases, particularly in the Rhinelander and Antigo communities (RPC, 1981e). These services have been delivered in a professional but informal manner and with considerable state and federal support (RPC, 1981e).

Under without-project forecasts, the continued delivery of such high-quality services may be difficult because of declining needs for some services (e.g., education) (RPC, 1981e) and declining financial support for others (as a result of cutbacks in state and federal aid). A nearly 10 percent decline in the proportion of the population under 18 years of age is projected under without-project conditions and federal and state cutbacks in funding are underway (Demographic Analysis, Table 3-2).

Such factors are likely to have several implications for local services. They may lead to a reduction in the level of total services available in the local study area, particularly for those persons with less adequate financial resources. If such reductions occur, the social structure of the local study

area may experience additional strain and increased inequality in opportunities (Murdock and Leistritz, 1979).

In the absence of major developments, the quality of life in the local study area is likely to remain relatively stable in terms of nonmaterial factors. Thus, the close interpersonal relationships and small-town atmosphere that characterize the local study area likely will be retained. In terms of the material quality of life, however, without-project forecasts suggest that the high levels of poverty (RPC, 1981e) and lack of job opportunities that have characterized the local study area in the past also will continue (Economic Analysis, Tables 2-3, 2-5 and 2-19). In addition, changing population composition and national and statewide economic conditions suggest the level of some services may be reduced because of decreasing budgets. Given the high levels of community support for development and desire for increased incomes (RPC, 1982b, Tables C-23, C-24, C-35, and C-60), residents may experience continued dissatisfaction with economic and employment opportunities in the area in the absence of a major development which provides these opportunities.

Values, Attitudes, and Perceptions

The without-project values, attitudes, and perceptions of local study area residents are indicated from the results of the baseline surveys (RPC, 1982b). A majority of residents rated nearly all services in their local communities as either good or

very good (RPC, 1982b, Tables C-12 through C-25), but only 18 percent rated employment opportunities as good or very good and only 21 percent rated wage levels as good or very good. In addition, over 87 percent believed the local study area needed economic growth and over 82 percent believed that new industrial growth would increase the standard of living in the local study area. At the same time, however, over 65 percent were unwilling to see the environment damaged in order to obtain economic growth. Overall, then, the survey results indicate that the residents are largely satisfied with the local study area and its service base, but believe it provides insufficient economic opportunities. They strongly desire economic growth, but also want such growth to occur with care to preserve the high quality of the local study area's natural resources and physical environment (RPC, 1982b, Tables C-36 and C-39).

Under without-project forecasts, there is little to suggest that the attitudes, values, or perceptions of residents in the local study area will change dramatically. As with the quality of life, without-project forecasts of attitudes, values, and perceptions suggest that, in the absence of a major development, the residents will continue to positively perceive the sociocultural system of the local study area, but also will continue to perceive a need for economic development.

WITH-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

The Crandon Project is forecast to provide from 873 (Scenario 1) to 1,071 (Scenario 3) construction jobs during 1989, the peak construction year (Economic Analysis, Figure 2-3 and Tables 2-11 through 2-13). Population increases are forecast to range from 4,300 (Scenario 1) to 5,765 (Scenario 3) during the construction phase (Demographic Analysis, Figure 3-5 and Table 3-3). Approximately 45 percent of the forecast population increase is expected to occur in Oneida County, primarily in the towns of Pelican, Pine Lake, Newbold, and the City of Rhinelander. Another 25 to 30 percent is projected to occur in Langlade County, primarily in the City of Antigo, and the other 25 to 30 percent in Forest County, primarily in the towns of Nashville, Crandon, and Lincoln. These population increases represent modest levels (less than 10 percent) of growth for the local study area as a whole compared to the without-project scenario. Thus, the boomtown levels of population growth often associated with large-scale developments (Murdock and Leistritz, 1979) are not projected to occur. In addition, the sociocultural changes projected to occur as a result of the development also are likely to be relatively modest.

The Project also is well-known and, clearly, is being perceived positively by residents of the local study area. Over 97 percent of residents surveyed in the baseline survey (RPC, 1982b)

had heard of the Project and a majority of the residents perceived that the Project will have a good, very good, or simply no effect on community services. Approximately 50 percent felt the Project's effects would be good overall and 24 percent felt the Project's effects would be mixed (both good and bad). The residents' major areas of concern in regard to the Project were that care be taken to protect environmental areas, such as lakes and lakeshores, from residential developments (82 percent expressed this view) and that excessive population growth might occur (57 percent felt such growth would not be beneficial to the overall quality of life). Finally, over 71 percent felt the Project would be good or very good for wages in the local study area and over 81 percent felt it would be good or very good for employment. Thus, the Project is expected to ameliorate many of the most negatively-perceived aspects of the local study area's current socioeconomic conditions (e.g. lack of job opportunities and low wages).

To the extent that these perceptions can be projected to be retained by the local study area's residents throughout the forecast period, they suggest there is a positive attitude toward the Project that should prevail, provided concentrated and excessive population growth and environmental problems are not encountered. The residents' initial perceptions of the Project and the expected magnitude of its impacts appear to suggest that the sociocultural impacts of the Project will be largely positive.

Social Organization

The construction phase of the Project may be the most disruptive in terms of the sociocultural system of the local study area. Though the local study area has an abundance of outdoor recreation opportunities (RPC, 1981e, Section 2.10.2.8), the inmigrating construction workers are likely to find certain social activities relatively limited in the immediate Project vicinity and, as a result, increased rates of social disorganization may occur resulting in some disruption of the normal social order in the local study area.

During this phase, however, interaction patterns, roles, and statuses of the sociocultural system are unlikely to change dramatically because of the transient nature of the construction work force. Social organizations and institutions, such as the family and religion, are unlikely to be disrupted severely. Many social clubs and churches should experience at least some growth, but this growth should not be of a magnitude, nor sufficiently long-lasting, to change the nature of such organizations. Although interaction patterns between inmigrating construction workers and longtime residents will likely be more formal and less personal than those between longtime residents, the relative number of construction workers and their families (Demographic Analysis, Tables 3-4 through 3-6) and their wide distribution among towns in the local study area (Demographic Analysis, Appen-

dix A) is likely to lead to few overall changes in the sociocultural system.

Some social groups, particularly the indigenous and inmigrating elderly, may find the construction phase temporarily unpleasant. The appearance of construction-related persons in such rural and retirement-related towns as Pelican and Pine Lake, because the number of construction workers would be large relative to the populations of these communities (Appendix A, Table A-1), may lead to some anxiety as older residents may feel that construction workers are disruptive to the existing social order. Since this phase is of relatively short duration (less than five years), and most of the construction workers will live in the area for only a part of the five years, the possible effects also should be of relatively short duration.

The service structure of the local study area may experience some strains, particularly in the most heavily-impacted communities (Public Facilities and Services Analysis). In nearly all cases, however, the growth is not expected to exceed present capacities. Thus, the construction phase should not lead to negative overall impacts on the service structures of the local study area (Public Facilities and Services Analysis).

The quality of life in the local study area may be expected to experience some negative effects and some positive effects during the construction phase. Negative effects may occur in terms of some disruption of the rural informal interaction pat-

terns, but overall effects on the quality of life should be positive. Thus, as indicated in the Economic Analysis earlier in this report, income, business activity, and employment (Economic Analysis) will increase as a result of the Project, providing residents with some of the economic growth that the surveys indicate they desire (RPC, 1982b, Table C-35). As a result, the material quality of life in the local study area should be impacted quite positively.

Values, Attitudes, and Perceptions

The construction phase likely will lead to some lessening of the high overall level of support for the Project as evidenced in the baseline surveys (RPC, 1982b, Table C-60). It is common for perceptions of a project to become more negative during construction and then to become more positive again in the operation phase (Murdock and Leistritz, 1979). Given the strong desire of residents for economic growth, it can be anticipated that the overall perceptions of the Project will remain quite positive even during construction and that the Project will be seen as a partial answer to the local study area's need for economic development. In addition, because the population increase is projected to be widely dispersed, concerns about population growth being too rapid should be minimized. Generally, the Project should lead to higher levels of community and area-wide satisfaction. In fact, the most negative aspect of the Project's construction

effects may be that its impacts will be less extensive than some local study area residents had anticipated. That is, discussions with leaders in the local study area indicate that their expectations of Project-related jobs are higher than the actual number of jobs projected (Economic Analysis). This perception may be especially apparent among residents in those communities closest to the Project site area that may receive less growth than many of their residents may have anticipated.

Attitudes of seasonal residents and recreational visitors to the local study area also are not projected to change substantially, according to survey results (RPC, 1982b). Of the tourists surveyed, 71.4 percent said the Crandon Project would have no effect on their choosing to visit Northeast Wisconsin. Of the seasonal residents in the local study area, 81.2 percent of those surveyed said the Crandon Project would not make them more likely to sell their property and 81 percent felt the Project would have positive effects or would make no difference on the local study area as a seasonal residence location.

OPERATION PHASE (1990-2011)

Social Organization

The Crandon Project is projected to generate between 700 (Scenario 1) to 860 (Scenario 3) operation jobs (Economic Analysis, Figure 2-3 and Tables 2-11 through 2-13) while population

increases are forecast to range from 2,036 (Scenario 1) to 2,669 (Scenario 3) during the operation phase (Demographic Analysis, Figure 3-5 and Table 3-3).

Because the Project-related population increase is forecast to be less during the operation phase than during the construction phase, and because the operation-phase population is projected to be widely dispersed among the communities in the local study area, the sociocultural impacts, both positive and negative, also are likely to be less apparent than during the construction phase. Interaction patterns and social relationships, roles, and status arrangements in the local study area should not be altered markedly from without-project forecasts. The operation-phase population is likely to be older and to be largely composed of family groups rather than individual workers (Murdock and Leistritz, 1979), and thus its members may be expected to play a more active role in the social life of the local study area's communities (Murdock and Leistritz, 1979). However, because of their small numbers relative to the total population of the local study area (Demographic Analysis, Tables 3-3 through 3-6), new residents generally may be expected to assimilate the social patterns of the local study area.

Operation-related inmigrating workers and their families may have greater effects on local organizations and institutions than construction workers because inmigrants are likely to be somewhat better educated than local residents, to have more urban back-

grounds, and to have more experience in formal organizations than local residents (Murdock and Leistritz, 1979). Such workers thus may assume leadership positions in local organizations. The overall effects on these organizations should be to increase their efficiency, although some informality may be lost. Institutions such as religion and the family should not be altered dramatically because inmigrating workers during the operation phase are likely to bring family units to the local study area (Murdock and Leistritz, 1979). Local governments, like other organizations, may find new leadership among the inmigrating workers and the economic structure of the local study area will experience greater diversity from development of the mining sector (Murdock and Schriner, 1979).

Elderly inmigrants and longtime residents should be affected less during the operation phase than during the construction phase because the concerns raised during construction should dissipate with the influx of the more stable operational work force and their families (Demographic Analysis). Some services should experience more growth than under without-project conditions. The overall effects on services should be minor (Public Facilities and Services Analysis).

As during the construction phase, the material quality of life during the operation phase should be improved relative to without-project conditions with both income and employment increasing (Economic Analysis, Tables 2-17 through 2-19). The

nonmaterial quality of life should be less affected than during the construction phase, and thus should not deteriorate during the operation phase. Overall, the quality of life should not be decreased and the material quality of life should be improved as a result of Project operation.

Values, Attitudes, and Perceptions

Because the residents' chief social concerns about the Project were related to excessive population growth (RPC, 1982b), the lower rates of increase during the operation phase and the wide distribution of the population among the communities in the local study area should lead to positive perceptions. This should result in levels of support for the Project that are nearly as high as those presently prevailing in the local study area (Murdock and Leistritz, 1979). In addition, because the two most desired changes in the local study area--improved incomes and employment opportunities (RPC, 1982b, Tables C-23 and C-24)--should be improved by the Project's operation, levels of community and service satisfaction should be higher in this phase than during either the pre-construction period or the construction phase.

POST-OPERATION PHASE (2011-2016)

Projections of sociocultural conditions for the second decade of the next century are tenuous at best and must be limited to a few general projections. The closure of the Project likely would lead to outmigration from the local study area because of the decrease its closure will create in employment opportunities in the area. However, just as the relatively small magnitude and wide distribution of Project-related population increases in the local study area are forecast to have minimal effects during the Project's construction and operation phases, the changes should be manageable during closure. The social organizational structure of the local study area will experience some readjustments, such as organizations losing members or services having decreasing client populations, but all effects should be within manageable limits. The attitudinal and perceptual changes may be somewhat more marked because the closure of the Project may lead to increased concerns over income and employment-related factors, to decreased expectations, and to less positive perceptions about the local study area as a good place to live. These changes may be quite transient, however, and should disappear after the transition in the local study area economy has been completed (Murdock and Leistritz, 1979).

Overall, although the closure of the facility clearly will have some negative sociocultural effects, residents' familiarity with the typical cycles of resource development should provide a

basis for a smooth social/psychological adjustment to the Project's loss. In addition, residents are likely to perceive the Project's overall effects as having been positive, relative to a lack of development, even when the Project has ended (Murdock and Leistritz, 1979).

8. NATIVE AMERICAN COMMUNITIES ANALYSIS

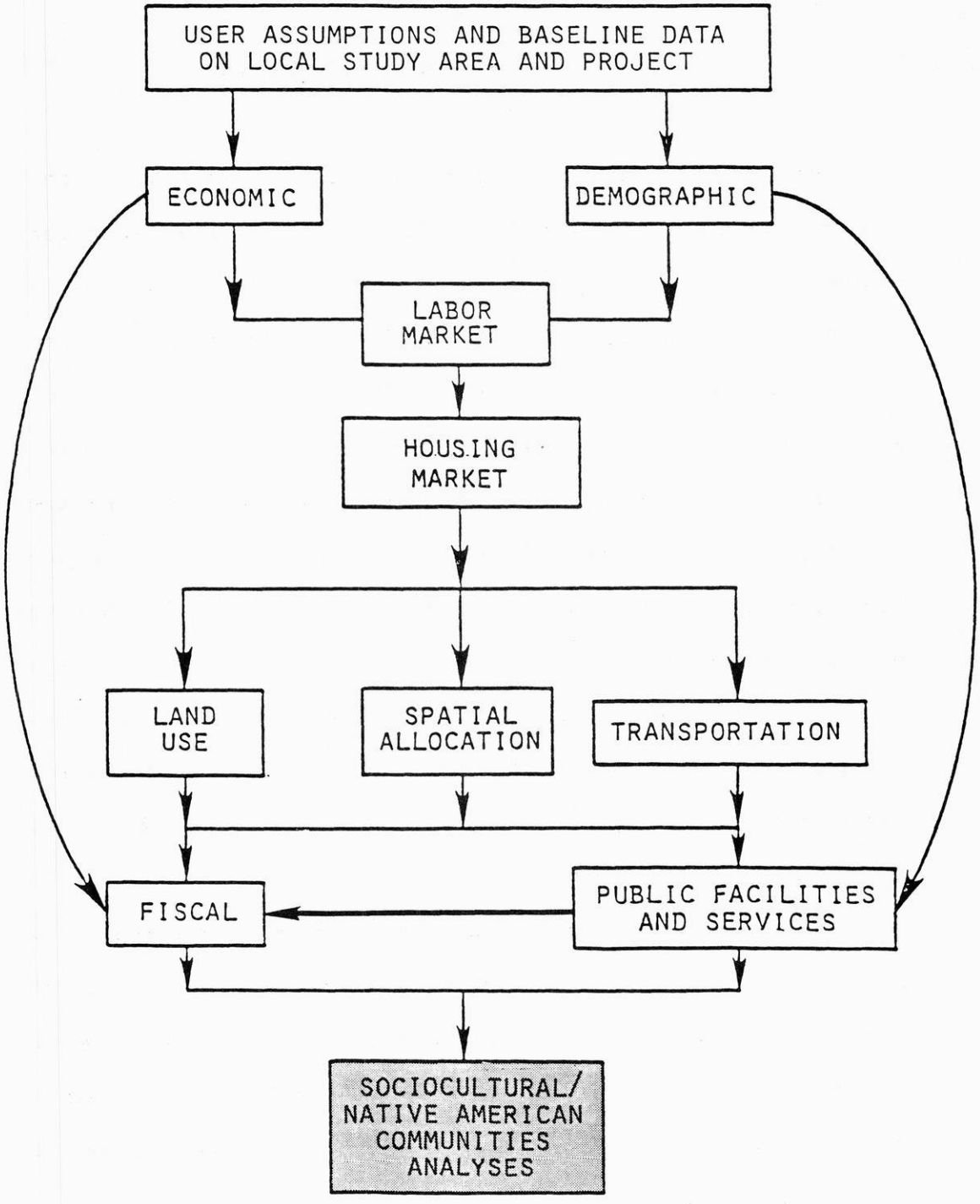
Presented in this chapter are without-project and with-project forecasts of conditions for the two Native American communities in the local study area (Forest County Potawatomi and Mole Lake Sokaogon Chippewa). The effects of the proposed Crandon Project (also referred to as the "Project") are measured by examining the differences between the without-project and with-project forecasts (RPC, 1980b). Emphasis is placed on qualitative forecasting techniques, but all relevant quantitative socio-economic forecasts have been considered in making these projections for the Native American communities, including data from our Demographic Analysis, Housing and Land Use Analysis, Economic Analysis, Fiscal Analysis, and Public Facilities and Services Analysis (Figure 8-1). Data from federal, state, local, and tribal records also were used.

The future economy of the Native American communities with and without the proposed Project is estimated on the basis of current capacities of the labor force and businesses on each reservation. This approach is based on specific local conditions, including consideration of local goals and objectives, as we develop our estimates.

FIGURE 8-1

PROJECT MODEL SYSTEM

(INTERRELATIONSHIP OF MODELS AND ANALYSES)



SOURCE: Research and Planning Consultants, Inc.

Our population estimates are based on current population, plus births, minus deaths, plus net migration for each reservation. For population with Project development, we vary the migration rate to reflect possible effects of the Project on migration.

We base our estimates of future housing needs on the number of new households anticipated for each reservation, current household characteristics, and available housing less those units that, on the basis of age and demolition rates, we expect to be subtracted from the housing stock over time. Our estimates of housing needs include replacements for those units. We also consider other factors that affect housing supply and demand, such as availability of land, provision of services, and capacity of the construction industry to supply needed housing.

The future demand forecast for public facilities and services are based on our projections of future population and the current reserve capacity of each facility and service. We then predict required expansions and the costs of these expansions. The estimated costs for public facilities and services are compared to estimated revenues to determine whether future revenues will be sufficient to meet any increases in costs for public facilities and services.

The estimates of future sociocultural characteristics are on trends established from our time-series data. Our qualitative

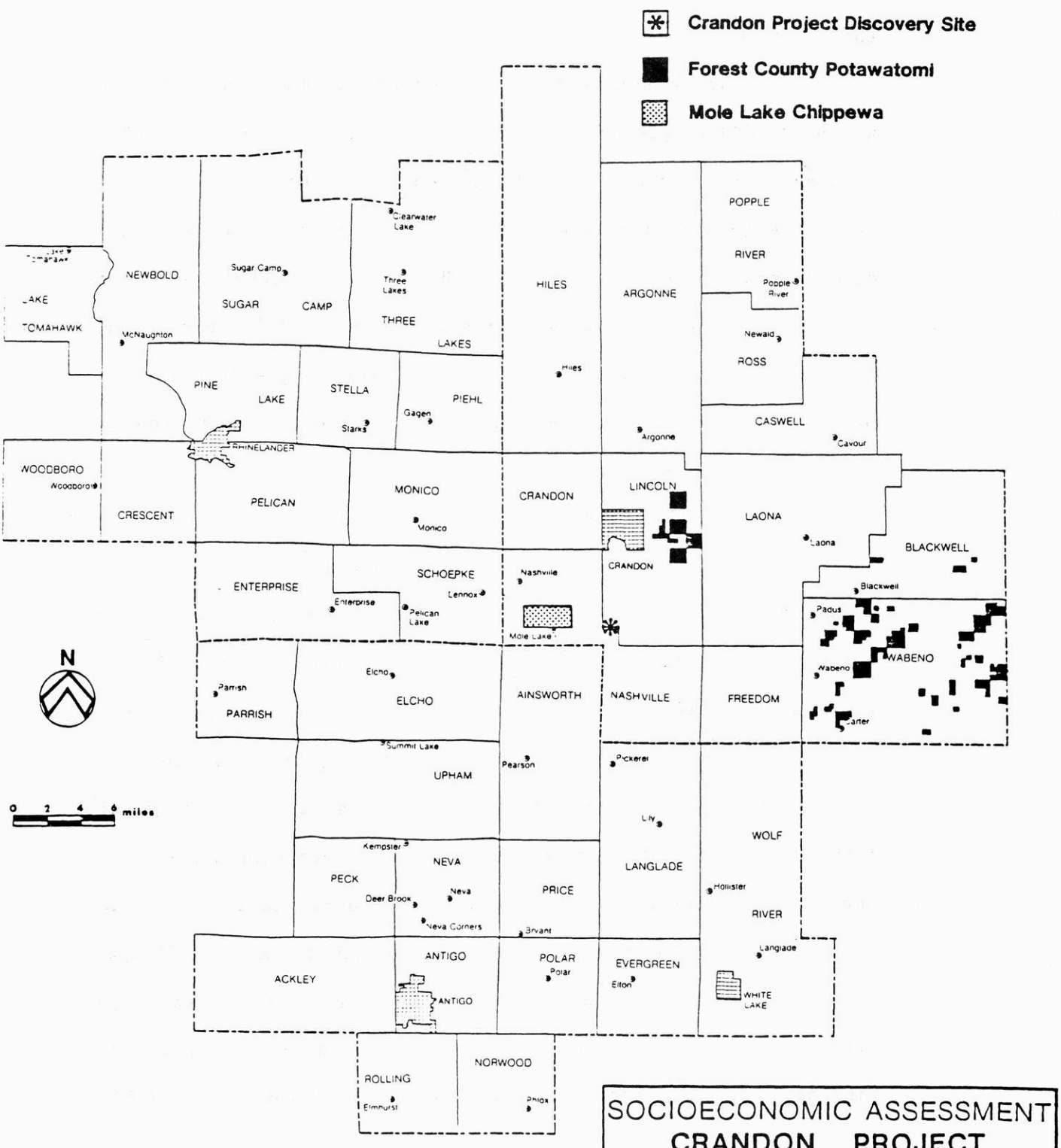
data from the survey research (RPC, 1982b) either supports these estimates or provides a basis for modifying them.

This chapter provides details on the forecasts for specific analysis topics (demographics, economics, and others) as they relate to the Native American Communities. However, the extended methodology discussions in other chapters of this report will provide additional information on the methodologies employed and the findings we have developed for a specific topic as it relates to the entire local study area.

Two Native American communities are located within the local study area--the Forest County Potawatomi community and the Mole Lake Sokaogon Chippewa community. The Forest County Potawatomi reservation consists of scattered holdings totaling 11,786 acres in Blackwell, Lincoln, and Wabeno towns (Figure 8-2). The soil consists primarily of glacial till; the topography shows generally moderate relief. Approximately 10,184 acres are in second-growth forest vegetation. There are scattered lakes on the reservation, and the highest point in Forest County, Sugar Bush Hill, is on reservation lands. The land is suited for timber production, but is unsuitable for agriculture.

The reservation is sparsely developed, with single-family houses scattered widely throughout the holdings. The tribal office is located east of Crandon, in the town of Lincoln. The reservation is served by U.S. Highway 8, State Highway 32, and by

NATIVE AMERICAN LANDS IN THE LOCAL STUDY AREA



SOCIOECONOMIC ASSESSMENT
CRANDON PROJECT
EXXON MINERALS COMPANY
prepared by **rpc**, inc. austin

roads maintained by the surrounding towns (Forest County Potawatomi, 1976).

Before white settlement, the Potawatomi were estimated to number 10,000 people and controlled as much as 30 million acres of land in the Great Lakes area (Forest County Potawatomi, 1976). The Potawatomi relinquished their last claims to Wisconsin land at the Treaty of Chicago in 1833. However, a small minority of the tribe refused to relocate to reservation land in Kansas, and fled to northern Wisconsin. The major remaining Wisconsin band of Potawatomi formed in Forest County (Americans for Indian Opportunity, 1973).

The Forest County Potawatomi reservation was created by an act of Congress in 1913. It was purchased under a policy intended to stimulate assimilation. Thus, the reservation consists of irregularly-spaced holdings, and families were assigned 40-acre tracts. Families also were given four cows, a team of horses, and a house, but title to the land was held in trust for the tribe. Though it was intended that the Potawatomi would become farmers, the tribe had never practiced sedentary agriculture, and the land was unsuitable for this type of use. In addition, it was illegal for Native Americans to sell livestock, and illegal to buy livestock from Native Americans. Thus, the cash crops consisted of products of the land, including berries, ferns, ginseng, furs, and maple sugar (Forest County Potawatomi, 1976).

During the years since formation of the reservation, the Potawatomi have continued in a marginal existence. There has been some amount of industrial employment at Connors Mill in the community of Laona, and federal money has created various employment opportunities through the tribal government.

The Mole Lake Sokaogon Chippewa reservation consists of a single block of 2,000 acres, located approximately six miles southwest of Crandon, in the town of Nashville. This reservation is the smallest in the state. The topography of the reservation is one of low relief. Soils consist of glacial till. Rice Lake and Bishop Lake (also called Dry Lake) are the dominant physical features. Lakes and associated wetlands comprise approximately 400 acres of the reservation, and forests and forested wetlands comprise another 1,300 acres (Mole Lake Sokaogon Chippewa, 1976). The remaining 300 acres contain all of the community's residential and commercial development. This development extends along Highway 55, which passes through the southeast corner of the reservation.

The Mole Lake Sokaogon Chippewa are part of the Algonquin group and are alternately known as the Ojibwa. The Ojibwa were at one time the largest Native American group north of Mexico, occupying land from Lake Erie to Montana, and from central Ontario to the Ohio River (Ritzenthaler, 1978).

Tribal tradition holds that as part of the Treaty of 1854, the Sokaogon were promised a reservation of 12 square miles in

their ancestral territory. However, for undetermined reasons, this reservation was never formed.

In 1937, the Mole Lake reservation was organized on approximately 1,680 acres of land. The purpose of selecting the site for the Mole Lake Reservation was to give the Mole Lake Sokaogon Chippewa control over Rice Lake and its wild rice resource. Wild rice from Rice Lake has continued to be a source of employment and income for the Mole Lake people. In recent years, the Mole Lake Sokaogon have derived a small amount of income from employment off the reservation. In addition, as in the case of the Potawatomi, federal programs have provided various employment opportunities through the tribal government.

It is important to examine possible effects of the Crandon Project on these Native American communities because they represent an important group in the local study area. Development of the Crandon Project may affect the socioeconomic characteristics of the Native American communities differently than those of other communities in the local study area.

WITHOUT-PROJECT FORECAST (1980-2016)

Populations change as a result of the interplay of three factors: births, deaths, and migration. It is unlikely that the high birth rates or high death rates in the Native American communities (RPC, 1981e) will show substantial changes during the forecast period (1980 to 2016), although both are expected to

decrease for the United States as a whole. Social and economic conditions in the communities have not improved markedly in the past and are not projected to improve substantially in the near future. The potential for increases in population exists in the communities because of the large percentage of population in the young childbearing ages and the high birth rates for Native American women in those ages (Table 8-1).

According to the Bureau of Indian Affairs (BIA), there are 600 enrolled members of the Forest County Potawatomi (Table 8-2). Only 316 of these people, or approximately 53 percent, of the total number of enrolled members live on or near the reservation. The remainder of the enrolled population lives elsewhere in the United States (U.S. Department of Interior, Bureau of Indian Affairs, 1980a), with the majority of nonreservation residents living in Milwaukee, Minneapolis, Chicago, and on other reservations (U.S. Department of Commerce, Bureau of the Census, 1973).

Of the 316 members (52.7 percent) of the Forest County Potawatomi community who live on or near the reservation in Forest County, 165 are male and 151 are female, with a sex ratio of the population of 1:0.9, males to females (Table 8-3).

Only 3 percent of the Forest County Potawatomi population is age 65 or over. This is compared to 10.7 percent for Wisconsin and 13.7 percent for Forest County. This relatively low percentage of elderly is the result of the small size of the population

TABLE 8-1

BEMIDJI AREA[a]
SELECTED VITAL STATISTICS
(Three-Year Average Rates)

Time Period	Birth Rate[c]	Infant Mortality Rates[b]			Death Crude Rate[d]
		Total	Neonatal	Postneonatal	
1976[e]	31.3	21.2	7.8	13.4	974.3
1974-1976[e]	31.3	15.1	5.7	9.4	954.8
1973-1975[e]	30.7	13.2	4.1	9.1	997.9
1972-1974[e]	29.9	13.1	4.4	8.7	988.9
1971-1973	29.8	16.6	8.2	8.4	754.9
1970-1972	28.6	18.2	10.9	7.3	778.5
1969-1971	28.2	21.3	12.1	9.2	759.4
1968-1970	28.4	20.6	11.1	9.5	756.6
1967-1969	30.5	21.6	11.7	9.9	737.9
1966-1968	31.1	22.2	11.3	8.9	744.8
1965-1967	30.8	23.9	10.4	13.5	721.5
1964-1966	32.2	24.8	12.4	12.4	728.3
1963-1965	33.5	27.8	14.5	13.3	766.7
1962-1964	34.9	31.9	17.3	14.6	829.0
1961-1963	35.2	35.8	16.4	19.4	853.0
1960-1962	37.6	36.2	16.5	19.7	847.9

NOTES: [a]The Bemidji Area of the Indian Health Service includes all reservations in Michigan, Minnesota and Wisconsin.

[b]Infant mortality rates are per 1,000 live births.

[c]Birth rates are per 1,000 population.

[d]Crude death rates are per 100,000 population.

[e]1972-1976 data are based on community coding of vital event records. Data for other years are based on aggregates of data at the county level.

SOURCE: Indian Health Service. 1978. File information. Vital Events Branch, Office of Program Statistics, Division of Resource Coordination.

TABLE 8-2

TOTAL POPULATION
1980

Native American Community	Total Enrolled Members	Resident on Reservation	Resident Adjacent to Reservation
Forest County Potawatomi	600	265	51
Mole Lake Sokaogon Chippewa	867	260	52

SOURCE: Bureau of Indian Affairs. 1980. Personal communication, Mrs. Noskoviak. Ashland, Wisconsin.

TABLE 8-3

FOREST COUNTY POTAWATOMI POPULATION CHARACTERISTICS
1980

Characteristics	Total	Male	Female
Population within the reservation	265	144	121
Population adjacent to the reservation	51	21	30
Population on or near the reservation	316	165	151
Age distribution			
0-15 years	132	73	59
16-24 years	73	34	39
25-34 years	24	10	14
35-44 years	35	21	14
45-64 years	42	22	20
65 and above	10	5	5

SOURCE: U.S. Department of the Interior. 1980. Report of the Labor Force. Bureau of Indian Affairs. Washington, D.C.

60 to 70 years ago. Conversely, 42.0 percent of the population is 15 years or younger.

There are 867 enrolled members of the Mole Lake Sokaogon Chippewa (Table 8-2). Of the enrolled members, 312 (35.9 percent) live on or near the Mole Lake Reservation. As stated in the general description of the reservation, the Mole Lake Reservation is small, and a substantial part of the area is covered by lakes and forested wetlands. These space limitations partially account for the small percentage of enrolled members who actually live on the reservation. As with the Forest County Potawatomi, the majority of the tribe members who reside away from the reservation live in Milwaukee, Minneapolis, Chicago, and on other reservations.

Of the 312 people who live on or near the Mole Lake Reservation, 152 are male and 160 are female, for a sex ratio of 1:1.1, males to females (Table 8-4).

Only 1.9 percent of the Mole Lake population is 65 years or older. As with the Forest County Potawatomi, this represents an unusually low percentage of elderly compared to the population of the state and Forest County. As with the Potawatomi, the low number of elderly people is a factor of small population size in the past. The Mole Lake Sokaogon Chippewa show a high percentage of individuals age 15 years or younger, with 43.9 percent of the Mole Lake population in this age category.

TABLE 8-4

MOLE LAKE SOKAOGON CHIPPEWA POPULATION CHARACTERISTICS
1980

Characteristics	Total	Male	Female
Population within the reservation	260	128	132
Population adjacent to the reservation	52	24	28
Population on or near the reservation	312	152	160
Age distribution			
0-15 years	137	68	69
16-24 years	80	34	46
25-34 years	30	15	15
35-44 years	44	26	18
45-64 years	15	7	8
65 and above	6	2	4

SOURCE: U.S. Department of the Interior. 1980. Report of the Labor Force. Bureau of Indian Affairs. Washington, D.C.

Data on births and deaths for the two reservations are aggregated at the county level and at the level of the Bemidji Area of the Indian Health Service (IHS). (The Bemidji Area includes all reservations in Michigan, Minnesota, and Wisconsin.) However, because of the small size of the two populations and because of the effect of the small number of births and deaths related to a small total population on rate calculations, better indicators of long-term trends are provided by considering births, deaths, and migration separately.

The Bemidji Area had a three-year average live birth rate for 1974 to 1976 of 31.3 live births per 1,000 population (Table 8-1). This is compared to 14.2 live births per 1,000 population for Wisconsin (Wisconsin Department of Health and Social Services, 1977). As presented in Table 8-1, the 1974 to 1976 average birth rate of 31.3 per 1,000 is lower than that of 1960 to 1962 (37.6 per 1,000) but higher than that of 1969 to 1971 (28.2 per 1,000).

The death rate per 100,000 people in the Bemidji Area showed a three-year average of 954.8 for the years 1974 to 1976 (Table 8-1). This is an increase over the low number of deaths (721.5) per 100,000 people during 1965 to 1967. The infant mortality rate for the area was 15.1 deaths per 1,000 live births for 1974 to 1976, compared to a low three-year average of 13.1 for 1972 to 1974.

A high percentage of births were to mothers ages 15 to 19 years old. This pattern of births to young mothers substantially increases the growth potential of the population. The age of mothers for births in the Forest County Potawatomi and Mole Lake Sokaogon Chippewa communities for the years 1973 to 1975 is presented in Table 8-5.

Data on Native American migration are nearly nonexistent. The fact that large percentages of the enrolled members of the Forest County Potawatomi and Mole Lake Sokaogon Chippewa do not live on or near the reservation indicates that substantial outmigration occured in the past. However, both tribes indicate the reality or potential of inmigration to the reservations. In its 1979 Overall Economic Development Program Report, the Forest County Potawatomi state that "...emigration of the Potawatomi back to the community could dramatically increase if more job opportunities became available due to the expected mining activity in the Crandon area." Likewise, in regard to their reservation, the Mole Lake Sokaogon Chippewa state that some tribal members are moving back to the reservation from the city (Mole Lake Sokaogon Chippewa, 1980).

In the past, migration of the Native American populations has been characterized by periodic or seasonal movement, by moving to new places of residence with no intention of returning to the reservation, or by moving with the intent of returning to the reservation later. Each of these types of migration is

TABLE 8-5

MOLE LAKE SOKAOGON CHIPPEWA AND FOREST COUNTY
POTAWATOMI BIRTHS 1973-1975

	1973		1974		1975	
	No.	Percent of Total	No.	Percent of Total	No.	Percent of Total
Total	10		7		9	
Age of Mother						
15-19	5	50.0	3	42.9	4	44.4
20-24	4	40.0	1	14.3	2	22.2
25-29	1	10.0	2	28.8	1	11.1
30-34	0		1	14.3	1	11.1
35-44	0		0		0	
45+	0		0		1	11.1

SOURCE: Wisconsin Department of Health and Social Services. March, 1977. Indians in Wisconsin, Natality and Morbidity Experience for Reservation Areas and Milwaukee County. Bureau of Health Statistics, Division of Health. Madison.

expected to continue in the future. Unless economic, fiscal, and housing conditions on the reservations change, the population living on the reservations cannot increase at past rates. Migration is the only reasonable short-term means of maintaining slow and controlled growth. Therefore, the population on the reservations in the local study area is projected to increase, with migration away (both temporary and permanent) also increasing. The economic conditions in the local study area indicate that the migration off the reservations will mean migration out of the local study area.

In 1980, the Forest County Potawatomi had a labor force of 114, comprised of 66 males and 48 females (Table 8-6). Of these individuals, 35.1 percent are unemployed. Of the males in the labor force, 45.5 percent are unemployed, compared to 20.8 percent of the females. As of April 1980, 4 of the 30 unemployed males were seeking work actively, and 3 of the 10 unemployed females were actively seeking work, according to a 1980 Bureau of Indian Affairs report.

The Overall Economic Development Plan (OEDP) prepared by the Forest County Tribal Council in 1976 reported that 54.0 percent of the labor force had experience in unskilled jobs, 24.0 percent had experience in semi-skilled jobs, and 22.0 percent had worked at skilled jobs. However, the report emphasized that some individuals had skills such as secretarial and bookkeeping skills for

TABLE 8-6

FOREST COUNTY POTAWATOMI LABOR FORCE,
EMPLOYMENT, UNEMPLOYMENT AND INCOME, 1980

Characteristics	Total	Percent of Total	Male	Percent of Male	Female	Percent of Female
Labor Force	114	100.0	66	100.0	48	100.0
Employed	74	64.9	36	54.5	38	79.2
Unemployed	40	35.1	30	45.5	10	20.8
Actively seeking work	7	6.1	4	6.1	3	6.3
Employed, earning $5,000 or more per year	32	28.1	18	27.3	14	29.2
Employed, earning less than $5,000 per year	42	36.8	18	27.3	24	50.0

SOURCE: U.S. Department of the Interior. 1980. Report of the Labor Force. Bureau of Indian Affairs. Washington, D.C.

which there were no employment opportunities. The report also stated:

> "Most of the individuals counted as employed in the Potawatomi Community are working in 'soft employment' positions. That is, most of the employed are working in government-funded positions that are funded for terms ranging in length from six months to a year and then the people are unemployed again."

Examples of government-funded employment are those jobs that are provided through the Comprehensive Employment and Training Act (CETA). The community started an arts and crafts project in 1979 that used CETA funds for training of arts and crafts workers, with the intent that these individuals would become self-supporting after the training.

Some tribal members also engage in timber harvesting. However, to be successful in that work requires a capital investment in vehicles and equipment that is beyond the capacity of most members of the community. In addition, tribal members have found employment in the wood products industry.

The Mole Lake Sokaogon Chippewa reported a total labor force of 126, with an unemployment rate of 34.1 percent in May 1980 (Table 8-7). The Mole Lake labor force is comprised of 62 males and 64 females. Unlike the Potawatomi, the Mole Lake Sokaogon Chippewa males had a much lower unemployment rate than the females, 17.7 and 50.0 percent, respectively. All unemployed members of the labor force were reported as actively seeking work.

Table 8-8 lists the types of employment held by members of the Mole Lake Sokaogon Chippewa community in 1976. Forty of the

TABLE 8-7

MOLE LAKE SOKAOGON CHIPPEWA LABOR FORCE
EMPLOYMENT, UNEMPLOYMENT AND INCOME, 1980

Characteristics	Total	Percent of Total	Male	Percent of Male	Female	Percent of Female
Labor Force	126	100.0	62	100.0	64	100.0
Employed	83	65.9	51	82.3	32	50.0
Unemployed	43	34.1	11	17.7	32	50.0
Employed, earning $5,000 or more per year	32	25.4	15	24.2	17	26.6
Employed, earning less than $5,000 per year	51	40.5	36	58.1	15	23.4

SOURCE: U.S. Department of the Interior. 1980. Report of the Labor Force. Bureau of Indian Affairs. Washington, D.C.

TABLE 8-8

MOLE LAKE SOKAOGON CHIPPEWA TYPES OF EMPLOYMENT
1976

Type of Employment	Number Employed
Logging	1
Nurse's aide	1
Green Thumb (Wisconsin Farmers Union)	2
Great Lakes Intertribal Council	12
Tribal Projects	28

SOURCE: Mole Lake Sokaogon Chippewa. 1976. Overall Economic Development Plan for the Mole Lake Sokaogon Chippewa.

44 positions listed were either with the Great Lakes Inter-tribal Council or the Mole Lake Sokaogon Chippewa Tribe. As with the Potawatomi, the majority of these jobs are supported by "soft money," and do not provide long-term stability. As observed in the 1980 Overall Economic Development Program Report prepared by the tribe:

> "The Tribe remains heavily reliant on government programs for employment. Over the past few years, the Comprehensive Employment Training Act (CETA) has provided the vast majority of reservation employment opportunities."

Two primary CETA-funded projects have provided local employment. The first is an arts and crafts project, which provided full-time employment for 17 people, from January 1980 through the end of the year. The second is the wild rice improvement project which provided full-time employment for 10 people from February to July. The tribe also has used CETA funds to employ tribal members in a weatherization project.

The major economic activity of the Mole Lake Sokaogon Chippewa has been the Great Northern Bluegrass Festival. The tribe promotes and manages this music event which has attracted large numbers of people for five years. Revenue from this event has been used for other tribal enterprises. The most ambitious of these projects is the Sokaogon Chippewa Excavating Company. During the period from the summer of 1979 until the summer of 1980, this business secured $64,000 in contracts, and provided employment for nine people (Mole Lake Sokaogon Chippewa, 1980). In

addition, the tribe started a tobacco shop. The only private business enterprise on or near the Mole Lake reservation is a small tavern.

Of the 74 Forest County Potawatomi people reported as employed in April 1980, 32 earned $5,000 or more per year, while 42 earned less than $5,000 per year (Table 8-6).

A substantial number of Forest County Potawatomi households receive income from sources other than employment. As indicated in Table 8-9, in 1976 approximately one-fourth of the households received money from the Veterans Administration and the Social Security Administration, almost one-third from various welfare sources, and less than 5 percent from unemployment compensation.

Of the 83 Mole Lake Sokaogon Chippewa reported as employed in May 1980, 32 earned $5,000 or more per year, and 51 earned less than $5,000 per year (Table 8-7).

As with the Forest County Potawatomi, a substantial number of Mole Lake Sokaogon Chippewa receive income from sources other than employment. In 1976, approximately one-fourth of the population received income from the Veterans Administration and the Social Security Administration, about one-fifth received income from welfare, and a small number of people received income from unemployment compensation (Table 8-10).

At the present time, there are no private business establishments on the reservation. The Tribal Council has attempted to stimulate business activities through the development of an

TABLE 8-9

FOREST COUNTY POTAWATOMI
SOURCES OF INCOME OTHER THAN EMPLOYMENT, 1976

Source of Income	Percent Households Receiving Income
Veterans Administration and Social Security	26.0
Welfare (including Aid to Dependent Children)	30.0
Unemployment Compensation	4.0

SOURCE: Forest County Potawatomi. 1976. Overall Economic Development Program.

TABLE 8-10

MOLE LAKE SOKAOGON CHIPPEWA
SOURCES OF INCOME OTHER THAN EMPLOYMENT, 1976

Source of Income	Percent Households Receiving Income
Veterans Administration and Social Security	27.0
Welfare (including Aid to Dependent Children)	21.0
Unemployment Compensation	2.0

SOURCE: Mole Lake Sokaogon Chippewa. 1976. Overall Economic Development Program.

arts and crafts program and a timber enterprise program. However, no viable business enterprises have resulted from these efforts.

Economic characteristics of both the Forest County Potawatomi and the Mole Lake Sokaogon Chippewa must be viewed within the context of Forest County--one of the poorest and most sparsely-populated counties in the state (RPC, 1981e). Economic characteristics also must be viewed within the context of culture and history. During recent history, both tribes have lived in a context where there was little economic opportunity. Their way of life was based on direct use of natural resources rather than a money/industrial economy. Political events greatly limited their original territory, and government policies attempted to replace the traditional use of resources with European-style agriculture. Little in the tribes' traditional cultures helped them to adopt sedentary agriculture, and their land was unsuited for agriculture. Thus, the Forest County Potawatomi and the Mole Lake Sokaogon Chippewa have not been able to participate in the dominant economy of the local study area.

The labor force on the reservations is expected to continue growing faster than employment opportunities, thus increasing the already high unemployment on the reservations. Economic development on the reservations is hindered by several factors, including the low level of economic development in the local study

area, lack of capital, lack of entrepreneurial expertise, and an unwillingness to exploit natural resources.

Employment and business activity in the local study area are projected to increase slowly during the forecast period, while unemployment also is expected to rise. The competition within the local study area will tighten, lessening the Native Americans' chances to find employment or start businesses. As a result, small-scale economic development will be difficult to maintain. The wild-rice harvesting and the Great Northern Bluegrass Festival will continue to provide income and employment for Mole Lake Chippewa residents, but they provide few jobs and both are seasonal. Forest County Potawatomi residents will have even fewer employment opportunities available than Mole Lake Sokoagon Chippewa residents.

The reservations are greatly dependent on funds from sources outside the reservation, especially the BIA, for development capital. It is valid to assume, at least under the present federal administration, that federal support for economic development will be harder to obtain. This could cut the availability of jobs on the reservations, since many of the jobs are federally-funded.

Effective economic development partially depends on the ability to compete in a larger market, but lack of capital and entrepreneurial experience combine to hinder their ability to compete in the larger market.

There are 102 residents on the Forest County Potawatomi reservation (Wisconsin Department of Local Affairs and Development, 1979). Forty-six of these units are single-family houses (Table 8-11). More than 50 percent of the dwelling units of rural Wisconsin Native Americans were 30 years old or older at the time of the 1970 census.

Most houses on the reservation were maintained through a Revolving Rehabilitation Fund established with loans and grants from the BIA in the 1930s and 1940s (Forest County Potawatomi, 1976). Through the 1960s and 1970s, the tribe received home improvement grants from the Office of Economic Opportunity and the BIA. In addition, the tribe used funds from the Department of Housing and Urban Development (HUD) to construct 11 new houses on three cluster sites in 1971 (Forest County Potawatomi, 1976).

The Tribal Council has continued efforts to secure funds to expand and maintain the housing stock. However, as stated in the Forest County Potawatomi OEDP in 1976:

> "Despite these efforts, twenty percent of the homes in the community do not have plumbing. Fifteen percent of the households in the community do not have electricity. Eighteen percent of the homes are occupied by two or more families."

According to the 1980 OEDP Report for the Mole Lake Sokaogon Chippewa, there are 57 housing units on the reservation. Approximately one-fourth of these units are tribally owned, about one-fifth are new HUD units, and about two-fifths are mobile homes (Table 8-11). According to the OEDP Report, 91.2 percent of

TABLE 8-11

HOUSING, 1980

Housing Type	Number
Forest County Potawatomi	
Single-family units	46
Other (unspecified)	56
Mole Lake Sokaogon Chippewa	
Tribally-owned	13
Trailers	23
HUD homes	12
Private homes	9

NOTE: 91.2 percent of housing units are substandard (based on HUD procedure of counting a home as substandard twice if it is both substandard and overcrowded).

SOURCES: Mole Lake Sokaogon Chippewa. 1980. Overall Economic Development Program Report for Sokaogon Chippewa Community, Mole Lake Band.

Wisconsin Department of Local Affairs and Development. July 24, 1980. Personal communication, Robert Smith. Madison.

these units are substandard if the HUD policy is followed of counting a unit twice if it is both substandard and overcrowded. Six of the housing units were constructed 40 years ago through the Works Progress Administration. These units were constructed as "minimum-amenity habitations" that did not have basements, insulation, or indoor plumbing.

Two primary factors inhibit housing development on the Forest County Potawatomi and Mole Lake Sokaogaon Chippewa reservations. Those factors are economic conditions and administrative requirements.

Housing is an economic problem throughout the United States, particularly for Native American. Because of low household incomes, it is especially difficult for members of the two tribes in Forest County to purchase housing. Without a drastic improvement in the economic conditions of members of the two communities, purchase and maintenance of nonsubsidized housing will remain difficult to impossible.

Because of the low potential of households to purchase housing, reservation residents have relied on housing subsidies provided by the BIA, HUD, and the Farmers Home Administration. These programs have provided most of the housing stock on the two reservations. However, federal housing programs traditionally have been subject to rapid and frequent changes. In addition, the grants and loans often are difficult to obtain and adminis-

ter, especially for small local governments with limited administrative capacities.

The housing stock on the reservations is limited, old, in poor condition, and overcrowded (RPC, 1981e). The communities' abilities to replace and expand the existing stock depends on their ability to obtain outside funding and to succeed in economic development. There will be a continued shift toward mobile homes as the primary type of purchased housing.

The Native American communities rely upon the governmental jurisdictions in which they are located to furnish necessary public facilities and services such as law enforcement, fire protection, public transportation, education, and solid waste disposal. Law enforcement is provided by the Forest County Sheriff's Department with funding from the State of Wisconsin.

The following public facilities and services are provided on or by the Forest County Potawatomi Reservation (RPC, 1981e):

1. General government
2. Water supply
3. Wastewater collection and treatment
4. Public health and welfare
5. Cultural opportunities
6. Recreational facilities

The following public facilities and services are provided on or by the Mole Lake Sokaogon Chippewa Reservation (RPC, 1981e):

1. General government
2. Water supply
3. Wastewater collection and treatment
4. Public health and welfare
5. Cultural opportunities
6. Recreational facilities
7. Fire protection

Jurisdictions other than the two tribal governments provide many facilities and services used by members of the Forest County Potawatomi and the Mole Lake Sokaogon Chippewa. Those facilities and services include the following (RPC, 1981e):

1. Fire protection
2. Law enforcement
3. Education
4. Solid waste disposal
5. Streets, roads, and public transportation
6. Electric service
7. Fuel oil
8. Natural or liquid propane gas
9. Telephone service
10. Clinics and hospitals
11. Emergency medical service
12. Health care personnel
13. Public health and welfare
14. Recreation

Both Native American communities have operated almost exclusively on intergovernmental transfer funds to pay for public facilities and services. The Mole Lake Sokaogon Chippewa also have used some revenue from the Great Northern Bluegrass Festival.

Taxation, the primary internal source of funds for most governments, is not an available source of funds for either the Forest County Potawatomi or the Mole Lake Sokaogon Chippewa. The corporate charters of both tribes make no reference to taxing powers (U.S. Department of Interior, Bureau of Indian Affairs, 1939; 1938). In addition, the majority of real property is owned by the community rather than by the individuals.

Thus, the only internal source of revenue to the tribes is money generated through various tribal enterprises. The most

successful enterprise of either of the two tribes has been the Great Northern Bluegrass Festival of the Mole Lake Sokaogon Chippewa. During the past three years, this festival has generated sufficient profits to fund other enterprises such as the Sokaogon Chippewa Excavating Company and a tobacco shop.

The Forest County Potawatomi have not been as successful with tribal enterprises as have the Mole Lake Sokaogon Chippewa. The Potawatomi's primary resource is its forestland. For several years, the tribe has attempted to secure funding from government agencies to support a timber enterprise. A successful timber enterprise could generate capital to expand tribal services and to start other enterprises.

The primary financial support of tribal government, basic services, and special programs comes from external sources of revenue (Wisconsin Governor's Manpower Office, 1977). These sources include the following:

Economic Development Administration;
U.S. Department of Labor;
Office of Native American People;
Indian Health Service;
Bureau of Indian Affairs;
U.S. Department of Housing and Urban Development;
Wisconsin Department of Health and Social Services;
Wisconsin Department of Industry, Labor, and Human Relations;
Governor's Manpower Office;
Office of Economic Opportunity;
Upper Great Lakes Regional Commission;
Wisconsin Department of Local Affairs and Development;
Wisconsin Department of Natural Resources; and
Great Lakes Inter-Tribal Council.

Only the revenues from the Bureau of Indian Affairs and the Indian Health Service provide funding on a continuous basis, and those sources are subject to agency allocations and budgets. The other sources of external revenue are based largely on competitive proposals for grants.

Both the Forest County Potawatomi and the Mole Lake Sokaogon Chippewa provide only minimal services, and therefore have minimal fiscal costs. Neither tribe provides police service, nor maintains roads. Only the Mole Lake Sokaogon Chippewa provide fire protection, and this is done through a volunteer force using a truck purchased with funds from the Department of Housing and Urban Development (Mole Lake Sokaogon Chippewa, 1980). Neither tribe provides water or sewer services, and general governmental and special services all are supported by funds from one of the sources listed above.

There are limitations on the Native American communities in generating own-source fiscal revenue. They do not have the power to tax, and there is little private property that would yield revenue. Thus, there is little potential for general revenue and obligation bonds.

The future of the Native American communities' fiscal situation currently will be affected by the course of national politics and on the development of Native American enterprises. The Bureau of Indian Affairs provides federal funds through the State of Wisconsin to support services which, in other communities,

typically are supported by property taxes and user fees. Because of special contracts negotiated under the Johnson-O'Malley Act of 1934, and because of Wisconsin's status under P.L. 280 of 1953, these two Native American communities receive public services under arrangements different than other Native American reservations in the West.

The demands to assimilate into the white culture may increase as the means of subsistence on the reservations become less than effective. Increasing participation in the white culture may mean leaving the reservation and the local study area in order to be successful in finding employment opportunities.

Native Americans who migrate from the reservation probably will continue to maintain a sense of the reservation as home and, if conditions become unpleasant for these migrants, they likely will return. If conditions on the reservation improve, migrants also may wish to return.

The effectiveness of informal social controls decreases as population and population density increase. If overcrowded conditions, lack of employment and income opportunities, inadequate public facilities and services, and lower socioeconomic status become prevalent factors in the Native Americans' communities, their "quality of life" is likely to be affected.

WITH-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

The Demographic Analysis for the Project shows that substantial population growth, as measured by percentages of the population of individual jurisdictions, is forecast to occur in several communities adjacent to the reservations. Although the percentages are relatively high, particularly in the sparsely-populated towns of Lincoln and Nashville, the actual number of additional persons is not large and represents a small percentage of the total population growth that is projected for the local study area.

Much of the population growth near the reservations is accounted for by the return of persons who had earlier been outmigrants from the area. These individuals can be expected to be familiar with the traditions, customs, and lifestyles of the Native Americans and thus may be expected to interact with the Native Americans without the stress that might be produced by interactions involving those unfamiliar with Native American culture.

Because of the nature of the returnees, the large physical areas of the nearby jurisdictions, the current sparsity of population, and the well-developed infrastructure that is geared to the accommodation of summer residents and tourists, the increased population is unlikely to substantially influence the lifestyles

of persons residing on the Native American reservations. Some increased activity may develop for Native American businesses.

The presence of the Crandon Project may affect the size of the population on the reservations. The Project is not expected to alter birth rates, morbidity rates, or mortality rates on the reservations in the near future. However, return migration of off-reservation Native Americans is expected to occur as a result of the Project. Even the anticipation of the Project may encourage the return of some off-reservation Native Americans hoping to find better conditions on the reservations and more jobs than existed previously. In addition, some of the present reservation residents who otherwise might outmigrate probably will stay on the reservation because of the Project.

The construction of the Crandon Project should open opportunities for Native Americans to find employment and raise their per capita personal income. The exact number of Project-related jobs filled by Native Americans depends on many factors including hiring policies, the number of job openings, the competition in the labor force, and training policies. EMC plans to hire as many employees from the local study area as possible, and has noted that special attempts will be made to hire Native Americans (EMC, 1980b; 1978a, 1978b). EMC also has noted the possibility of pre-employment and on-the-job training (EMC, 1978a, 1978b).

Native Americans may be able to take a larger share of EMC jobs than indirect and induced jobs if EMC continues its stated

employment policies (EMC, 1980b; 1978a, 1978b). Most Native Americans in the local study area do not now have the job skills necessary to obtain Project-related employment, but training programs would increase their employability. Transportation also may be a limiting factor since over 20 percent of the families on the reservations do not have access to private transportation.

Native Americans with previous experience in industrial craft skills or related fields will have the best opportunities, while those with long-term previous job experience also may have a fair chance of obtaining employment.

The number of crimes may increase as a result of population growth and possibly deteriorating conditions on the reservations because of overcrowding. It is also possible that the actual crime rates could increase with the Project for several other reasons. First, inmigrants not familiar with Native American ways may cause conflict with Native Americans. Second, increases in population without improvements in other conditions, such as employment and housing, could cause theft to rise. However, if conditions on the reservations improve and benefits are dispersed evenly, order and safety could be affected positively.

OPERATION PHASE (1990-2011)

Operation of the Crandon Project is likely to stimulate population growth on the reservations by stimulating return mi-

gration. Project operation, like construction, should provide some employment opportunities for Native Americans.

The Native American communities each will receive mandatory $100,000 payments annually (indexed) from the net proceeds tax. This will increase income on the reservations and could increase their chances of becoming economically independent.

Employment in jobs on the reservation may increase if the tribal leaders decide to invest some of the net proceeds tax payments in tribal enterprises. In turn, proceeds from new enterprises could be reinvested in other enterprises or in the expansion of existing enterprises, as in the case of the proceeds from the Great Northern Bluegrass Festival.

Factors hindering economic development on the reservations, such as the lack of capital and entrepreneurial experience described in the forecast of without-project conditions, thus may change for the better because of the Crandon Project. Employment, business activity, and personal income in the local study area probably will increase due to the Project. The increases may stimulate demand in the local study area, such that expansion of tribal activities becomes economically feasible.

Housing conditions on the reservation are expected to become worse with the onset of the Crandon Project because of return migration to the reservations. The severity of the problem depends on how many Native Americans return to the reservations and on the availability of funds to increase the number of hous-

ing units. Funding may be derived from the $100,000-per-year net proceeds tax funds which will be given to each reservation. Some of this money could be used to deal with the current poor housing conditions on the reservations.

The Crandon Project should give the Native American communities a chance to become more self-sufficient in regard to facilities and services. Part of the funds from the net proceeds tax payments could be used for expansion or improvement of public facilities and services.

POST-OPERATION PHASE (2011-2016)

Closure of the mine/mill complex likely will result in some short-term decreases in employment and income for the Native American communities. Project-related jobs will be terminated, and unemployment levels can be expected to increase. In addition, the mandatory Mining Impact Board payments will be terminated. Reduced employment opportunities resulting from Project closure can be expected to result in higher levels of migration from the reservations. The major factor which will determine the long-term outlook for the Native American communities, however, is the use made of the net proceeds tax payments during the operation phase. If these funds are used effectively to establish viable economic enterprises, improve housing and public services, and enhance the skills of the labor force, the long-

term outlook for Native Americans in the local study area could be enhanced.

9. FISCAL ANALYSIS

The Crandon Project represents a major source of potential tax revenue for Forest County, the Mining Investment and Local Impact Fund, the Crandon School District, and the Towns of Lincoln and Nashville. The State and Federal governments also will receive sizable tax payments. Total tax payments by Exxon Minerals Company and new residents will be many times higher than required to mitigate the forecast costs related to the Project. The purpose of this chapter is to project the magnitude of these anticipated revenue streams, to identify when they become available, and to determine whether adequate funds will be available in a timely manner to each jurisdiction that can anticipate increased expenditures concurrent with Project development, operation and closure.

A positive fiscal impact is an improvement in the economic well-being of an individual jurisdiction or taxpayer. A negative fiscal impact is the reverse, necessitating increased outlays for goods and services and an increase in tax rates. When projecting fiscal impacts, it is important to consider all revenue sources mandated by existing law to arrive at an accurate estimate. This cumulative effect of all revenue streams is particularly important in determining what, if any, steps must be taken to avoid or mitigate negative fiscal effects.

Fiscal impacts cannot be determined by the simple projection of government expenditures. If the population within an individual jurisdiction rises, the total spending will increase if per capita expenditures are held constant; but revenues also would increase as new residents contributed as taxpayers. If increased tax revenue equals the increased expenditures, there are neither negative nor positive fiscal impacts.

Development of a major project can generate at lease three types of impacts. Each type can be either beneficial or adverse in a particular jurisdiction. A single development can generate both beneficial and adverse fiscal impacts in the same jurisdiction during the life of the Project.

The three types of fiscal impacts are:

1. Differences in the total revenues generated versus the total expenditures required over the life of the Project.
2. Differences in the timing of revenues and expenditures, a timing "mismatch."
3. Differences in the jurisdictions receiving revenues and those called upon to make expenditures, a jurisdictional "mismatch."

Mitigation of any negative effects on local jurisdictions caused by mining development is the role of the Mining Investment and Local Impact Fund (derived from payments of net proceeds tax), which was created to assist individual jurisdictions in compensating for mining-related impacts. Wisconsin's net proceeds tax (NPT), which may be considered a second income tax, establishes a

mechanism so that funds can be channeled to negatively impacted jurisdictions when adequate funds are not directly available. Crandon Project net proceeds tax payments alone are far in excess of the total Project-related costs forecast for all jurisdictions within the local study area during the anticipated life of the mine (See Table 9-3).

When considering the first of the three types of fiscal impacts, the effects of Crandon Project development are extremely positive. Prospective revenues from the various taxes levied on the Project are greater than the projected increased costs to local governments resulting from mine development. The local study area and the State will benefit significantly from development.

Timing and jurisdictional mismatches are projected to occur. Such mismatches are technical effects that can be resolved by legislative and regulatory remedies. In some cases, jurisdictions may be required to provide goods and services before mining tax revenues become available to fund the increased expenditures. This effect can be seen primarily during the construction phase of the Project. The timing of tax revenues lags behind the expenditures necessitated by increases in population.

In other cases, there are jurisdictional mismatches. A jurisdiction in which the Project is not located may experience significant population and expenditure increases without realizing sufficient funds from new taxpayers to cover their expenditures.

If net proceeds tax distributions are ignored, the Crandon Project would produce jurisdictional mismatches. The tax equalization aspects of the Wisconsin property tax system and the shared income from the Wisconsin state income tax will moderate the jurisdictional mismatches before net proceeds tax revenues are applied. In this way, negative impacts in jurisdictions which cannot directly tax the project are minimized or eliminated. When net proceeds tax revenues from the Crandon Project are added to the total fiscal environment, all of the jurisdictions and taxpayers who otherwise might experience a jurisdictional mismatch can be compensated and protected from such mismatch. Thus, within the total fiscal framework of the State, negative jurisdictional mismatches can be eliminated. Still, the jurisdictions with direct taxing authority will receive the bulk of the direct benefits from taxation of the Project.

In the discussion that follows, particular emphasis is placed on the net proceeds tax, the local property tax, State and Federal taxes, and statewide fiscal effects of the Project. The general effects of increased business activity in the local study area, stimulated by mining-related population increases, are considered in the Economic Analysis.

The projections discussed in this chapter are based on a simulation of what might occur with the assumptions discussed in the preceding chapters. Community actions are discussed that could mitigate or otherwise change what could actually occur.

The various tax laws, codes and administrative rules of the several jurisdictional levels of the local study area are complex and subject to change by future government action. An important assumption is that the various jurisdictional tax laws used in this chapter are those in effect on December 1, 1982. The state equalization aid discussion and methodology were also based on the formulas and data for the latest year of aid distribution (1982). Government actions which increase or decrease expenditure requirements, tax sharing and local aid formulas, tax rates, deductions or exemptions, and other factors would result in different projections affecting all scenarios.

In reality, institutional arrangements will change over the forecast period of 31 years. This means that, in absolute terms, projections based on current arrangements (such as existing tax rates and statewide proration factors) probably will vary from actual conditions, and the amount of variation likely will increase the farther into the future the forecast is made. The errors are systematic, however, in the sense that they are present under both the without- and with-project scenarios. The errors will tend to cancel because the without- and with-project conditions are compared to estimate net effects. The important determinations in terms of the impact assessment of the proposed Crandon Project are not the absolute numbers in the without- and with-project projections, but rather the comparison between the two forecasts.

Figure 9-1 shows the relationship of the fiscal model to the other models used in the forecast. Figure 9-2 shows the steps involved in the local study area fiscal analysis. The fiscal model used for this analysis contains equations relating public revenue collections to population, land development, and economic activity. Relationships between locally generated revenues and state to local transfers are considered carefully. Annual expenditure forecasts for each jurisdiction are supplied by the public facilities and services model.

Using the forecast expenditures and revenues, the fiscal model calculates the property tax mill rate for each jurisdiction for each year. The analysis is not intended to forecast actual tax rates or fiscal balances. Rather, it is intended to forecast the difference the Crandon Project will have on full market value tax rates for jurisdictions within the local study area. Because of this limitation, several assumptions used in the analysis should be understood clearly by anyone attempting to use the results for decision-making.

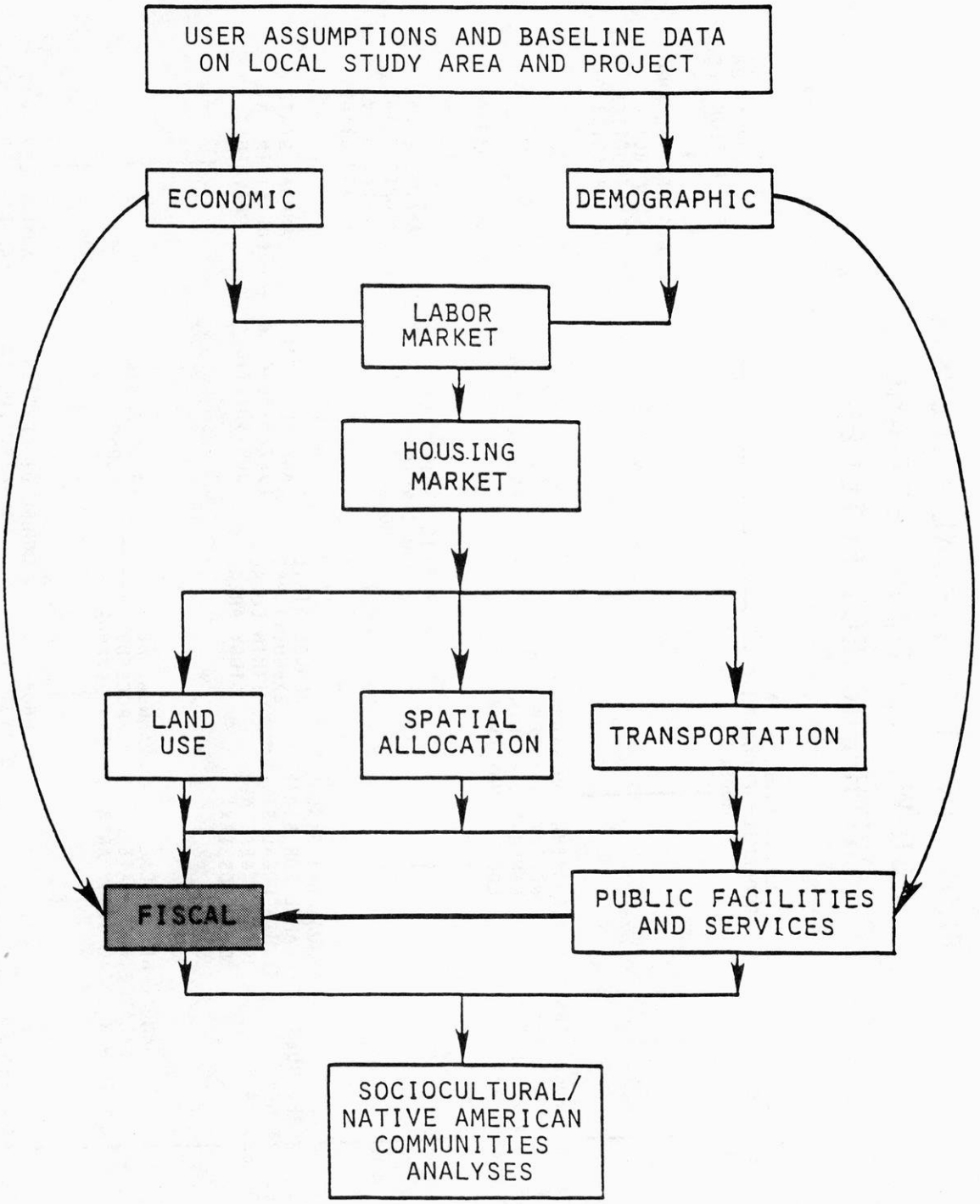
General government capital improvements such as, public buildings, streets and roads, park land acquisition, and vehicles and equipment are assumed to be financed through issuance of general obligation bonds, bank notes, or dealer financing.

In the without- and with-project forecasts, no provision is included for the replacement of existing facilities because of physical obsolescence. To the extent a jurisdiction must replace any facilities in addition to adding the new facilities necessary

FIGURE 9-1

PROJECT MODEL SYSTEM

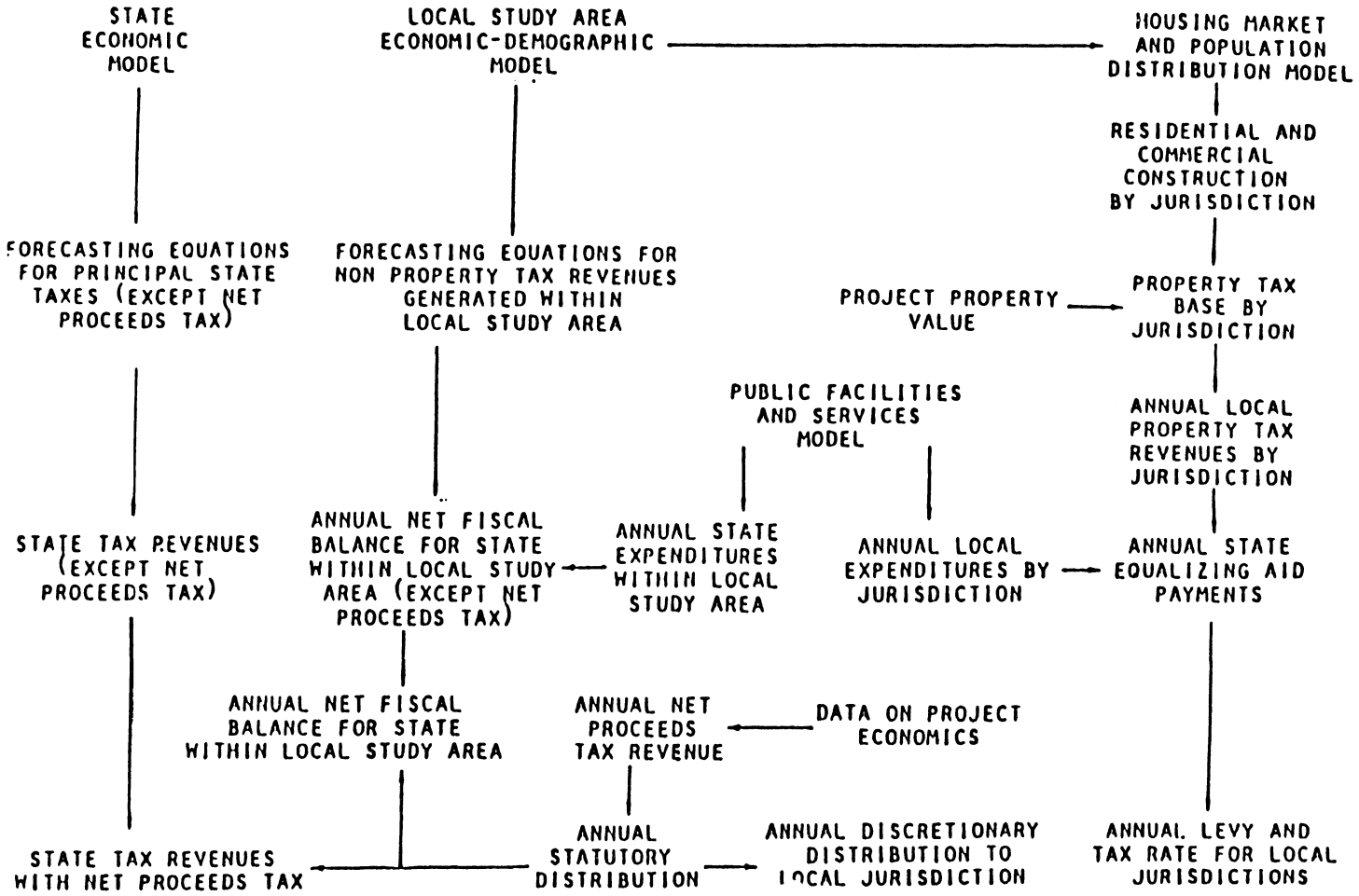
(INTERRELATIONSHIP OF MODELS AND ANALYSES)



SOURCE: Research and Planning Consultants, Inc.

FIGURE 9-2

FLOWCHART OF FISCAL ANALYSIS FOR WITHOUT-PROJECT AND WITH-PROJECT FUTURES



SOURCE: Research and Planning Consultants, Inc.

to accommodate population increases, total and per capita debt service costs will be higher for that jurisdiction and, thus, could result in a higher property tax rate for the jurisdiction.

While the net proceeds tax revenues generated by the Project and statutorily allocated to the Investment and Local Impact Fund (i.e. Mining Impact Fund) will be available to address impacts within the local study area, these revenues are not (as illustrated in Tables 9-13 and 9-14) netted back against the cost of public services in the Fiscal Analysis for local jurisdictions. This allows the with-project public facilities costs to be visible for purposes of analysis. The Fiscal Analysis for local governments thus represents impacts, commencing with construction, without the mitigating effects of statutory annual payments or various local revenue-raising alternatives to the property tax. Accordingly, the public facilities cost differences, both positive and negative, is reflected as property tax mill rate changes for purposes of objective consideration. The impacts illustrated here as negative mill rate changes, however, would not of choice be mitigated by property tax increases in most cases.

The Fiscal Analysis for local jurisdictions uses forecasts of local expenditures and assessed valuations of property prepared by RPC. The property tax and state equalization aid methodology (Appendix C), used to analyze the RPC projected effects of the Project on property taxes, was developed by Richard L. Stauber, Professor, University of Wisconsin Extension Department of Governmental Affairs, and Dr. Jack Huddleston, Associate

Professor, University of Wisconsin Urban Regional Planning Department, with assistance from Exxon Minerals Company staff. The property tax section which discusses those impacts was developed with their technical assistance, advice, and review. The data presented in the property tax tables is derived from computer runs based on their methodology. The related data in the "Forecast of Future Conditions Data Summary" (EMC 1983c) and summarized in Tables 9-8 through 9-13 was developed using that methodology and RPC data.

The forecast of net proceeds tax revenues, federal tax payments and the fiscal analysis of state government was prepared by RPC. Findings and conclusions regarding the Fiscal Analysis which appears in a later chapter were also prepared by RPC.

NET PROCEEDS ANALYSIS

The Crandon Project is unlike most other major industrial projects in Wisconsin, because it is subject to the net proceeds severance tax, a tax specific to metals mining. A net proceeds tax is paid in addition to all other taxes which an industrial project would pay, such as state and federal income taxes and local property taxes. It is functionally a second income tax; therefore, no net proceeds tax payments are paid without the Project.

In 1977, the Wisconsin Legislature modified the then existing tax which existed on mineral extraction and adopted a net proceeds

tax. The tax was clarified further and modified by the 1981 Legislature. The tax has certain similarities to an income tax; however, the Wisconsin corporate income tax is a single tax rate (7.9 percent), while the net proeeds tax has graduated rates. Table 9-1 identifies the net proceeds tax rates. Table 9-2 diagrams the distribution of the dollars collected from the net proceeds tax.

Calculation Of Net Proceeds Tax (NPT)

The methods for computing and distributing the net proceeds tax are described in Wisconsin Statutes 70.375 to 70.395. The statutory language establishing the tax may be reduced to these formulas:

NPT = (rate) x (gross proceeds - allowable deductions); where

gross proceeds = (units of recovered minerals as contained in concentrates) x (price per unit)

Net proceeds tax simulations were calculated as gross revenue less applicable deductions. Gross revenue is the value of all minerals produced. This is calculated by applying Chase Econometrics July, 1982 Forecasts of Metal Prices to the Project's estimates of annual mineral production. Deductions consist of smelting, refining, and treatment charges; concentrate freight and intransit losses; and other actual operating expenses allowed pursuant to Wis. Stat. 70.375 et seq. The graduated tax rates presented in Table 9-1 were applied to the calculated amount of net proceeds.

Table 9-1

WISCONSIN NET PROCEEDS MINE OCCUPATION TAX RATES

Dollars/yr		Percent
0 to	250,000	0
250,001 to	5,000,000	3
5,000,001 to	10,000,000	7
10,000,001 to	15,000,000	10
15,000,001 to	20,000,000	13
20,000,001 to	25,000,000	14
Greater than	25,000,000	15

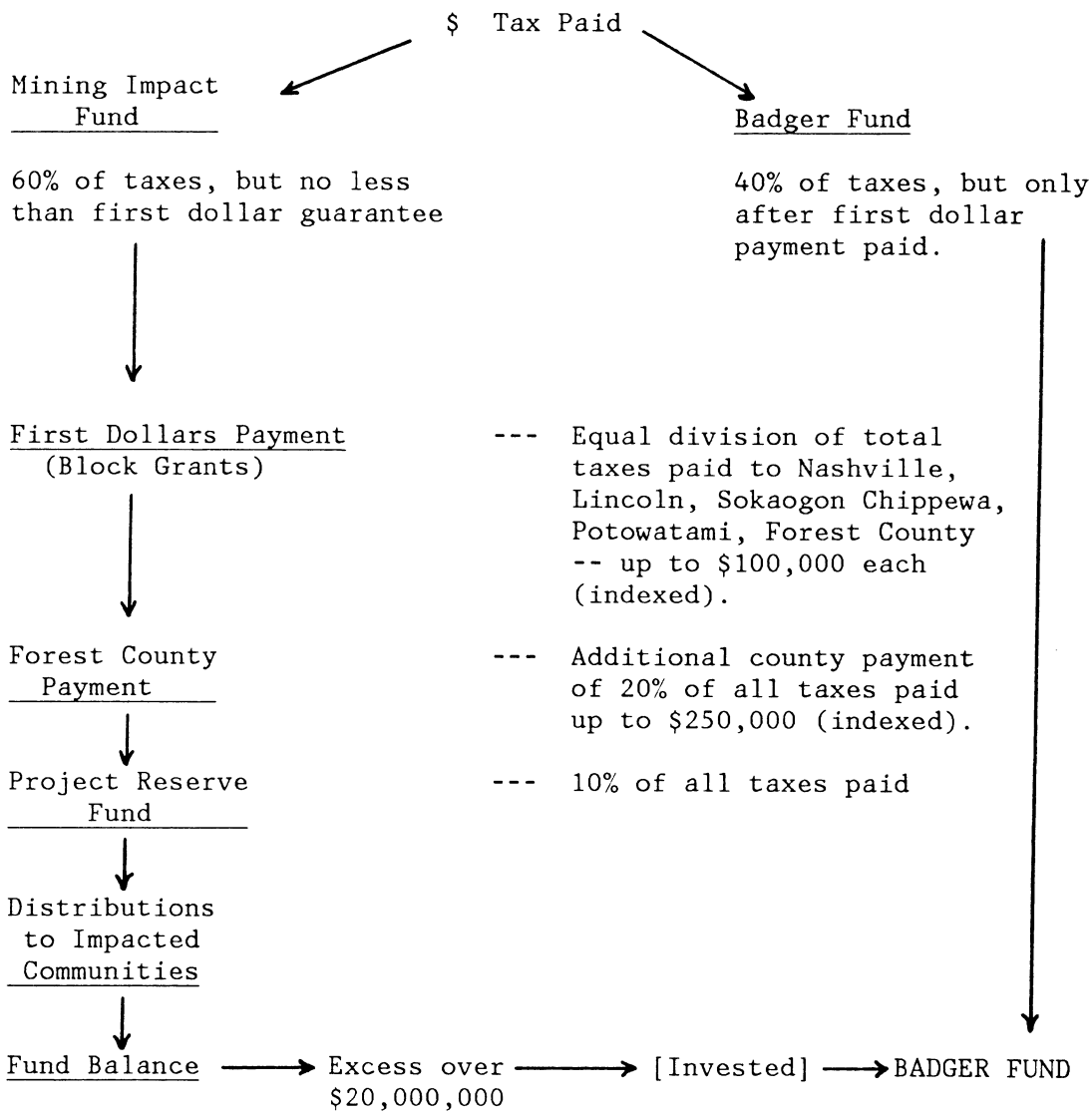
SOURCE

Wis. Stats. §§70.375 et seq.

Table 9-2

NET PROCEEDS TAX
DISTRIBUTION

(Annual)



SOURCE: 1981 Wis. Stats. §§70.375, et seq.

The estimated tax payments are in constant 1982 dollars and in the case of Scenario 2 then-current dollars as well and should be used only for comparative purposes and not as a suggestion of the total tax amounts which will be paid. Estimated net proceeds taxes paid under each of the Project scenarios are shown in Table 9-3. Also indicated in Table 9-3 are the net proceeds taxes to be paid under Scenario 2 in current dollars.

Wisconsin Statute 70.395(2)(a) established an Investment and Local Impact Fund to be ". . .used exclusively to provide funds to municipalities for costs associated with social, educational, environmental, and economic impacts of metaliferous mineral mining . . . ". Wis. Stat. 70.395 (2)(d) specifies that minimum, mandatory, annual block grant payments [$100,000 indexed as of 1983 under Wis. Stat. 70.395(2)(d)] are to be paid to each city, town, or village within which mineral extraction occurs and to any Native American communities within any such city, town, or village. The block grant payments are provided for the initial four years after submission of a mining permit application.

The filing of permit applications by EMC on December 22, 1982, resulted in Mining Investment and Local Impact Fund payments under Wis. Stat. 70.395. Accordingly, the two municipalities where the mine/mill complex would be located (Lincoln and Nashville) and the two Native American communities (Sokaogon Chippewa Community and Forest County Potawatomi Community) receive $100,000 (indexed) annually until a final decision is rendered on permit applications or for a maximum of 4 years. The funds are intended to help the recipients participate in the permitting process.

Table 9-3

CRANDON PROJECT
SIMULATED NET PROCEEDS TAXES
($000)

Year	Scenario 1 (1982 constant $$)	Scenario 2 (1982 Constant $$)	Scenario 3 (1982 Constant $$)	Scenario 2 (Current $$)
1985	0	0	0	0
1986	0	0	0	0
1987	0	0	0	0
1988	0	0	0	0
1989	0	0	0	0
1990	1,269	0	0	0
1991	2,934	0	0	0
1992	10,453	3,891	0	7,133
1993	11,816	5,254	4	10,209
1994	11,589	5,466	104	11,257
1995	15,869	10,736	5,738	23,435
1996	15,948	10,834	5,710	25,073
1997	15,936	10,813	5,690	26,523
1998	15,977	10,857	5,736	28,226
1999	16,080	10,971	5,861	30,236
2000	16,219	11,128	6,038	32,509
2001	16,011	10,894	5,780	33,738
2002	14,953	9,720	4,488	31,906
2003	15,363	10,176	4,988	35,406
2004	15,314	10,122	4,929	37,331
2005	15,388	10,203	5,018	39,893
2006	15,467	10,291	5,116	42,646
2007	15,608	10,450	5,289	45,904
2008	15,597	10,435	5,275	48,588
2009	15,551	10,384	5,217	51,255
2010	15,518	10,349	5,176	54,143
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0

SOURCE: Research and Planning Consultants, Inc.

WITHOUT-PROJECT FORECAST

As previously stated, there are no net proceeds tax payments without the Project. However while the Project mining permit and other permits are being processed the towns of Lincoln, Nashville, and the Forest County Potowatomi and Sokaogon Chippewa communities will each receive $100,000 annually (inflation adjusted).

WITH-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

Upon start of construction, the municipalities (towns of Lincoln and Nashville) and the Native American communities (Sokaogon Chippewa Community and Forest County Potawatomi Community) will continue receiving annual payments of $100,000 each.

These Mining Impact Fund payments would be indexed to the Gross National Product price deflator after 1983 and would continue throughout the operation of the mine as "first dollar" payments from net proceeds tax revenues. In addition, discretionary funds from the State also would be available to the communities not receiving mandatory payments during construction. It is assumed that the Investment and Local Impact Fund will receive loans from the State's general revenue fund to cover the discretionary block grants. Loans would be repaid during the operation phase when the Project begins net proceeds tax payments.

OPERATION PHASE (1990-2011)

The block grant payments will convert to "first dollar payments" from the Investment and Local Impact Fund (See Table 9-2) to assure that the eligible jurisdictions within which

mineral extraction occurs will have first claim to payments from net proceeds tax revenues. When mining starts, counties within which mineral extraction occurs are eligible not only for the annual "first dollar payments" but also for additional annual payments of the lesser of 20 percent of the net proceeds taxes paid by the Project or $250,000 [indexed as of 1983 under Wis. Stat. 70.395(2)(d)].

Wis. Stat. 70.395(2)(g) specifies the purposes for which payments may be provided in addition to the minimum mandatory payments and include:

1) Police and fire services,
2) Highways,
3) Local development studies and projects,
4) Environmental monitoring,
5) Extraordinary community facilities,
6) Lawyers,
7) Technical consultants,
8) Educational services,
9) Areawide plans,
10) Employment training or referral programs associated with closure of mining facilities, and
11) "Other expenses associated with the construction and operation of the mining facility."

Wis. Stat. 70.395(2)(j) further provides that the Investment and Local Impact Fund support the Wisconsin Waste Management Fund in case of its financial inadequacy related to environmental impacts after the owner of the mine waste disposal site is no longer legally responsible or is in default.

Finally, Wis. Stat. 70.395(2)(d)4 provides that 10 percent of all net proceeds tax revenues paid by a particular mine are allocated to a reserve fund (Project Reserve Fund) solely for the use of municipalities within which a particular mine is developed for several purposes including reimbursement for costs associated with the cessation of mining activities and to indemnify municipalities for any incurred reclamation expenses (See Table 9-2). The Investment and Local Impact Fund Board within the Wisconsin Department of Revenue administers these funds. The Project is forecast to generate over 18 million dollars (1982 constant dollars) into this reserve fund.

For example, see Table 9-14 which shows an average Scenario 2 net proceeds tax revenue of approximately 10 million dollars (1982 constant dollars). The example below shows how the annual 10 million dollar net proceeds tax payment will be distributed.

Example:

		Balance
Tax Revenue (Net Proceeds Payment)		$10,000,000

The first dollar payment requirement provides for these payments:

Mandatory Allocations

Forest County	$ 100,000	
Town of Lincoln	100,000	
Town of Nashville	$ 100,000	
Sokagon Chippewa Community	100,000	
Potowatami Community	100,000	
	$ 500,000	$ 9,500,000
Forest County Payment 20% of tax up to $250,000	$ 250,000	$ 9,250,000
Project Reserve Fund	$ 1,000,000	$ 8,250,000
40% to Badger Fund	$ 4,000,000	$ 4,250,000

Discretionary Allocations

Balance available to impacted communities or for mitigation of closure impact or other uses allowed under Wis. law	$ 4,250,000

In a typical Scenario 2 year, over $4 million of the annual tax payment dollars would be available for discretionary distribution by the impact board. [See AGGREGATE EFFECTS SECTION, page 383.]

POST-OPERATION PHASE (2011 - 2015)

The net proceeds tax revenue terminates with the cessation of operations. The potential demands against the Mining Impact Fund continue through the post-operation phase. However, adequate reserves should exist in the Mining Impact Fund to address the potential demands.

PROPERTY TAX ANALYSIS

This section examines the potential property tax effect of the Project on local study area governments (jurisdictions) and taxpayers. For purposes of this analysis, "jurisdiction" includes counties, cities, villages, towns and school districts. These jurisdictions provide general or specific services to the population within their specified boundaries and have been granted authority by the State of Wisconsin to levy property taxes or charge fees for those services they provide. The general property tax is the largest single locally raised revenue source of local governments.

There are many revenue alternatives to the property tax which could be used by local government to respond to expenditure requirements. Negative fiscal tax impacts could be mitigated, for example, through the use of direct user fees or by special assessments. However, this analysis assumes the property tax will be the main source of revenue for local governments to meet expenditure requirements resulting from population and economic change and from Project development.

This analysis is based on the earlier (see previous chapters) model forecasts of forecast population, Project and non-EMC property valuations (value), and local government revenues and expenditures. The analysis will proceed by first computing the tax rate for the Town of Lincoln for 1981 assuming the Project were in existence. Computing the tax effects of the Project on the taxpayers in the Town of Lincoln will illustrate how the Wisconsin property tax system works and will give some idea of the financial ability of the Town of Lincoln to absorb Project-related impacts.

Next, the tax system illustrated for the Town of Lincoln will be used to compute tax rate differences for all jurisdictions in the local study area taking into account the projected mine related impacts identified in previous chapters.

Example Of Wisconsin Tax Calculation

The property tax levied by local governments in Wisconsin is a "residual" tax (see Appendix C). It is the difference between

the expenditures (costs) and non-tax revenues (income) that local officials anticipate will be needed to balance their next year's budget. Stated simply, next year's anticipated operating costs less next year's anticipated operating nontax revenues equals the local property tax levy.

Since the property tax is an ad valorem tax (that is, based on the assessed value of property), another important variable is the taxable value of property within a taxing jurisdiction. The parcel owner is liable for the same percentage of a jurisdiction's tax levy as the percentage the parcel's value is of the total property value in the jurisdiction: percent of value = percent of tax. For example, if a parcel's value is equal to 5 percent of the total property value in the municipality, 2 percent of the school district total value and 1 percent of the county total value, then the parcel's owner must pay 5 percent of the total municipal tax levy, 2 percent of the total school tax levy, and 1 percent of the total county tax levy.

The Crandon Project site vicinity is classified as "manufacturing" property under Wisconsin law. As a result Wisconsin Department of Revenue will annually assess the property, which will provide valuations that will be added to the other local assessed values of the jurisdictions in which it is located, and then be equated to the local assessment level. Under Wisconsin law, certain machinery related to manufacturing or pollution-abatement facilities is not taxable. The assessed values that might be expected for the Project were discussed with the Wisconsin Department of Revenue (Wisconsin Department of Revenue, 1983).

Table 1.1-3 of the Crandon Project Environmental Impact Report has identified the proposed EMC-capitalized investment. A range of three peak taxable values were utilized in this analysis: $300 million; $350 million; and $400 million (Scenarios 1, 2, and 3, respectively). These estimates are not commitments as to what the valuations, in fact, may be. The valuation determination by the Department of Revenue will be completed when the property exists under the then-current Wisconsin law.

An important revenue source that offsets local property taxes is the "family" of state equalization aids that exist in Wisconsin. These equalizing aids consist of "aidable revenue" payments to municipalities and counties and general aids to school districts. The equalizing aids are primarily affected by a local jurisdiction's spending, revenues, and property values within the jurisdiction and its population or student enrollments (in the case of schools), relative to other jurisdictions in the state.

To illustrate how the general property tax system and state equalization aid formulas work and interact, assume that the maximum valuation of the Project is added to the tax base of the Town of Lincoln in 1981, instead of in some future year.[1/] If that value had been on the tax roll in 1981, then what effect would it have had on the 1981 general property tax mill rate in the Town of Lincoln?[2/]

1/ The latest year for which actual data is available is the 1981 assessment and levy year to fund 1982 budgets.

2/ Unless otherwise noted, all other factors, except property value, are assumed to be held constant.

Five different jurisdictions taxed property in the Town of Lincoln in 1981 (i.e., state, county, town, school district and vocational-technical district). The State of Wisconsin taxed property at a uniform, statutory rate of 20 cents per $1,000 of full value, or .00020 (i.e., two-tenths of a mill). The property tax rates of the other four jurisdictions were based upon their tax levies and their full value of property.

In 1981, these were as follows:

JURISDICTION	TAX LEVY	÷	FULL VALUE	=	TAX RATE (MILL)
Forest County	$ 612,806		$ 235,487,800		.00260 3/
Town of Lincoln	30,012		31,867,700		.00094
Crandon School District	1,150,043		143,197,203		.00803
Nicolet VTAE District	3,766,622		2,765,102,222		.00136

The gross tax rate on property in the Town of Lincoln was:

JURISDICTION	TAX RATE (MILL)
State	.00020
Forest County	.00260
Town of Lincoln District	.00094
Crandon School District	.00803
Nicolet VTAE District	.00136
Gross Mill Rate	.01313

The maximum taxable valuation of Project property is estimated at $350 million in Scenario 2. Approximately 90 percent of that value ($350,000,000 x .9 = $315,000,000) would be located in the Town of Lincoln. (The remaining value would be in the Town of Nashville.) Because the entire geographic and governmental

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3/ This is an average county rate. Certain county functions were performed, and the tax for them apportioned, over only part of the county. Because of this, the actual county rate in Lincoln was .00256. For simplicity, and because it has no effect on the EMC value impact, the average county rate is used in this illustration.

areas[4/] of the Towns of Lincoln and Nashville are within the boundaries of the other taxing jurisdictions, (i.e., county, school district and VTAE) each of those jurisdictions' 1981 property tax bases would increase by the total Project valuation of $350,000,000. Therefore, the hypothetical values of the jurisdictions are:[5/]

TAXABLE PROPERTY

JURISDICTIONS	VALUE 1981 ACTUAL	+	PROJECTED EMC VALUE	=	VALUE 1981 HYPOTHETICAL
Forest County	$ 235,487,800		$350,000,000		$ 585,487,800
Town of Lincoln	31,867,700		315,000,000		346,867,700
Crandon School Dist.	143,197,203		350,000,000		493,197,203
Nicolet VTAE Dist.	2,765,102,222		350,000,000		3,115,102,222

The property tax is estimated from the expenditures proposed for the coming year minus the non-tax revenues anticipated for that year. The property tax then will have to be levied by the jurisdiction in an amount sufficient to make up the difference so as to balance its budget. Each of the four taxing jurisdictions indicated also are potential recipients of state equalization aids. The annual estimates of those aids, along with a jurisdiction's estimate of all other non-property tax revenues, determines the property tax levy.

For example, if only property values for the above jurisdictions change, and aids are not changed, then the hypothetical property tax rates with the Project would be:

4/ The governmental boundaries of some municipalities cross county and school district jurisdiction boundaries.

5/ Change in the state value total is not relevant because the state rate is fixed at .00020 of whatever the valuation may be.

TAXABLE PROPERTY

JURISDICTIONS	UNADJUSTED TAX LEVY (1981)	÷	HYPOTHETICAL VALUE	=	HYPOTHETICAL TAX RATE (MILL)
Forest County	$ 612,806		$ 585,487,800		.00105
Town of Lincoln	30,012		346,867,700		.00009
Crandon School Dist.	1,150,043		493,197,203		.00233
Nicolet VTAE Dist.	3,766,622		3,115,102,222		.00121

Because state equalization aids are ignored, the unadjusted property tax mill rates shown above could be very misleading. In this example, the jurisdictions' property values are increased substantially, but no state equalization aid change are included to adjust the mill rates. In general, if the valuation of property in a jurisdiction increases relative to the value in all other jurisdictions of the same type in Wisconsin, the relative need for state equalization aid theoretically decreases. Under the state equalization aid formulas, payments to that jurisdiction would be reduced. (The relative need for aid in some jurisdictions, as measured by the state equalization aid formulas, can be zero.) If the state equalization aid estimate is reduced, then the property tax must be increased to collect tax revenue for balancing the budget assuming no reduction in expenditures. Therefore, the hypothetical rate using Project value only should be calculated only after adjusting state equalization aids.

Continuing with our example for determining the four jurisdictions' property tax rates in the Town of Lincoln, we can begin with the Crandon School District (CSD). Table 9-4 indicates what the state equalization aid estimate actually was for the CSD 1981-82 budget (column A). In essence, the state formulas

TABLE 9-4

STEPS TO DETERMINE STATE EQUALIZATION AIDS ESTIMATE
FOR THE 1981-1982 CRANDON SCHOOL DISTRICT BUDGET

STEP		COLUMN A 1981 ACTUAL	COLUMN B EMC PROPERTY ADDED HYPOTHETICAL
I.	Net shared cost	$1,917,383	$1,917,283
II.	Prior year (1980) full value of District	$133,333,749	$373,033,749
III.	Number of pupils	1,054	1,054
IV.	Cost per pupil (I ÷ III)	$1,819.05	$1,819.05
V.	State guaranteed value per pupil	$231,000	$231,000 a/
VI.	Actual full value per pupil (II ÷ III)	$126,503	$353,922
VII.	Net guaranteed value per pupil (V - VI)	$104,497	0
VIII.	Levy rate (IV ÷ V)	.00787	.00787
IX.	State aid per pupil (VII x VIII)	$822.39	0
X.	State aid total (III x IX)	$866,800	0 b/

a = The EMC value in the prior year (1989) is estimated at $239.7 million. That addition to the actual 1980 statewide base would not have significantly changed the state guaranteed value. The $866,800 loss to Crandon would have been distributed to other school districts in the state.

b = Secondary aids are zero, see Appendix C for further discussion of secondary aids.

guaranteed the CSD (and all other K-12) school districts $231,000 in property value per pupil (Line V). In 1981 the CSD had only $126,503 of property value per pupil (Line VI), or approximately 55 percent of the state guaranteed value. Therefore, the CSD received 55 percent of its estimated costs from property tax revenues, and state equalization aid paid the remaining 45 percent of costs, or $866,800. 6/ In effect, the Crandon School District required $866,800 less in property tax revenues because of the anticipated equalization aid from the state.

Also shown in Table 9-4 (column B) are the same calculations assuming the Project valuation exists. With the addition of the Project value (Line II, column B), the CSD would have more per-pupil property value (Line VI, column B) than the state guaranteed (Line V) -- 153 percent of the guarantee. Therefore, using the state equalization aid formulas, the CSD would pay 100 percent of its costs, and the state's share (equalization aid) would have been zero (since the CSD had no secondary shared costs, secondary aids also will be zero). With no anticipated state equalization aid, the additional property tax revenue required to balance the same budget expenditures would be $866,800. However, because of the increased valuation as a result of the Project, the property

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6/ All of the many technicalities of this and other formulas, such as shared and non-shared costs, primary and secondary costs and guarantees, are not discussed here although the reader should be aware that they exist. They complicate use of the formulas and their ability to equalize among state school districts. It is extremely difficult to generalize about the formulas or predict their impact on future conditions. For a further discussion, see Appendix C.

tax rate would have been reduced. The loss in aid, plus part of the tax levy, would be shifted to the Crandon Project.

The actual and hypothetical figures for the Crandon School District are:

CRANDON SCHOOL DISTRICT

	1981 Actual	1981 Hypothetical
Full Property Valuation	$143,197,203	$493,197,203
Tax Levy (Revenue Required)	$ 1,150,043	$ 2,016,843
Tax Mill Rate	.00803	.00409
Equalization Aid	$ 866,800	0

The total budgeted expenditures and balance changes for 1981-82 were $2,016,843 higher than non-tax revenues, before equalization aid revenues were taken into account. With an aid estimate of $866,800, that left only $1,150,043 that actually had to be levied to balance the budget. Although the hypothetical example would require the total $2,016,843 to be collected from local property taxes (due to the complete loss of equalization aids), the property valuation increase from the Project allows a lower mill rate to be applied to all property within the school district. As shown in the simplified example below, this means that existing property owners would pay a significantly smaller share of total school costs.

EXAMPLE
Sources of Crandon School District Revenues

	Existing Taxpayers	EMC Payment	State Equalization Aids	Total
Without Project	$1,150,043	$ 0	$ 866,800	$2,016,843
With Project	$ 585,580	$1,431,263	0	$2,016,843

The state equalization aid formula for county governments is different than the school aid formula, but the results of adding Project valuation to the Forest County budget estimate in 1981 would have been the same -- the elimination of all state equalization aid: $119,887 in anticipated revenues for Forest County (Table 9-5). Similarly, state equalization aid revenue for the Nicolet VTAE District for 1981 including the hypothetical Project valuation indicates less aid for the VTAE district with the Project. In this example, though, it is not eliminated entirely (Table 9-6). In fact, there would have been only an 8 percent ($51,000) decrease in anticipated state equalization aid (Line XII, Table 9-6) because of Nicolet's very large tax base and the differences in the VTAE formula. Finally, the Town of Lincoln, like all other towns, villages, and cities, would have been eligible for the municipal version of state equalization aid. In 1981, however, the Town of Lincoln did not qualify for equalization aid because its standardized per capita value tax base exceeded the state standard (Table 9-7, Lines XII and XIII). Any municipality above that standard of need was denied state equalization aid. It is not necessary, therefore, to demonstrate what hypothetical effect the increase in property valuation as a result of the Project would have had on municipal state equalization aid to the Town of Lincoln, because it received no aid.

TABLE 9-5

STEPS TO DETERMINE EQUALIZATION AID[a/] ESTIMATE FOR THE 1982 FOREST COUNTY BUDGET

STEP		COLUMN A 1981 ACTUAL	COLUMN B EMC PROPERTY ADDED HYPOTHETICAL
I.	Local purpose revenue, 1978[b/]	$490,771	$490,771
II.	Local purpose revenue, 1979	$566,737	$566,737
III.	Local purpose revenue, 1980	$632,028	$632,028
IV.	Total Local purpose revenue (I + II + III)	$1,689,536	$1,689,536
V.	Average local purpose revenue (IV ÷ 3)	$563,179	$563,179
VI.	Aidable revenues (V x .7 limit)	$394,225	$394,225
VII.	Current year (1981) full value of county	$235,487,800	$585,487,800
VIII.	Current year value of TID increments	0	0
IX.	Adjusted value for TID increments (VII - VIII)	$235,487,800	$585,487,800
X.	Current year county population	9,247	9,247
XI.	Statewide standardized value per capita	$36,600	$36,600
XII.	Forest County standardized value (X x XI)	$338,440,200	$338,440,200
XIII.	Forest County equalization quotient (IX ÷ XII)	.69580	1.729959
XIV.	Forest County equalization index (1.0 - XIII)	.30420	0 c/
XV.	Uniform state prorate factor	.99970	.99970
XVI.	Equalization aid adjustment (VI x XIV)	$119,923	0
XVII.	Prorated state equalization aid (XV x XVI)	$119,887	0

a = More typically known as the "Aidable Revenue" portion of State Shared Revenues.
b = "Local Purpose Revenue" is a proxy for net county cost.
c = Actually, - .28675, but negative sums become 0 under this formula. Current law provides that counties and municipalities may not receive less than 90 percent of their prior year's shared revenues payment. If the aidable revenue loss drove the total payment below that amount, the state would increase the total payment up to the 90 percent minimum.

TABLE 9-6

STEPS TO DETERMINE STATE EQUALIZATION AID ESTIMATE FOR THE
1981-1982 NICOLET VTAE DISTRICT BUDGET

STEP		COLUMN A 1981 ACTUAL	COLUMN B EMC PROPERTY ADDED HYPOTHETICAL
I.	Net aidable cost	$3,271,000	$3,271,000
II.	Prior year (1980) full value of district	$2,616,192,400	$2,855,892,400
III.	Number of F.T.E. students	860	860
IV.	Statewide full value per student	$1,838,700*	$1,838,700*
V.	Nicolet full value per student (II ÷ III)	$3,042,100*	$3,320,800*
VI.	Uniform state support factor	.35	.35
VII.	Nicolet equalization index (IV ÷ V)	.60442	.52606
VIII.	Uniform state prorate factor	.1217	.1217
IX.	Uniform state support amount (I x VI)	$1,144,900*	$1,144,900*
X.	Equalization index adjustment (VII x IX)	$692,000*	$633,900
XI.	Prorated amount (VIII x X)	-$84,300*	-$77,200*
XII.	State equalization aid (X - XI)	$607,700	$556,700

* Rounded upward.

TABLE 9-7

STEPS TO DETERMINE EQUALIZATION AID[a/] FOR THE
1982 TOWN OF LINCOLN BUDGET

STEP		1981 ACTUAL
I.	Local purpose revenue, 1978 b/	$45,761
II.	Local purpose revenue, 1979	$31,888
III.	Local purpose revenue, 1980	$36,285
IV.	Total local purpose revenue (I + II + III)	$113,934
V.	Average local purpose revenue (IV ÷ 3)	$37,978
VI.	Cross-county value	- 0
VII.	Aidable revenues (V - VI)	$37,978
VIII.	Current year (1981) full value of municipality	$31,867,700
IX.	Curren year value of manufacturing property	-$2,286,900
X.	Non-manufacturing value of municipality (VIII - IX)	$29,580,800
XI.	Current year town population	576
XII.	Statewide standardized value	$36,600
XIII.	Standardized value of municipality (XI x XII)	$21,081,600
XIV.	Equalization quotion of municipality (X ÷ XIII)	1.40316
XV.	Equalization index of municipality (1.0) - XIV)	0 c/
XVI.	Uniform state prorate factor	.99970
XVII.	Equalization aid adjustment (VII x XV)	0
XVIII.	Prorate state equalization aid (XVI x XVII)	0 d/

a/ More typically known as the "Aidable Revenue" portion of State Shared Revenues.
b/ Local Purpose Revenue" is a proxy for net municipal cost.
c/ Actually, -.40316, but negative sums become zero under this formula. Obviously, increasing the value under the EMC hypothetical estimate would have no effect.
d/ The Town of Nashville also is a 0 equalization district. Both towns, however, receive aid of $30 per capita under that portion of the shared revenues formula.

Set out below is the effect the Project value would have had on the equalization aids and the resulting hypothetical versus actual 1981 property tax rate in the Town of Lincoln:

JURISDICTION	1981 ACTUAL RATE	HYPOTHETICAL 1981 WITH PROJECT VALUE ADJUSTED FOR AIDS
State	.00020	.00020
Forest County	.00260	.00125
Town of Lincoln	.00094	.00009
Crandon School District	.00803	.00409
Nicolet VTAE District	.00136	.00122
Gross Mill Rate	.01313	.00685

The hypothetical 1981 mill rate difference of .00628 (.01313-.00685) or $6.30 per $1,000 of full property-valuation is an indication of the property tax system's ability to absorb potential Project-related tax impacts. The potential Project-related impacts on the property tax system are addressed in the dynamic analysis that follows.

This section of the report has attempted to illustrate with a hypothetical example how just one Project-induced change -- an increase in total property valuation -- would have affected state equalization aids, required tax levies, and the property tax mill rates for four taxing jurisdictions in the latest year for which actual data was available. This approach has dealt only with changes in the gross tax rate -- the effects of other revenue sources such as state tax credits and transportation aids have not been included (as they are in the dynamic analysis that follows). As the financial condition of these jurisdictions improved with the increase in the total property valuation base, state equalization aid would have decreased in Lincoln and would have been

available for distribution to other jurisdictions with relatively greater need. The tax rate, however, also declined because of the significant additional taxable property added to Lincoln. Conversely, if Project-induced changes, such as increased expenditures or decreases in property value, would have had an adverse effect on the fiscal condition of jurisdictions taxing property in the Town of Lincoln, relative to other jurisdictions, then state equalization aids would have increased.

DYNAMIC ANALYSIS

This section calculates Project-related property tax rate differences for municipalities, counties and school districts in the local study area. The State Forestry Tax is excluded from the analysis because it is statutorily set and is not a function of development-related factors. Regional VTAE taxes are excluded because of the small impact that Project-related factors have on VTAE tax rates.[7/] General government capital improvements such as, public buildings, streets and roads, are assumed to be financed through issuance of general obligation bonds, bank notes, or dealer financing. In this analysis actual transportation aids

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7/ The regional VTAE district comprises such a large geographical area that even the full value of the Project will have only an incremental effect on the property tax rate. For example, the Nicolet VTAE District's 1981-82 full value property tax mill rate was 0.00136; with the Project's medium value added, the same revenues ($3,766,622) could be raised with a tax rate of 0.00123--a reduction of 0.00013 or approximately 13 cents per $1,000 full valuation.

and property tax credits paid to municipalities and counties in 1981 were secured from the Wisconsin Departments of Transportation and Revenue. This combined amount was then divided by RPC's forecast of full value for each municipality or county for each year to arrive at an estimate of a "tax rate equivalent" by which the gross tax rate for a municipality should be reduced to reflect the "effective tax rate" to individual taxpayers. For the Towns of Lincoln and Nashville and Forest County, the EMC property value is added to RPC values in determining tax rate equivalents.

This component of the Fiscal Analysis is the simulation of property tax mill rates, without and with the Project, for 55 property taxing jurisdictions: the three counties, 44 municipalities (1 village, 3 cities, and 40 towns), and the eight school districts. The property tax is administered primarily at the municipal government level in Wisconsin and, therefore, there are 44 separate tax rolls used to calculate rates and collect taxes for the 55 different jurisdictions in the local study area. Seven of the municipalities are split by two different school districts, thereby creating 14 different tax rate areas. Added to the 37 other municipalities that were not split, the number of different property tax rate areas totals 51. That is, there are 51 different entities in the local study area where property is taxed by a different combination of school, county, and municipal jurisdictions. Simulating tax rates for each year without the Project, for each of the three with Project scenarios and for each of the 55 local jurisdictions studied produces an enormous

quantity of data. Comprehension and discussion is made somewhat easier by examining only the difference in tax rates between the without-project scenario and with-project scenario (Scenario 2). Tax rates for all scenarios can be found in the "Forecast of Future Conditions Data Summary" (EMC, 1983c).

WITHOUT-PROJECT FORECAST (1980-2016)

The without-project forecast by RPC assumed that the local study area would not have any new revenue sources. Therefore, no other revenue sources than those now known were included in the analysis. Per capita expenditure levels remained approximately the same in the forecasts.

Under these assumptions, it is unlikely that fiscal conditions, including the property tax rate, will change dramatically [see "Forecast of Future Conditions Data Summary," (EMC, 1983c)]. If the Project is not constructed, properties held by EMC would continue to make minor contributions to the property value of the Towns of Nashville and Lincoln. Property now held by EMC would also continue to result in minor contributions to the Crandon School District. School aids, which now constitute 45 percent of Crandon School District funds, would probably not change significantly from their present level. Similarly, any forecast changes to other school districts in the local study area would be a result of events not directly attributable to the Project.

WITH-PROJECT FORECAST

To further simplify and aid in describing the results of the simulations, only property tax rate differences of 5 percent or greater between without-project and with-project Scenario 2 will be discussed in this report. The tax rate differences will be analyzed from both an individual taxpayer point-of-view and from a taxing jurisdiction (municipality, county, school district) point-of-view (Tables 9-8 through 9-13) for construction, operation, and post-operation phases of the Project.

The Net Proceeds Tax Section of this chapter will discuss further the mitigation measures available to address the forecast Project-related tax impacts. Although not directly considered in the local fiscal analysis, Project-related tax impacts could also be mitigated through increased state aids to local governments that would normally result due to increased state income taxes. State income tax revenue increases due to the Project are discussed in the State Income Tax Section of this chapter. The simulated tax differences analysis assumes all Project-related impacts identified in prior chapters are financed by the property tax.

In reality, this method of financing seldom would be relied upon solely. More common practices would include user charges to finance expansion of public utilities (wastewater treatment, public water supply), and receiving state and federal grants to finance road and other infrastructure improvements. The use of tax incremental financing by city and village governments also

could be used to lower the municipal cost of most public improvements. All such measures would serve to lessen the negative fiscal impact of Project-related development expenditures.

CONSTRUCTION PHASE (1985-1989)

As the construction of the mine proceeds from 1985 through 1989, property is added to the tax rolls in a delayed fashion. Consequently, this tax lag effect results in property tax contributions of the Project being less in the construction phase than in the operation phase. As a result there is as much as a year delay in receipt of property tax revenue benefits to offset the population impacts and the corresponding impacts on public facilities and service created by the new housing additions to a given jurisdiction.

The following discussion is based on the assumption that mill rate differences illustrated in Tables 9-8 through 9-13 do result in property tax changes. In reality, other funding mechanisms, primarily net proceeds tax, will be available to offset the potential increased taxes. The tax reductions, on the other hand, assuming this forecast becomes a reality, should occur.

Property Owner Taxpayer. Table 9-8 summarizes the tax rate differences of 5 percent or greater between Scenario 2 (with-project) and the without-project scenario. The individual tax rate is made up of the municipal, county, and school district tax rates. For example, a taxpayer living in Nashville is projected

TABLE 9-8
PROPERTY OWNER TAXPAYER SIMULATED PROPERTY TAX MILL RATE DIFFERENCES*
CRANDON PROJECT
CONSTRUCTION PHASE (1985-1989)

Property Owner Taxpayer Residence	Years	Number Years	Average Property Tax Rate Difference	
			Increase	Decrease
Ainsworth	1985-89	5		.001119
Antigo (CITY)	1988	1	.001066	
Argonne	1985-87	3	.000744	
	1988-89	2		.001906
Blackwell (Laona School District)	1985-88	4	.001258	
	1989	1		.000324
Blackwell (Wabeno School District)	1985-89	5	.001287	
Caswell	1985-88	4	.001268	
Crandon (City)	1985-86	2	.001050	
	1988-89	2		.002046
Crandon	1985-86	2	.001006	
	1988-89	2		.002048
CRESCENT	1987-89	3	.002074	
Elcho	1985-89	5		.001011
Enterprise	1985-89	5		.001247
Freedom	1985-88	4	.001478	
Hiles (Crandon School District)	1985-86	2	.000819	
	1988-89	2		.001865
Hiles (Three Lakes School District)	1985-89	5	.001504	
Lake Tomahawk	1985-88	4	.000315	
Laona	1985	1	.001173	
	1987	1	.000940	
LINCOLN	1985-87	3	.001268	
	1989	1		.002632

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-8 (Continued)

Property Owner Taxpayer Residence	Years	Number Years	Average Property Tax Rate Difference	
			Increase	Decrease
Monico	1985-89	5	.000768	
NASHVILLE	1885-87	3	.000927	
	1989	1		.002865
Neva (Elcho School District)	1985-89	5		.001157
Parrish	1987	1	.000551	
	1989	1	.000498	
Peck (Elcho School District)	1985-89	5		.001168
Piehl	1985-89	5	.000681	
PINE LAKE	1987-89	3	.002473	
Popple River	1985-88	4	.001170	
Rhinelander (City)	1985-89	5		.003340
Ross	1985-88	4	.001011	
Schoepke	1985-89	5		.001158
Stella	1986	1	.000557	
Sugar Camp	1986-89	4	.000752	
Three Lakes	1986-89	4	.000771	
Upham (Elcho S.D.)	1985-89	5		.001097
Wabeno	1985-88	4	.001377	
White Lake (Village)	1988	1	.000644	

* = Differences between without-project scenario and Scenario 2 which are 5% or greater.

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

to experience a Project-related increase in property taxes during each of the first three years of construction averaging 92 cents per $1,000 of full property valuation as illustrated on Table 9-8 (more than offset by the $100,000 NPT grant). For the year 1989, the same taxpayer is projected to see a tax decrease of $2.86 per $1,000 of full property valuation. Likewise, a taxpayer living in Lincoln for the first three years of construction is projected to experience an average tax increase for each year of $1.27 per $1,000 of full property valuation (prior to offset of $100,000 NPT grant). In the last year of construction, the taxpayer is projected to experience a decrease in taxes of $2.63 per $1,000 of full property valuation.

Of the 6 towns receiving the highest number of Project-related persons (see Table 3-8: Demographics Analysis), people living in 4 towns (Crescent, Lincoln, Nashville, and Pine Lake) are projected to experience Project-related tax differences of 5 percent or more during the construction phase. Property owners living in Pine Lake are projected to experience the greatest property tax difference during the construction phase (an increase of $2.47 per $1,000 of full property valuation). However, individual property tax rates in Pine Lake are projected to stabilize during the operation phase at approximately the without-project scenario rates [see Table 9-10].

Municipalities. Table 9-9 identifies the municipalities that will experience tax differences of 5 percent or more during construction. For example, the Town of Lincoln municipal tax rate is

Table 9-9
JURISDICTIONAL SIMULATED PROPERTY TAX MILL RATE DIFFERENCES*
CRANDON PROJECT
CONSTRUCTION PHASE (1985-1989)

Jursidiction	Years	Number Years	Average Property Tax Rate Difference	
			Increase	Decrease
County:				
Forest	1985-88	5	.000945	
	1989			.000559
Langlade	1985	1	.000210	
	1987	1	.000235	
Oneida	1988	1	.000106	
School District:				
CRANDON	1986-89	4		.001743
ELCHO	1985-89	5		.001371
Three Lakes	1986-89	4	.000576	
Municipalities:				
Ackley	1985	1	.000079	
	1987-89	3	.000067	
Ainsworth	1985-88	4	.000082	
	1989	1	.000028	
Antigo (City)	1986-88	3	.000342	
ANTIGO (Town)	1985-89	5	.000046	
Argonne	1985-88	4	.000335	
	1989	1		.000020

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-9 (Continued)

Jursidiction	Years	Number Years	Average Property Tax Rate Difference	
			Increase	Decrease
Blackwell	1985-88	4	.000278	
	1989	1		.000123
Caswell	1985-89	4	.000318	
Crandon (City)	1985-86	2	.000406	
	1989	1		.000175
Crandon	1985-87	3	.000284	
	1989			.000112
CRESCENT	1985-89	5	.001097	
Elcho	1985-89	5	.000175	
Enterprise	1985-89	5	.000045	
Evergreen	1985-88	4	.000054	
	1989	1		.000022
Freedom	1985-89	5	.000271	
Hiles	1985-89	5	.000199	
Lake Tomahawk	1987-88	2	.000268	
Langlade (Town)	1985-88	4	.000088	
	1989	1		.000033
LINCOLN	1985-87	3	.000531	
	1988-89	2		.000402
Monico	1985-87	3	.000223	
NASHVILLE	1985-88	4	.000510	
	1989	1		.000064
Neva	1985-88	4	.000049	
	1989	1		.000033
NEWBOLD	1985-89	5	.000111	
Norwood	1985	1	.000069	
	1987	1	.000058	
Parrish	1985-87	3	.000182	
	1989	1	.000167	

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-9 (Continued)

Jursidiction	Years	Number Years	Average Property Tax Rate Difference	
			Increase	Decrease
Peck	1987	1	.000064	
PELICAN	1985-88	4	.000218	
Piehl	1985	1	.000213	
PINE LAKE	1985-89	5	.001342	
Polar	1985	1	.000085	
	1987-89	2	.000079	
Popple River	1985-88	4	.000249	
Rhinelander (City)	1989	1		.000348
Rolling	1985	1	.000044	
	1987-88	2		.000039
Ross	1985-87	3	.000133	
	1988	1		.000056
Schoepke	1985-89	5	.000132	
Stella	1985-88	4	.000191	
Sugar Camp	1985	1	.000086	
	1987-88	2	.000125	
Three Lakes	1985-87	3	.000139	
Upham	1985-89	5	.000098	
Wabeno	1985	1	.000199	
	1987-88	2	.000166	
Wolf River	1985-89	5	.000072	
Woodboro	1985-89	5	.000106	

* = Differences between without-project scenario and Scenario 2 which are 5% or greater.

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

projected to increase an average of 53 cents per $1,000 of full property valuation during the first three years of construction and then is projected to experience an average tax rate decrease of 40 cents per $1,000 of full property valuation for the last two years of construction. This property tax decrease will continue throughout the operation phase and will average 67 cents per $1,000 of full property valuation. Likewise, the Nashville municipal tax rate is projected to increase 51 cents per $1,000 of full property valuation during the first four years of construction. The Nashville municipal tax rate is projected to decrease by 6 cents per $1,000 of full property valuation during the last year of construction. However, the property tax rates for Nashville are projected to be less than the without project tax rate by an average of 12-16 cents per $1,000 of full property valuations for all years but one during the operation phase.

All of the 6 towns receiving the greatest number of project related people, (Crescent, Lincoln, Nashville, Newbold, Pelican and Pine Lake) experience one or more years of 5 percent or more tax rate difference between the without-project scenario and with-project Scenario 2.

Cities. The cities of Antigo and Crandon are projected to experience a tax increase of 5 percent or more over the without-project scenario for the first 3 years of construction. In the case of both the City of Crandon and Rhinelander, beginning in the last year of construction and continuing into the operation phase, tax rates are projected to decrease (Table 9-9).

Counties. All three counties (Forest, Oneida and Langlade) are projected to experience tax rate increases of 5 percent or more for at least one year of construction. Forest County is projected to experience a tax rate increase of 5 percent or more for each of the construction years. However, during the operation phase, Forest County is expected to experience 21 years of tax decreases of an average of 83 cents per $1,000 of full property valuation per year (Table 9-9).

School Districts. Three school districts (Crandon, Elcho and Three Lakes) are projected to experience tax rate differences of 5 percent or more over the projected without-project scenario tax rates. Of the three, two -- Crandon and Elcho School Districts -- are projected to experience average tax decreases during the last four years of construction of $1.37 or more per $1,000 of full property valuation per year (Table 9-9).

OPERATION PHASE (1990-2010)

The discussion of property tax mill rate differences will follow the same procedure and sequence as presented for the construction phase. The tax rate difference will be analyzed from both a property owner's perspective and from the perspective of a taxing jurisdiction, i.e., municipality, county, and school district. The data for the individual taxpayer and taxing jurisdictions are presented in Tables 9-10 and 9-11, respectively.

TABLE 9-10
PROPERTY OWNER TAXPAYER SIMULATED
PROPERTY TAX MILL RATE DIFFERENCES*
CRANDON PROJECT
OPERATION PHASE (1990-2010)

PROPERTY OWNER TAXPAYER RESIDENCE	YEARS	NUMBER OF YEARS	AVERAGE PROPERTY TAX RATE DIFFERENCE INCREASE	DECREASE
Aisworth	1990-2010	21		.001132
Argonne	1990-2010	21		.004707
Blackwell (Laona SD)	1990-92	3		.000341
	1997-98	2	.000254	
	2005	1		.000225
	2008-10	3	.000389	
Blackwell (Wabeno SD)	1990-93	4		.000235
	1995	1	.000051	
	1997-98	2	.000046	
	1999-2007	9		.000175
	2008-10	3	.000175	
Crandon (City)	1990-2010	21		.004944
Crandon	1990-2010	21		.004702
CRESCENT	1990-91	2	.001852	
Elcho	1990-2010	21		.001151
Enterprise	1990-2010	21		.001298
Hiles (Crandon SD)	1990-2010	21		.004790
Hiles (Three Lake SD)	1990-2010	21		.000454
Lake Tomahawk	2002	1		.000276
	2009	1	.000321	
LINCOLN	1990-2010	21		.004213
NASHVILLE	1990-2010	21		.004460
Neva (Elcho SD)	1990-2010	21		.001199
Parrish	1992-94	3	.000622	
Peck (Elcho SD)	1990-2010	21		.001247
PELICAN	1993	1	.000691	
Piehl	1990	1	.000417	
	2002	1		.000477
Popple River	1994-95	2		.000700
Rhinelander	1990-2010	21		.003408
Rolling	1993	1	.000834	
Schoepke	1990-2010	21		.001261
Sugar Camp	2002	1		.000454
Three Lakes	2002	1		.000496
Upham (Elcho SD)	1990-2010	21		.001214

* = Differences between without-project scenario and Scenario 2 which are 5% or greater.

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-11
JURISDICTIONAL SIMULATED PROPERTY TAX MILL DIFFERENCES*
CRANDON PROJECT
OPERATION PHASE (1990-2010)

Jurisdiction	Years	Number of Years	Average Property Tax Rate Difference	
			Increase	Decrease
County:				
Forest	1990-2010	21		.000833
Oneida	2002	1		.000288
School District:				
Crandon	1990-2010	21		.004467
Elcho	1990-2010	21		.001346
Municipality:				
Ackley	1993	1	.000035	
	1998	1	.000031	
	2008-10	3	.000039	
Ainsworth	1990-2010	21	.000061	
Antigo (City)	2003-05	3	.000277	
	2007-10	4	.000212	
Antigo	1990-94	5	.000096	
	1995-97	3		.000011
	1998-2010	13	.000019	
Argonne	1990	1	.000023	
	1991	1		.000060
	1992-94	3	.000058	
	1996-2004	9	.000118	
	2007-10	4	.000043	

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-11 (Continued)

Jurisdiction	Years	Number of Years	Average Property Tax Rate Difference	
			Increase	Decrease
Blackwell	1991-92	2		.000268
	1995-2004	10	.000140	
	2005-07	3		.000175
	2008-10	3	.000314	
Caswell	1996	1		.000219
	2000-02	3	.000191	
	2008-10	3	.000260	
Crandon (City)	1990-2010	21		.000256
Crandon	1990	1		.000065
	1995-2005	11	.000068	
CRESCENT	1990-91	2	.001665	
	1992-93	2		.000518
	2000-05	6	.000306	
	2006-09	4		.000764
Elcho	1990	1	.000088	
	1992-94	3	.000085	
	2000	1	.000172	
Enterprise	1990-92	3	.000040	
	1994-2010	17	.000018	
Evergreen	1990-92	3	.000023	
	1993-94	2		.000072
	1995-97	3	.000100	
	1997-2001	4		.000024
	2002-10	9	.000011	
Freedom	1990-2010	21	.000148	
Hiles	1990-2010	21	.000071	
Lake Tomahawk	2009	1	.000280	
Langlade (Town)	1990	1		.000005
	1991-2010	20	.000061	

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-11 (Continued)

Jurisdiction	Years	Number of Years	Average Property Tax Rate Difference	
			Increase	Decrease
Laona	1993	1	.000241	
LINCOLN	1990-2010	21		.000674
Monico	1990-91	2		.000190
NASHVILLE	1990-2007	18		.000162
	2009-10	2		.000120
Neva	1990	1		.000010
	1991-95	5	.000034	
	1996	1		.000008
	1998-2006	9	.000067	
	2007-08	2		.000033
	2009-10	2	.000014	
NEWBOLD	1990-92	3	.000085	
	1994-2010	17	.000131	
Norwood	1990	1		.000031
	1993	1	.000055	
	2002	1		.000036
	2005	1	.000575	
	2007-10	3		.000056
Parrish	1990-94	5	.000248	
	1995-96	2		.000080
Peck	1991	1		.000057
	1995	1	.000074	
PELICAN	1993-2004	12	.000326	
Piehl	1994-97	4		.000278
	1999-2008	10		.000154
	2009-10	2	.000218	
PINE LAKE	1990-92	3		.000839
	2006-08	3		.000934
Polar	2008	1	.000633	
	2010	1		.000058

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-11 (Continued)

Jurisdiction	Years	Number of Years	Average Property Tax Rate Difference	
			Increase	Decrease
Popple River	1994	1		.000265
	1998-2010	13	.000086	
Rolling	1993	1	.000630	
	1995-97	3		.000069
Ross	1990-92	3	.000087	
	1993-95	3		.000075
	1997	1	.000024	
	2003-05	3		.000168
	2006-10	5	.000078	
Schoepke	1990-2010	21	.000050	
Stella	1990	1		.000054
	1992-94	3	.000070	
Sugar Camp	1993	1	.000295	
Three Lakes	1995-99	5		.000121
	2001-02	2		.000111
	2004	1		.000111
	2006	1		.000110
Upham	1990-2010	21	.000039	
Wabeno	1993	1	.000438	
	1996	1		.000147
White Lake (Village)	1992-94	3		.000095
	1995	1	.000110	
	1996	1		.000022
	1997-2010	14	.000014	
Wolf River	1991-94	5	.000027	
	1995	1		.000014
	1996	1	.000026	
Woodboro	1990-94	5	.000050	

* = Differences between without-project scenario and Scenario 2 which are 5% or greater.

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, special assessments may be used as well as the property tax to address Project-related impacts.

Property Owner Taxpayer. For the 6 towns expected to receive the most Project-related people (see Table 3-8, Demographic Analysis), only those property owners in the towns of Crescent, Lincoln, Nashville, and Pelican will experience property tax mill rate increases or decreases of 5 percent or more when comparing Scenario 2 with the without-project scenario. For example, property owners in Lincoln and Nashville will realize average tax mill decreases of $4.21 and $4.46 per $1,000 of full property evaluation, respectively, for each of the 21 years of operation (Table 9-10).

As presented in Table 9-10, the range of average property tax mill rate increase is 5 cents to $1.85 per $1,000 of full property valuation from Blackwell (Wabeno School District) and Crescent, respectively. The Blackwell increase occurs only during three years (1995, 1997, and 1998). The Town of Crescent taxpayers are projected to have an increase of 5 percent or more above the without-project scenario only during 1990 and 1991.

The range of property tax mill rate decrease is 18 cents to $4.94 per $1,000 full property valuation for Blackwell (Wabeno School District) and City of Crandon, respectively, over the 21 years of project operation (Table 9-10). As presented in Table 9-10, the taxpayers in 22 of the 26 jurisdictions shown will experience property tax mill rate decreases at one time or another throughout the operational phase of the Project.

Municipalities. Forty-two of the 44 taxing jurisdictions are projected to have a property tax mill rate increase or decrease of

5 percent or more in their tax mill rate for one or more years throughout the operational phase of the Project. The 6 most impacted are included among 42 municipalities presented in Table 9-11. Crescent (6 years), Newbold (20 years) and Pelican (12 years) are projected to have property tax mill rate increases which range from 8 cents to 33 cents per $1,000 of full property valuation. However, Crescent (6 years), Lincoln (21 years), Nashville (20 years) and Pine Lake (6 years) are projected to have tax mill rate decreases which range from 1 cent to 93 cents per $1,000 of full property valuation (Table 9-11).

Cities. The Cities of Crandon, Antigo, and Rhinelander were included within the local study area. Crandon and Antigo are projected to have property tax mill rate increases or decreases of 5 percent or more during the operation phase. As presented in Table 9-11, Antigo is projected to have an average mill rate increase for 7 years (2003-2005 and 2007-2010) of 24 cents per $1,000 full property valuation. The City of Crandon, however, is projected to experience 21 years of decreased property tax mill rates which average 26 cents per $1,000 of full property valuations (Table 9-11). Rhinelander was not projected to have a 5 percent or more increase or decrease in the property tax mill rate.

Counties. Forest, Oneida, and Langlade counties were included in the property tax analysis. However, only Forest and Oneida

counties were projected to experience property tax mill rate increases or decreses of 5 percent or more throughout the operation phase of the Crandon Project (Table 9-11). Because of the increased property valuation tax base from the Project, Forest County is projected to have an average property tax rate decrease for 21 years of 83 cents per $1,000 of full property valuation. Oneida County, however, only experiences one year (2002) of property tax mill rate decrease which amounts to 29 cents per $1,000 of full payment valuation. Neither Forest nor Oneida counties are projected to have property tax increases over 5 percent during the operational phase of the Project. No changes of 5 percent or more were forecast for Langlade County.

School District. The property tax analysis included data from 8 school districts and only 2 (Crandon and Elcho) are projected to have property tax mill rate changes in excess of 5 percent. The Crandon and Elcho School Districts will experience property tax mill rate decreases of $4.47 and $1.35 per $1,000 of full property valuation, respectively, for 21 years of Project operation (Table 9-11). The other six school districts within the local study area are not projected to have a 5 percent or more increase or decrease in their property tax mill rate during the operation phase of the Project. In general, these school districts are forecast to have more decreases than increases in their tax rates (see "Forecast Of Future Conditions Data Summary," EMC 1983c).

POST-OPERATION PHASE (2011-2015)

The property tax lag effect discussed during the construction phase works in a beneficial manner during the post-operation phase. Project property taxes will continue to be paid during the first 3 post-operation phase years. The Project will be decommissioned and property removed from the tax rolls over a period of 2 years. Because of the tax payment lag, taxes will be paid on Project-related property into the third year of the closure period.

Property Owner Taxpayer. The majority of taxpayers are projected to experience tax rate decreases during the post-operation phase. Of the 6 towns projected to receive most of the Project-related population increase, only property owners living in the towns of Lincoln and Nashville are projected to incur tax rate differences of greater than 5 percent over the without-project scenario (Table 9-12).

Municipalities. As presented in Table 9-13, 5 of the towns receiving the greatest amount of Project-related population are projected to incur tax rate differences of 5 percent or greater (Crescent, Lincoln, Nashville, Newbold, and Pelican) during the post-operation phase covered by the study.

Table 9-12
TAXPAYER SIMULATED PROPERTY TAX MILL RATE DIFFERENCES*
CRANDON PROJECT
POST OPERATION PHASE (2011-2015)

Property Owner Taxpayer Residence	Years	Number of Years	Average Property Tax Rate Difference	
			Increase	Decrease
Ainsworth	2011-15	5		.001232
Argonne	2011-14	4		.004322
	2015	1	.000882	
Blackwell (Laona S.D.)	2012	1		.000325
	2014-15	2	.000682	
Blackwell (Wabeno S.D.)	2011-13	3		.000296
	2014-15	2	.000387	
Crandon (City)	2011-14	4		.004525
	2015	1	.000714	
Crandon	2011-14	4		.004321
	2015	1	.000892	
Elcho	2011-15	5		.001263
Enterprise	2011-15	5		.001347
Hiles (Crandon School District)	2011-14	4		.004397
	2015	1	.000761	
Hiles (Three Lakes School District)	2011-13	3		.000498
	2015	1	.000298	
LINCOLN	2011-14	4		.003769
	2015	1	.001586	
NASHVILLE	2011-14	4		.004062
	2015	1	.001191	
Neva (Elcho School District)	2011-15	5		.001270
Peck (Elcho School District)	2011-15	5		.001371
Piehl	2015	1		.000289
Popple River	2012	1		.000732

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-12 (Continued)

Property Owner Taxpayer Residence	Years	Number of Years	Average Property Tax Rate Difference	
			Increase	Decrease
Rhinelander (City)	2011-15	5		.003151
Schoepke	2011-15	5		.001288
Upham (Elcho S.D.)	2011-15	5		.001319

* = Differences between without-project scenario and Scenario 2 which are 5% or greater.

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-13
JURISDICTIONS SIMULATED PROPERTY TAX MILL RATE DIFFERENCES*
CRANDON PROJECT
POST-OPERATION PHASE (2011-2015)

Jurisdiction	Years	Number of Years	Average Property Tax Rate Difference	
			Increase	Decrease
County:				
Forest	2011-14	4		.000670
	2015	1	.000449	
School Districts:				
Crandon	2011-14	4		.004157
Elcho	2011-15	5		.001318
Municipalities:				
Ainsworth	2011-15	5	.000034	
Antigo (City)	2014	1		.000387
Antigo	2011-13	3	.000052	
	2014			.000005
	2015		.000005	
Argonne	2011			.000022
	2013-15		.000061	
Blackwell	2015		.000104	
Crandon (City)	2011-15	5		.000237
Crandon	2011	1	.000048	
CRESCENT	2011	1		.000202
Enterprise	2011-15	5		.000022
Evergreen	2011-13	3	.000033	
	2014-15	2		.000065

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-13 (Continued)

Jurisdiction	Years	Number of Years	Average Property Tax Rate Difference	
			Increase	Decrease
Freedom	2011-15	5	.000125	
Hiles	2011-14	4	.000049	
Langlade (Town)	2011-15	5	.000066	
LINCOLN	2011-14	4		.000591
	2015	1	.000709	
NASHVILLE	2011-13	3		.000125
	2015	1	.000337	
Neva	2011-15	5	.000038	
NEWBOLD	2011-15	5	.000253	
Peck	2011-12	2		.000068
PELICAN	2014	1		.000145
Piehl	2011-15	5	.000206	
Polar	2011-13	3		.000080
Popple River	2011	1	.000086	
	2012-15	4		.000177
Price	2011-12	2		.000070
Rolling	2015	1		.000032
Ross	2011-12	2	.000103	
	2013-15	3		.000095
Schoepke	2014-15	2	.000032	
Stella	2013	1	.000068	
	2015	1		.000059
Three Lakes	2011-15	5		.000117
Upham	2011-14	4	.000015	
	2015	1		.000010

* = Differences between without-project scenario and Scenario 2 which are 5% or greater.

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

Table 9-13 (Continued)

Jurisdiction	Years	Number of Years	Average Property Tax Rate Difference	
			Increase	Decrease
White Lake (Village)	2011	1	.000166	
	2012	1		.000041
	2014	1	.000018	
Wolf River	2011-12	2		.000017
	2013	1	.000015	
	2014-15	2		.000044

Note: The projected property tax rate differences assume all Project-related impacts which require local funding are addressed by the property tax mechanism. In reality, grants from the Investment and Local Impact Fund, user fees, and special assessments may be used as well as the property tax to address Project-related impacts.

Cities. Only the cities of Antigo and Crandon experience tax rate differences of 5 percent or greater. The tax rates are projected to decrease an average of 23 cents per $1,000 of full property valuation for the City of Crandon for each of the post-operation years (Table 9-13).

Counties. For 4 of the 5 years of the post-operation phase studied, Forest County is projected to experience tax rate decreases of an average for each year of 67 cents per $1,000 of full property valuation (Table 9-13). Oneida and Langlade counties are not projected to have tax rate increases or decreases of 5 percent or more over the without-project scenario during this period.

School Districts. The Elcho and Crandon School Districts are projected to have tax rate decreases of 5 percent or more during this period. The Crandon School District is projected to experience a $4.16 per $1,000 of full property valuation average decrease and the Elcho School District property tax mill rate is projected to decrease an average of $1.32 per $1,000 full property valuation (Table 9-13). The other school districts in the local study area are not projected to experience tax rate differences of 5 percent or more.

AGGREGATE EFFECTS

Table 9-14 indicates the projected net proceed tax revenue generated by the Project and available for mitigation of fiscal

impacts within the local study area. The aggregate fiscal effects were estimated by calculating the revenue necessary to maintain constant tax rates in the jurisdictions which are forecast to have tax rate increases as a result of the Project. This calculation was completed by multiplying the simulated tax rate increase (Scenario 2 minus without-project) for each year by the jurisdiction's total equalized property value. These increased tax levies were separately totaled for the local study area for each of the taxing jurisdictions (counties, municipalities, and school districts). The separate demands were then totaled by year for the local study area (Table 9-14). For example, in the year 1988 the total local study area potential demand on the Investment and Local Impact Fund by municipalities is $595,176, for counties $436,040, and for school districts $392,321, having a local study area total potential demand against the Mining Impact Fund of $1,423,539 (Table 9-14). No adjustment was included for the mandatory annual payments of $100,000.

The analysis also assumed all construction phase related fiscal effects are addressed by the property tax in the year in which the impact occurs. In reality many effects can be mitigated by requiring property developers to pay for impacts through user fees and direct payments to the servicing municipality. A taxing jurisdiction can diminish the tax impact of a given year by use of its borrowing powers. For example, Forest County is projected to incur substantial positive tax effects during the operation phase (see Table 9-11). Instead of lowering tax rates, the county could use the additional revenue generated (i.e., if the tax rates are

TABLE 9-14

COMPARISON OF DEMAND FOR PUBLIC FACILITIES AND SERVICES FUNDING
WITH NET PROCEEDS TAX REVENUE

	DEMAND				REVENUE
YEAR	COUNTIES[a]	MUNICIPALITIES[a]	SCHOOL DISTRICTS[a]	LOCAL STUDY AREA*[a]	SCENARIO 2 NET PROCEEDS TAXES[b]
1985	448,247	222,575.	100,892	771,715.	0
1986	358,394	250,217.	231,181	839,794.	0
1987	515,575	434,848.	234,281	1,184,705.	0
1988	436,040	595,176.	392,321	1,423,539.	0
1989	20,947	344,483.	514,560	879,990.	0
1990	20,371	150,273.	199,975	370,619.	0
1991	19,547	138,613.	160,295	318,456.	0
1992	98,242	44,570.	249,424	392,237.	3,891,000
1993	94,632	166,351.	200,565	461,548.	5,254,000
1994	72,861	108,408.	101,920	283,190.	5,466,000
1995	56,927	108,418.	105,710	271,056.	10,736,000
1996	52,727	113,687.	80,819	247,235.	10,834,000
1997	69,595	119,675.	127,339	316,811.	10,813,000
1998	76,641	85,775.	105,414	267,832.	10,857,000
1999	55,198	116,701.	11,069	182,970.	10,971,000
2000	75,090	118,987.	62,024	256,102.	11,128,000
2001	72,274	115,803.	51,722	239,800.	10,894,000
2002	54,048	105,376.	49,652	209,077.	9,720,000
2003	110,676	135,093.	53,746	299,516.	10,176,000
2004	117,149	138,910.	41,772	297,831.	10,122,000
2005	81,068	137,291.	60,792	279,152.	10,203,000
2006	63,859	61,337.	49,913	175,110.	10,291,000
2007	27,645	102,299.	49,012	178,958.	10,450,000
2008	20,903	131,890.	34,136	186,930.	10,435,000
2009	22,740	133,018.	68,845	224,605.	10,384,000
2010	1,070	126,733.	120,217	248,021.	10,349,000
2011	0	40,581.	239,647	280,228.	0
2012	0	59,796.	106,813	166,609.	0
2013	0	70,753.	96,686	167,439.	0
2014	0	24,545.	169,129	193,674.	0
2015	137,645	48,993.	43,080	229,719.	0

*The annual required payments of $100,000 to the Towns of Lincoln and Nashville and the $350,000 payments to Forest County during operations are not offset against this projected potential demand on the Mining Impact Fund.

Source: a - Dr. J. Huddleston, Associate Prof., Univ. Wisconsin, Dept. of Urban and Regional Planning.
b - Research Planning Consultants, Inc.

not lowered) to reduce debt from money borrowed during the construction phase to offset the negative fiscal impacts. Table 9-14 shows substantially more net proceeds tax revenues than are required to offset potential demands on the Investment and Local Impact Fund during the construction, operation, and post-operation phases. From Table 9-14, it can be seen that total potential local study area demand on the fund averages well under $300,000 yearly during the operational phase. Projected project payments to the Impact Fund average $10,000,000 annually during the same period.

From the analysis in the net proceeds tax subsection, we saw that the Mining Impact Fund should have annually approximately $4 million project net proceeds tax payments during several years of operation which would be available to mitigate impacts. This is in addition to the 10 percent Project Reserve Fund of over $18 million (over life of project) available specifically for addressing local impacts. This Mining Impact Fund money coupled with advance planning should more than offset any Project-related fiscal impacts during construction, operation, and post-operation phase.

The analysis also assumed all construction phase related fiscal effects are addressed by the property tax in the year in which the impact occurs. In reality many effects would be mitigated by requiring property developers to pay for impacts through user fees and direct payments to the servicing municipality.

STATE INCOME TAX ANALYSIS

The income taxes paid to the State of Wisconsin and assumptions for calculating the taxes are discussed in this section. The procedures used to calculate the state tax employed certain assumptions which were necessary because of the ever changing nature and complexity of the tax codes.

Tax laws in existence as of December 1, 1982, were used with data based on Project planning as it then existed to perform this analysis. As previously mentioned, the tax laws and further Project planning and the permitting process may affect the actual taxes paid at the time the taxes are levied. Assumptions used for the state income tax calculations are presented in Table 9-15.

Calculation Of State Income Taxes

The income subject to state taxes is gross revenues less smelting, refining, and treatment charges; concentrate freight and in-transit loss; royalties; mining, milling and overhead expenditures; exploration costs; reclamation; mine intangibles; allowable depreciation; property taxes; and net proceeds taxes. In contrast to the calculation of the net proceeds tax, exploration expenditures are not amortized, but are deducted in the year incurred. The amount of state income taxes paid was calculated as 7.9 percent of the estimated tax base (RPC 1983c).

State income taxes were calculated in then-current dollars and then deflating the resulting taxes to 1982 constant dollars, using Data Resources Inc. inflation forecasts reference (Data Resources, Inc. 1982). Mine, mill and other surface capital

TABLE 9-15

MAJOR ASSUMPTIONS FOR STATE AND FEDERAL TAX CALCULATIONS

Variable	Scenario 1	Scenario 2	Scenario 3
Project Expenditures	10% below most likely estimate	EMC's most likely estimate	10% above most likely estimate
Interest Deductions	None	2.5 percent of gross revenues	5.0 percent of gross revenues
Metals Prices (Zinc, Copper, Lead, Silver)	Chase Econometric's July 1982 Price Forecasts	Chase Econometric's July 1982 Price Forecasts	Chase Econometric's July 1982 Price Forecasts
Gold Price	$445 ($1982)/oz.	$445 ($1982)/oz.	$445 ($1982)/oz.
Annual Ore Production (After 1993)	Zinc 175,200 metric tons Copper 43,700 metric tons Lead 10,900 metric tons Silver 74,800 kilograms	Zinc 175,200 metric tons Copper 43,700 metric tons Lead 10,900 metric tons Silver 74,800 kilograms	Zinc 175,000 metric tons Copper 43,700 metric tons Lead 10,900 metric tons Silver 74,800 kilograms
Depreciation	Assets in service before 1980 - 8 years Assets in service after 1980 - 5 years	Assets in service before 1980 - 8 years Assets in service after 1980 - 5 years	Assets in service before 1980 Assets in service after 1980 - 5 years
Investment Tax Credits for State and Federal Income Taxes	10% of Capital Investment credited in year expended	10% of Capital Investment credited in year expended	10% of Capital Investment credited in year expended
Construction Fee Payments	Credited against Net Proceeds Tax	Credited against Net Proceeds Tax	Credited against Net Proceeds Tax
Negative Income Taxes	Assumed to be zero	Assumed to be zero	Assumed to be zero
State Income Taxes	7.9% of Tax Base	7.9% of Tax Base	7.9% of Tax Base
Federal Income Taxes	46.0% of Tax Base	46.0% of Tax Base	46.0% of Tax Base

SOURCE: RPC, Inc.

investment was depreciated over either 5 or 8 years, depending on the first year of depreciation. The first year of depreciation is the year of first service. For the calculation of depreciation, we used several schedules which reflect the Tax Equity and Fiscal Responsibility Act of 1982. For assets in service during the years 1976-1980, an 8-year life was assumed and ADR Depreciation Rate Tables were used. For assets in service in subsequent years, a 5-year life was assumed and the schedule indicated in Table 9-16 was used. For income tax calculations, beginning in 1983, 95 percent is depreciated and 10 percent is applied as an investment tax credit against state income taxes in the year incurred.

WITHOUT-PROJECT FORECAST

As with the net proceeds tax, no Project state income taxes will be paid by EMC.

WITH-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

Because no mineral concentrate sales will occur during the construction phase, no Project state income taxes will be paid from 1985 through 1989.

OPERATION PHASE (1990-2011)

The state income taxes projected to be paid by EMC during the operation phase are presented in Table 9-17. The state income taxes paid are highest in Scenario 1 because of the lower assumed capital and operating costs and interest deductions. In Scenario 3, costs are higher, interest deductions are greater and taxes are least.

Table 9-16

DEPRECIATION SCHEDULE BASED ON NEW TAX LAW

Year	Annual Provisions
For Assets Put in Service, 1981 on:	
1	0.15
2	0.22
3	0.21
4	0.21
5	0.21

Depreciable life--5.0 years

Source: Exxon Minerals Company, 1982d.

TABLE 9-17
CRANDON PROJECT
SIMULATED STATE INCOME TAXES

Year	Scenario ($000 1982)* 1	2	3	Scenario 2 Current ($000)
1980	0	0	0	0
1981	0	0	0	0
1982	0	0	0	0
1983	0	0	0	0
1984	0	0	0	0
1985	0	0	0	0
1986	0	0	0	0
1987	0	0	0	0
1988	0	0	0	0
1989	0	0	0	0
1990	0	0	0	0
1991	2,662	206	0	356
1992	7,956	5,013	2,240	9,188
1993	8,018	5,170	2,215	10,047
1994	7,698	4,941	2,088	10,175
1995	11,601	9,237	6,731	20,162
1996	12,492	10,234	7,967	23,682
1997	12,403	10,127	7,852	24,840
1998	12,360	10,078	7,796	26,202
1999	12,420	10,147	7,874	27,966
2000	11,310	8,916	6,522	26,047
2001	10,703	8,239	5,774	25,514
2002	10,185	7,662	5,141	25,513
2003	11,728	9,379	7,029	32,633
2004	11,670	9,315	6,956	34,355
2005	11,807	9,465	7,123	37,008
2006	12,286	9,996	7,707	41,424
2007	12,364	10,084	7,803	44,299
2008	12,262	9,971	7,679	46,426
2009	12,323	10,038	7,753	49,546
2010	12,285	9,997	7,706	52,303
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0

* Based on thousands of dollars in constant 1982 dollars
Source: RPC, Inc.

In Scenario 1, net proceeds taxes will be paid in 1990 (see Table 9-3), the first year of production; however, net Project revenues are not forecast to be sufficient to result in payment of state income taxes. State income taxes are forecast to be paid starting in 1991 for Scenarios 1 and 2 (Table 9-17). In Scenario 1, state income taxes average $11 million (in 1982 dollars) during the operation phase. In dollars, the state income taxes will total $559 million (Table 9-17).

In Scenario 2, costs are assumed to be 10 percent higher than in Scenario 1 and 2.5 percent of gross revenues is deducted as interest. As a result, net Project revenues are projected to be less and taxes would be less. However, state income taxes average $9 million (in 1982 dollars) during the operation phase.

In Scenario 3, costs are assumed to be 10 percent higher than in Scenario 2 and interest deductions are assumed to be 5 percent of gross revenues. As a result, tax payment would be less. State income taxes begin in 1992 and average approximatley $7 million (in 1982 dollars). The state income taxes to be paid during the 20 years of operation would average approximately 1.8 percent of the total state corporate income tax collections between 1991 and 2010 in all three scenarios (see Table 9-22).

POST-OPERATION PHASE (2011-2015)

No Project state income taxes will be paid by EMC during this time period.

FEDERAL INCOME TAX ANALYSIS

The income taxes paid to the federal government and assumptions for calculating the taxes are discussed in this section.

Tax laws in existence as of December 1, 1982, were used with data based on Project planning as it then exited to perform this analysis (Table 9-15). Several factors could affect the actual taxes paid because of the ever changing nature and complexity of the tax codes.

Calculation Of Federal Income Taxes

The income subject to federal taxes is income after state taxes minus depletion allowances. This income is taxed at an assumed tax rate of 46 percent. Tax credits from mine intangibles and mine, mill, and other surface capital investment are applied against federal income taxes (RPC 1983c). The federal income taxes were calculated in a manner similar to that for state income taxes.

WITHOUT-PROJECT FORECAST

As with the net proceeds and state income taxes, no Project federal income taxes will be paid by EMC prior to the operation phase.

WITHOUT-PROJECT FORECAST

CONSTRUCTION PHASE (1985-1989)

Because no mineral concentrates are sold during the construction phase, no Project federal income taxes will be paid from 1985 through 1989.

OPERATION PHASE (1990-2010)

The federal income taxes projected to be paid by EMC during the operation phase are presented in Table 9-18. As with the state income taxes, federal income taxes follow the same Project development pattern; therefore, it will not be repeated here for each scenario.

TABLE 9-18
CRANDON PROJECT
FEDERAL INCOME TAXES

Year	Scenario ($000 1982)* 1	2	3	Scenario 2 1983 ($000)
1980	0	0	0	0
1981	0	0	0	0
1982	0	0	0	0
1983	0	0	0	0
1984	0	0	0	0
1985	0	0	0	0
1986	0	0	0	0
1987	0	0	0	0
1988	0	0	0	0
1989	0	0	0	0
1990	0	0	0	0
1991	8,475	2,042	0	3,531
1992	21,912	14,083	6,712	25,813
1993	24,403	16,290	8,608	31,653
1994	25,052	16,297	8,951	33,560
1995	44,166	34,136	23,248	74,513
1996	45,748	35,923	26,061	83,131
1997	45,532	35,656	25,780	87,457
1998	45,564	35,685	25,805	92,776
1999	45,935	36,099	26,262	99,940
2000	44,775	34,823	24,871	101,728
2001	43,236	33,099	22,968	102,503
2002	38,864	28,244	17,631	92,717
2003	42,607	32,403	22,198	112,745
2004	42,374	32,148	21,917	118,569
2005	42,803	32,620	22,433	127,536
2006	43,750	33,670	23,594	139,530
2007	44,314	34,304	24,286	150,671
2008	44,155	34,122	24,091	158,879
2009	44,119	34,081	24,042	168,220
2010	42,992	33,944	23,885	177,591
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0

* Based on thousands of dollars in constant 1982 dollars
Source: RPC, Inc.

In Scenario 1, federal income taxes average approximately $42 million in 1982 dollars. In then-current dollars, the federal income taxes total $1.98 billion (Table 9-18). For Scenario 2, costs were assumed to be 10 percent higher than in Scenario 1 and interest deductions were assumed to be 2.5 percent of gross revenues. As a result, the federal income taxes will average $30 million (in 1982 dollars). In Scenario 3, costs were assumed to be 10 percent higher than in Scenario 2 and interest deductions were assumed to be 5 percent of gross revenues. As a result, tax payments should be less. Federal income taxes should begin in 1992 and are projected to average $22 million for Scenario 3.

POST-OPERATION PHASE (2011-2015)

No federal income taxes will be paid by EMC during this time period.

STATE ECONOMIC AND FISCAL ANALYSIS

This section contains an assessment of potential effects of the Crandon Project on the State of Wisconsin. The potential effects on state revenues are demonstrated by comparing without- and with-project forecasts of future per capita tax revenues. Differences among the three with-project scenarios are insubstantial at the state level. For this reason, this analysis considers only with-project - Scenario 2. Unless otherwise stated, all dollars in this chapter are in constant 1982 dollars. If with-project per capita tax revenues are less than in the without-project scenario, then development of the Crandon Project could have adverse effects on the state's fiscal position (see Table 9-23).

The largest single revenue source for the State of Wisconsin in recent years has been income taxes on individuals and corporations (RPC, 1981e). During fiscal year 1977 to 1978, which began on July 1, 1977, the Wisconsin state government received $6.1 billion in revenue from all sources and spent $5.4 billion. Approximately 69.3 percent of all revenues went to the General Fund and 73.4 percent of all expenditures were from the General Fund, the state's operating fund of nondedicated revenues. Segregated funds, or revenues dedicated by law for specific expenditure purposes, accounted for the remaining 30.7 percent of revenues and 26.6 percent of expenditures. Segregated revenues and expenditures include the Transportation Fund, the Conservation Fund, and Patient's Compensation Fund.

In recent years, federal aid has become an increasingly important source of revenue for the State of Wisconsin (RPC, 1981e). Most of these funds are dedicated by the federal government for specific purposes. About one-third of these funds (32.0 percent in 1978) are channeled to local governments (RPC, 1981e).

Over half of the federal aid that Wisconsin received in fiscal year 1978 was earmarked for human relations and resources and social services (55.8 percent). Education (21.3 percent) and environmental resources (12.7 percent) were the other major categories. Additional transfers were received for general executive, judicial, legislative, and general appropriations.

Wisconsin's state budget has shown a General Fund surplus in every year from fiscal year 1970 to fiscal year 1978. Revenues increased in each successive fiscal year. Prior to 1979, expendi-

tures varied, in some years exceeding revenues, but never exceeding current revenues plus the cumulative surplus (RPC, 1981e). This is contrasted with the 1983-85 budget law which increases General Fund tax revenues by approximately $748 million to correct a potential deficit for this fiscal period.

FORECAST OF STATE ECONOMIC EFFECTS

The information on EMC's likely expenditures within Wisconsin was analyzed, and clearly demonstrates the overall positive fiscal benefits to the state.

Using a separate input/output model methodology developed for the state (RPC, 1981c), the analysis showed that the construction of the Crandon Project would have the following effects:

1. For every construction worker at the Crandon site, 3.2 jobs will be created statewide.

2. For every dollar spent by EMC for the construction of the mine/mill complex, $2.50 in additional business volume will be generated statewide.

The operation phase of the mine/mill complex is projected to have the following effects:

1. For every operation worker at the Crandon site, 3.55 jobs will be created statewide.

2. For every dollar spent by EMC for operation of the mine/mill complex, $1.70 in additional business volume will be generated statewide.

Table 9-19 displays our projections on the effects of EMC's purchases of goods and services in the State of Wisconsin. This table shows purchasers by sector for the construction and operation phases. The data presented represents only an assumption of

TABLE 9-19

CRANDON PROJECT
DIRECT PURCHASES WITHIN STATE OF WISCONSIN[a]
CONSTRUCTION PHASE AND SAMPLE OPERATION YEAR
SCENARIO 2

	Construction (1985 to 1989)	Operation (1999)
Agriculture	0.0	0.0
Metal Mining	0.0	0.0
Nonmetal, Nonfuel Mining	54.2	210.1
Construction	19.8	57.6
Food Products	0.0	0.0
Textile Mll Products	0.0	0.0
Apparel	0.0	0.0
Lumber and Wood Products	12,204.9	877.1
Furniture and Fixtures	4,448.3	274.8
Paper and Allied Products	41.6	207.9
Printing and Publishing	0.0	0.0
Chemicals	1,835.2	1,798.5
Petroleum and Coal	15,804.1	2,461.4
Rubber and Plastics	0.0	598.6
Leather Products	0.0	0.0
Stone, Clay, and Glass	11,950.0	5,261.5
Primary Metal Products	10,479.5	436.4
Fabricated Metals	97,803.4	942.8
Nonelectrical Machinery	37,112.7	6,321.2
Electric and Electronics	1,360.7	39.2
Tansportation Equipment	1,915.6	182.1
Instruments Manufacturing	51.0	57.5
Miscellaneous Manufacturing	5,589.4	40.1
T.C.P.U.[b]	25,955.5	16,143.8
Wholesale Trade	19,979.8	2,565.2
Retail Trade	0.0	0.0
F.I.R.E.[c]	0.0	0.0
Recreation	24.8	124.2
Other Services	128.3	641.5
Government	0.0	0.0
Labor	156,406.7	18,320.6

[a]Based on thousands of 1982 constant dollars.

[b]Transportation, Communication, and Public Utilities.

[c]Finance, Insurance, and Real Estate.

SOURCE: Research and Planning Consultants, Inc.

the expenditures which are most likely to occur within Wisconsin. As such, they do not represent a commitment on the part of Exxon Minerals Company.

During the construction phase, we project that the largest EMC purchases will be for fabricated metals; nonelectrical machinery; transportation, communication and public utilities; wholesale trade; petroleum and coal; and lumber and wood products. During the operation phase, the transportation, communication and public utilities sector again should enjoy substantial benefits from EMC's purchases, along with the nonelectrical machinery industry.

EMC's purchases in the State of Wisconsin will be subject to the capabilities and competitiveness of the various sectors. These projections are not meant to be commitments of actual expenditures.

FORECAST OF STATE EMPLOYMENT EFFECTS

Applying the previously mentioned multipliers to projections of manpower for the mine/mill complex yielded the employment estimates provided in Table 9-20. These estimates were distributed into the following categories: without-project, construction phase, operation phase, indirect within the local study area, indirect outside the local study area, and total Project-related jobs within the state. Projections of without-project employment were derived using RPC's input/output model for the State of Wisconsin. Estimates of the number of anticipated

TABLE 9-20

STATE OF WISCONSIN
PROJECTED STATEWIDE EMPLOYMENT
1980 TO 2016

Year	Without-Project	Project-Related					Total Jobs Statewide
		Construction	Operation	Indirect Within LSA	Indirect Outside LSA	Total Project-Related Jobs	
1980	2,171,936	0	35	7	22	64	2,172,000
1981	2,185,897	0	40	15	48	103	2,186,000
1982	2,188,872	0	35	22	71	128	2,189,000
1983	2,256,635	0	35	21	72	128	2,256,763
1984	2,337,208	0	40	21	72	133	2,337,341
1985	2,389,781	485	45	98	354	982	2,390,763
1986	2,431,140	875	100	249	888	2,112	2,433,252
1987	2,439,168	515	320	381	1,335	2,551	2,441,719
1988	2,451,352	1,035	425	550	1,848	3,858	2,455,210
1989	2,466,335	1,080	580	670	2,230	4,560	2,470,895
1990	2,484,398	0	735	654	2,258	3,647	2,488,045
1991	2,495,374	0	760	536	1,952	3,248	2,498,622
1992	2,504,905	0	780	405	1,528	2,713	2,507,618
1993	2,515,806	80	780	439	1,591	2,890	2,518,696
1994	2,527,876	90	780	467	1,646	2,983	2,530,859
1995	2,540,985	40	780	475	1,668	2,963	2,543,948
1996	2,553,076	0	780	458	1,626	2,864	2,555,940
1997	2,565,958	0	780	439	1,579	2,798	2,568,756
1998	2,579,409	0	780	429	1,560	2,769	2,582,178
1999	2,592,839	0	780	428	1,561	2,769	2,595,608
2000	2,607,113	80	780	444	1,603	2,907	2,610,020
2001	2,627,831	55	780	454	1,634	2,923	2,630,754
2002	2,652,569	60	780	467	1,665	2,972	2,655,541
2003	2,675,214	0	780	450	1,623	2,853	2,678,067
2004	2,695,304	0	780	438	1,595	2,813	2,698,117
2005	2,714,192	0	780	424	1,565	2,769	2,716,961
2006	2,734,101	0	780	424	1,565	2,769	2,736,870
2007	2,753,397	0	780	423	1,566	2,769	2,756,166
2008	2,772,402	0	780	423	1,566	2,769	2,775,171
2009	2,792,551	0	780	423	1,566	2,769	2,795,320
2010	2,813,262	0	780	423	1,566	2,769	2,816,031
2011	2,834,483	0	780	392	1,597	2,769	2,837,252
2012	2,855,858	0	360	302	1,330	1,992	2,857,850
2013	2,877,308	0	0	161	808	969	2,878,277
2014	2,899,214	0	0	51	255	306	2,899,520
2015	2,921,148	0	0	0	0	0	2,921,148
2016	2,943,361	0	0	0	0	0	2,943,361

SOURCE: Research and Planning Consultants, Inc.

construction and operation jobs were provided by EMC (EMC, 1982a; 1980c).

The employment effects of the Crandon Project are expected to peak in 1989, generating a total of 4,560 direct and indirect jobs statewide. Almost two-thirds of the jobs created will be indirect, and the majority of these indirect jobs will be created outside the local study area. Many of these jobs will be within the manufacturing, service, and trade sectors which supply the equipment and services for the Project. Peak Project-related employment of over 4,500 workers is approximately 0.2 percent of total employment statewide.

FORECAST OF STATE POPULATION EFFECTS

The without-project forecasts were based on projections of population for Wisconsin from the Bureau of Economic Analysis (U.S. Department of Commerce, 1980). It projects state population to increase at an annual rate of 0.5 percent from 1980 to 2016.

The demographic model projections for the local study area were used to forecast the Project effect on the local study area population. For this analysis, Project population is defined as the difference in local study area population for Scenario 2 minus without-project forecast for the same time period. This estimate of Project population includes local residents who remain in the local study area for jobs with the Project in addition to people inmigrating to the local study area. This is a conservative assumption because it assumes all inmigrants to the local study area are from out of state, and that all outmigrants leave the state.

All of the population effects of the Project are assumed to occur in the local study area, where Project-related jobs account for almost 9 percent of total local study area employment in the peak year of construction. In that peak construction year of 1989, the projections indicate a Project-related population (in the local study area) of 5,168, while the state's population is forecast as 5,101,628. Within the rest of the state, Project jobs in that year account for 0.1 percent of total statewide employment.

Even though development of the Crandon Project would create a substantial number of indirect jobs in Wisconsin outside the local study area, we see no need for increased expenditures for state government services outside the local study area. This is because of the assumption that the state (excluding the local study area) would experience no change in population from inmigration as a result of the Project. Our labor market model also assumes that the 10 percent of direct Project workers commuting from outside the local study area will be indigenous residents of the state.

FORECAST OF STATE INCOME EFFECTS

Personal income projections are presented in Table 9-21. Projection of without-project statewide income was derived from state input/ output model (RPC, 1981c), and Scenario 2 (most-likely impact) forecasts were used to provide the Project-related income for the local study area. Project-related income for the rest of the state was estimated by the state input/output model (RPC, 1981c). This rate was trended to the state model's annual personal income growth to derive future income.

FORECAST OF STATE TAX EFFECTS

A fiscal model (RPC, 1981c) was used to project Wisconsin tax collections. This regression-based model generates projections of tax revenues given employment, income, and population estimates (RPC, 1981c). The tax revenue projections presented in Table 9-22 were derived from without- and with-project income and population. Without- and with-project income are expected to be equal through 1984.

Projections of the net proceeds tax and the state income tax were based on EMC's Project information using the existing Wisconsin laws as of December, 1982. During construction and operation of the mine/mill complex, the state is projected to receive a total of $351.2 million (in current dollars) in direct taxes from EMC. Net proceeds taxes are forecast to account for 52.1 percent of this amount (179.8 million current dollars). An additional $260.0 million in tax revenues (in current dollars) is projected to be generated indirectly. After 1995, Project taxes are expected to average approximately $29 (constant 1982 dollars) million annually for 15 years. This should amount to approximately 0.3 to 0.5 percent of the state's total tax revenues during that period (Table 9-22).

From 1985 to 2010, the Crandon Project is expected to generate an average annual state tax contribution of approximately $23 million (constant 1982 dollars) an average of 0.33 percent of Wisconsin's state tax collections during that period (Table 9-22). During the operation phase, the Project is projected to have annual direct tax payments (state income tax and net proceeds tax) averaging almost $17 million (constant 1982 dollars) per year.

TABLE 9-21

STATE OF WISCONSIN
PROJECTED STATEWIDE INCOME, 1980 to 2016[a]

Year	Without-Project	Project-Related			Total
		Local	Rest of State	Total	
1980	51,459,946	1,183	469	1,652	51,461,598
1981	50,494,193	1,468	998	2,466	50,496,659
1982	52,490,177	1,432	1,532	2,964	52,493,141
1983	54,597,604	1,432	1,568	3,000	54,600,604
1984	56,289,377	1,584	1,561	3,145	56,292,522
1985	57,683,844	15,439	7,691	23,130	57,706,973
1986	58,847,124	29,744	19,346	49,090	58,896,214
1987	59,790,130	27,946	29,453	57,399	59,847,529
1988	60,918,744	47,816	41,333	89,149	61,007,894
1989	62,078,364	55,672	50,518	106,190	62,184,554
1990	63,397,014	32,871	51,859	84,730	63,481,744
1991	64,621,569	30,640	45,496	76,136	64,697,705
1992	65,881,391	27,895	36,170	64,065	65,945,456
1993	67,231,827	32,310	38,267	70,577	67,302,403
1994	68,609,845	33,979	40,208	74,187	68,684,032
1995	70,032,735	32,882	41,376	74,258	70,106,993
1996	71,420,103	31,542	40,938	72,480	71,492,583
1997	72,841,402	31,580	40,343	71,923	72,913,325
1998	74,280,695	31,802	40,433	72,235	74,352,930
1999	75,745,666	32,212	41,043	73,255	75,818,920
2000	77,237,873	35,965	42,742	78,707	77,316,581
2001	79,004,698	35,747	44,214	79,961	79,084,659
2002	80,858,759	36,708	45,680	82,388	80,941,147
2003	82,612,392	34,386	45,108	79,594	82,691,986
2004	84,293,000	34,659	44,895	79,554	84,372,553
2005	85,961,662	34,790	44,610	79,400	86,041,062
2006	87,659,979	35,225	45,160	80,385	87,740,364
2007	89,361,897	35,667	45,743	81,410	89,443,307
2008	91,088,637	36,122	46,307	82,429	91,171,066
2009	92,854,756	36,594	46,865	83,459	92,938,215
2010	94,646,883	37,072	47,417	84,489	94,731,373
2011	96,471,679	35,919	48,919	84,838	96,556,518
2012	98,315,430	20,398	41,209	61,607	98,377,037
2013	100,181,933	3,941	25,320	29,261	100,211,194
2014	102,072,086	1,247	8,080	9,327	102,081,413
2015	103,984,840	0	0	0	103,984,840
2016	105,924,427	0	0	0	105,924,427

[a]Thousands of constant 1982 dollars.

SOURCE: Research and Planning Consultants, Inc.

TABLE 9-22
STATE OF WISCONSIN
PROJECTED STATE TAX COLLECTIONS, 1980 to 2016[a]

Year	Total Without-Project	Total With-Project	Taxes Paid by EMC			Total Project-Related Taxes	Percent of Total Taxes
			Net Proceeds Tax	State Income Tax	Indirect Taxes[b]		
1980	3,135	3,135	0	0	0	0	0.00
1981	3,395	3,395	0	0	0	0	0.00
1982	3,966	3,966	0	0	0	0	0.00
1983	4,466	4,466	0	0	0	0	0.00
1984	4,945	4,945	0	0	0	0	0.00
1985	5,465	5,469	0	0	4	4	0.07
1986	6,022	6,031	0	0	10	10	0.16
1987	6,600	6,611	0	0	12	12	0.18
1988	7,243	7,262	0	0	19	19	0.26
1989	7,951	7,975	0	0	24	24	0.30
1990	8,742	8,760	0	0	17	17	0.19
1991	9,584	9,608	7	0	17	24	0.25
1992	10,446	10,481	10	9	15	34	0.32
1993	11,393	11,432	11	10	18	39	0.34
1994	12,420	12,472	22	10	20	52	0.42
1995	13,538	13,602	24	20	20	64	0.47
1996	14,675	14,743	25	24	20	69	0.47
1997	15,906	15,978	27	25	20	72	0.45
1998	17,236	17,312	29	26	22	76	0.44
1999	18,675	18,757	31	28	23	82	0.44
2000	20,231	20,314	32	26	26	84	0.41
2001	21,991	22,075	30	26	27	83	0.38
2002	23,911	24,000	34	25	30	88	0.37
2003	25,953	26,050	34	33	31	97	0.37
2004	28,133	28,237	38	34	33	105	0.37
2005	30,478	30,589	40	37	34	112	0.37
2006	33,012	33,134	43	42	37	121	0.37
2007	35,744	35,874	46	44	39	130	0.36
2008	38,695	38,832	49	47	42	138	0.36
2009	41,886	42,033	51	50	45	146	0.35
2010	45,332	45,488	54	52	49	155	0.34
2011	49,066	49,118	0	0	52	52	0.10
2012	53,094	53,135	0	0	41	41	0.07
2013	57,441	57,466	0	0	25	25	0.04
2014	62,131	62,147	0	0	16	16	0.03
2015	67,190	67,196	0	0	6	6	0.01
2016	72,650	72,651	0	0	2	2	0.01

NOTES: [a]Millions of current dollars.
[b]Indirect Project-related taxes are those paid taxes stimulated by the Project but not directly paid by Exxon Minerals Company.

SOURCE: Research and Planning Consultants, Inc.

The Project is also forecast to have a slightly positive effect on per capita tax revenues (Table 9-23). As a result of both direct EMC taxes and the indirect taxes stimulated from the additional jobs, per capita tax revenues are projected to be slightly higher with the Project.

Certain sectors of the Wisconsin economy will benefit from EMC's purchases in the state of goods and services, both during the construction and operation phases (see Table 9-19). Also, the additional economic and fiscal benefits provided by the Project may make it easier for Wisconsin and the local study area to attract new industry, providing other indirect benefits. Outside the local study area, the Project should have minimal effects on population or on expenditures for government services.

TABLE 9-23
COMPARISON OF TAX REVENUES
WITHOUT- AND WITH-PROJECT

	Without-Project		With-Project	
Year	Total[a]	Per Capita	Total[a]	Per Capita
1980	3,749,244	797	3,749,244	797
1981	3,714,584	782	3,714,584	782
1982	3,965,967	827	3,965,967	827
1983	4,201,539	869	4,201,539	869
1984	4,392,882	900	4,392,882	900
1985	4,566,808	927	4,569,913	927
1986	4,720,624	950	4,728,108	951
1987	4,867,110	971	4,875,668	972
1988	5,029,595	994	5,042,799	996
1989	5,194,193	1,018	5,209,756	1,020
1990	5,372,540	1,044	5,383,294	1,045
1991	5,525,101	1,067	5,534,930	1,069
1992	5,681,500	1,091	5,698,665	1,094
1993	5,845,687	1,116	5,865,459	1,119
1994	6,011,946	1,141	6,031,844	1,144
1995	6,181,896	1,166	6,211,057	1,171
1996	6,321,737	1,189	6,351,361	1,195
1997	6,464,352	1,213	6,493,532	1,218
1998	6,608,372	1,237	6,637,569	1,242
1999	6,754,739	1,262	6,784,191	1,267
2000	6,903,243	1,287	6,932,045	1,291
2001	7,079,315	1,315	7,107,289	1,320
2002	7,261,668	1,345	7,288,071	1,350
2003	7,435,611	1,373	7,463,964	1,378
2004	7,603,846	1,400	7,632,081	1,405
2005	7,771,416	1,426	7,799,875	1,431
2006	7,941,211	1,453	7,970,372	1,458
2007	8,111,522	1,480	8,141,018	1,485
2008	8,284,161	1,507	8,313,621	1,511
2009	8,459,863	1,534	8,489,430	1,539
2010	8,637,639	1,561	8,667,227	1,566
2011	8,819,873	1,589	8,829,151	1,590
2012	9,003,686	1,617	9,010,618	1,617
2013	9,189,458	1,645	9,193,434	1,645
2014	9,377,112	1,673	9,379,535	1,673
2015	9,566,725	1,701	9,567,608	1,701
2016	9,758,584	1,729	9,758,804	1,729

[a]Thousands of 1982 dollars.

SOURCE: Research and Planning Consultants, Inc.

10. FINDINGS AND CONCLUSIONS

FINDINGS

The following paragraphs summarize the specific findings of each of the nine major study elements.

Economic Analysis

The local study area economy has higher unemployment and lower per capita income than Wisconsin overall. There is a history of substantial outmigration of young adults seeking employment and career opportunities. The present economy of the local study area is based upon forestry-related industry, retail trade, recreation, and tourism. None of these sectors promise to grow sufficiently to close the local study area's unemployment or per capita income gap with the rest of the state or to provide employment and career opportunities which would allow many able young adults to remain in the area. Improved economic conditions in the local study area require the creation of new economic activities. One of the most important assets available to the local study area to attract new, higher-income jobs is its natural-resource base, including mineral resources such as the Crandon deposit.

The economic impact of the Crandon Project (also referred to as the "Project") on the local study area and the state is expressed by its impact on employment, total personal income, per capita income, and disposable per capita income. Project impacts on disposable per capita income will be discussed in the fiscal section of this chapter.

The economic impacts of the Crandon Project are individually and collectively positive. Based on simulation modeling of without- and with-project scenarios, we find that the Project will cause local study area employment to be 4.0 to 6.2 percent higher, will cause unemployment rates to be up to 1.4 percentage points lower, will cause total personal income to be 4.2 to 6.7 percent higher, and will cause per capita income to be 1.1 to 2.9 percent higher than without the Project. Because of the existing and projected labor supply, these economic improvements should occur without harm to existing industries and without generating extensive employment-related migration. The amount of employment-related inmigration for Project construction and operation jobs would be constrained by EMC announced policies on training and local hiring. The number of people inmigrating should be small enough to be readily assimilated into the local communities.

The economic impacts of closure of the Project at the end of its economic life will be to reduce employment, personal income and per capita income, and to increase unemployment slightly in

comparison with the without-project scenario. However, the scheduled closure of the Project in 2011 is so far in the future that these impacts cannot be assessed reliably. The closure will come at a time when the general aging of the population will be shrinking the labor force and generally reducing unemployment rates. In the absense of appropriate planning before the mine/mill closes, economic adjustment and recovery could be slow. With proper planning, appropriate use of local impact funds and active pursuit of alternate economic development scenarios, negative economic impacts of Project closure can be reduced or eliminated.

The fact that the Project will eventually close when its mineral resources are exhausted does not make the mining project less desirable than a manufacturing project or other source of local economic growth. No mine, plant or even government installation can be guaranteed to continue forever. The eventual closure of the mine is not, per se, a negative economic impact of the Project. Closure is a planned part of the Project's operations which also must be planned for by the state and the local study area.

Demographic Analysis

The local study area population is proportionally more rural, more white, older, and has a smaller percentage of school-age children than the state. Its modest annual growth rate (1.2

percent) from 1970 to 1980 was a result, mainly, of migration into the area of older persons offsetting outmigration of younger-aged persons. Without the Project, this general pattern would continue, but with annual growth rates declining to 0.6 percent in the 1980s and to 0.2 in the 1990 to 2011 period as the advancing average age of the population causes natural increase to decline and eventually become natural decrease. Such planning is critical to the ultimate impact that might result from mine closure.

For the local study area as a whole, development of the Crandon Project is expected to have only limited impacts. Total population will be 8.0 to 10.6 percent higher than without-project population during construction and 4.7 to 5.6 percent higher during the operation phase. The annual growth rate for the 1980s would be 1.1 to 1.2 percent, about the same as in the 1970s. In the 1990 to 2011 period, the annual growth rate would be 0.1 to 0.2, slightly lower than without the Project. These lower percentages are due to a larger 1990 base population with the Project and similar absolute increases thereafter. After Project closure, the population will converge to essentially the same level as in the without-project scenario.

Without the Project, the portion of the local study area in Oneida County, particularly the towns around Rhinelander, grow at the fastest rate. In Forest County, population growth without the Project is centered in the City of Crandon and the towns of

Laona and Wabeno. The City of Antigo is the fastest growing part of Langlade County.

Based on criteria of peak and sustained growth rates, the towns of Lincoln, Nashville, Crescent, Newbold, Pelican and Pine Lake, and the City of Crandon will experience the greatest population impacts from the project. The cities of Rhinelander and Antigo receive substantial shares of the Project's total population impact, but the absolute numbers of additional people are a small percentage of the base population of each of these jurisdictions.

None of these jurisdictions receive percentage or absolute population increases as a result of the Project which would disrupt the orderly provision of housing and public services or would disrupt the social structure. The dispersion of Project-related population over more than 40 jurisdictions will dilute the impact and will prevent conditions sometimes associated with "boomtowns" in the western United States from developing.

Housing and Land Use Analysis

The local study area housing stock is characterized by low-density single-family houses. Much of the new residential construction employs modular systems installed in rural subdivisions which rely on water wells and septic tanks rather than a central water/wastewater system. Over a third of the total housing stock in the local study area is seasonal housing. Most recently-built

seasonal housing is suitable for year-round occupancy. Additionally, the local study area has substantial short-term housing in numerous hotels, motels and resorts. Mobile homes are also widely used.

With or without the Project, the housing industry in the local study area will consist of small builder/developers. Subdivisions will be generally less than 50 lots and the only improvements will be a paved road and electrical connections. Speculative building should continue to be constrained tightly by local lenders and by the limited capitalization of local builders.

The Project will generate jobs allowing additional household formation which translates to additional demand for housing. The Project also will attract new households to the local study area temporarily or permanently. However, no housing shortages will result from the Crandon Project development. Those construction workers who are only temporary residents of the area will find rental housing in the current rental stock, in seasonal homes and in hotels. The peak demand for new home construction is within the demonstrated capacity of local builders. Delays experienced elsewhere in development of buildable lots will not be a problem in this area because of the short lead time required for rural subdivisions.

Small increases in housing sales prices over without-project levels can be expected to occur during certain periods of Project

construction and operation. Following Project closure, decreased housing demand brought on by employment-related outmigration may lead to a three- to five-year slowdown in construction of primary residences.

Project development affects the timing of land conversion from agriculture and forestry to residential, commercial, and industrial uses, but does not affect substantially the total amount of land converted from undeveloped to developed uses. With the Crandon Project, land is converted to developed uses at an accelerated pace throughout Project construction and operation. The amount of land required for residential, commercial and manufacturing purposes is not sufficient to create pressures for development of prime agricultural or forest land.

Public Facilities and Services Analysis

The local study area is comprised of small cities and rural areas which provide limited public facilities and services. Few of these jurisdictions provide centralized water and wastewater services or paid fire and police services. Surveys of residents indicate they are generally very satisfied with current service standards. In these circumstances, it is appropriate in most cases to use current per capita service standards as a measure of future per capita service demands.

It would be necessary to depart from current standards if jurisdictions grow past threshholds at which more intensive ser-

vices are required. Most jurisdictions do not reach such thresholds in without- or with-project scenarios. Those jurisdictions which do reach threshholds for centralized or paid services do so in all scenarios. Thus, the impact of the Project on service standards is the only time at which jurisdictions may need to institute centralized or paid services.

Given constant per capita service standards, population increases caused by the Project will increase total demands on local study area public facilities and services and to increased operation, maintenance, and capital costs. Development of the Crandon Project accelerates the timing of personnel additions and capital expansions forecast in the without-project scenario. The absolute requirements for additional personnel are sufficiently small that no manpower shortages should be encountered in filling them.

Some additional capital expansions are required by development of the Crandon Project. These expansions are limited, for the most part, to small capital expenditures for general government and general operations.

Though the public facilities and services model predicts that the towns of Crescent, Pelican, and Pine Lake will reach the population thresholds which would indicate the possibility of initiating centralized water and wastewater services, other factors such as density and type of development lead to the possibility that these towns may not institute such services. If

these towns decide to build centralized water and wastewater systems, they probably will finance the new systems through user fees. However, computer printouts for the three towns in the "Forecast of Future Conditions Data Summary" retain the cost calculations for financing centralized water and wastewater services through the property tax system so that readers may see what those costs would be if the services were built and financed through property taxes rather than user fees.

In several categories, including schools, most jurisdictions have sufficient excess capacity that no expansions are needed throughout the forecast period. The local study area has sufficient infrastructure to accommodate Project-related population increases without requiring capital expansion in advance of Project construction.

Transportation Analysis

Development of the Crandon Project is expected to increase traffic levels substantially along roadways providing relatively direct access routes from the Crandon Project site to the principal employee residential locations. These increased traffic levels, however, will not be great enough to warrant construction of new highway facilities or major expansion of existing highways. Most traffic increases will coincide with shift changes at the mine/mill complex. Two locations expected to experience the greatest increase in Project-related congestion are the highways

passing through the City of Crandon, and the intersection of State Highway 55 and the Crandon Project proposed main access road. Construction of turning lanes and installation of traffic control devices would reduce congestion effects at these locations.

Development of the Crandon Project also is expected to substantially increase passenger traffic at the Rhinelander/ Oneida County Airport throughout the life of the Crandon Project. However, these increases are not expected to create substantial operational problems at the airport.

The Crandon Project will not increase substantially the railway activity over the Soo Line's Argonne mainline. The number of trains should not increase, but the average train lengths will increase due to Project-associated rail shipments. Increased motorist delays may occur at major roadway crossings located south of the Crandon Project. The issue of motorist safety at railroad crossings should not be affected by the Crandon Project.

Sociocultural Analysis

Surveys of local study area residents indicate that residents perceive the local study area as a good place to live or visit. They also indicate that they want the benefits of development but feel developers should proceed cautiously in order to reduce any environmental damage. Local study area residents most

likely will continue to favor economic development during the predevelopment stage of the Crandon Project. If experience elsewhere holds true, as Project construction peaks, local study area residents' sentiments regarding the Crandon Project are likely to become somewhat less positive. The previous supportive attitudes toward the Project most likely will return during completion of construction. These feelings most likely will again be more positive as they see local study area residents filling a high proportion of Project jobs, and as they see that negative housing and fiscal effects are not occurring. The rural nature of the local study area is not likely to change due to the Crandon Project, and the low level of Project-related inmigration is not expected to create leadership changes in community organizations, although EMC personnel and the Crandon Project may have an important role in community affairs.

Native American Communities Analysis

The Mole Lake Sokaogon Chippewa and the Forest County Potowatomi communities hold small reservations in the local study area. The total memberships of the communities living on or near the reservations in 1980 are 312 and 316, respectively. Both communities have birth, death, and unemployment rates which are substantially higher than in the surrounding area. Personal and household incomes are much lower. Economically, both communities are largely dependent on government support programs.

The Crandon Project should have more positive than negative impacts on the two Native American communities in the local study area. Development of the Crandon Project will increase the employment opportunities for Native Americans and may make feasible the development of tribal enterprises. The Wisconsin Mining Impact Fund Board's annual guaranteed payments of $100,000 (indexed) for each reservation will improve substantially the opportunities for these reservations to provide much-needed infrastructure and to expand or initiate tribal enterprises.

Reverse migration resulting from Project development is likely to increase the population living on reservations. Long-range planning by Native American communities for effective uses of Mining Impact Board payments, coupled with Exxon Minerals expressed desire to hire and train Native Americans, will minimize chances of Project-related negative effects.

Fiscal Analysis

The Crandon Project will have an overall strong positive fiscal effect for the local study area and for the state. Other revenue sources such as employee income and sales taxes, although not specifically analyzed per jurisdiction, are an additional benefit to the state's economy. The fiscal analysis further indicates that Project development is most beneficial to those jurisdictions forecast to have the most impacts as a result of mining-related changes.

Simulated property tax mill rates for the jurisdictions within the local study area generally indicate increases for several municipalities during the construction phase but most have no substantial effect. There are mainly mill-rate decreases resulting from mining during the operation phase. Simulated tax rates for Forest County, the towns of Lincoln and Nashville and the Crandon School District indicate consistent decreases throughout the operation phase. No consistent patterns are indicated for most of the other jurisdictions within the local study area. The most positive property tax effects are in those jurisdictions with the Project-related facilities: Lincoln and Nashville towns, Forest County, and Crandon School District.

The net proceeds tax law was established by the Wisconsin Legislature to provide funds to municipalities for costs associated with social, educational, environmental, and economic impacts of metaliforous mineral mining. Net proceeds tax payments from the Project are forecast to average approximately $10 million (1982 constant dollars) during the operation phase. As a result, the net proceeds tax payments available to municipalities are over five times higher than required to mitigate the forecast costs related to the Project.

State and federal income taxes paid by the Project are forecast to average approximately $9 million and $30 million (1982 constant dollars) annually, respectively, during the operation phase. In addition to these revenues, the State of Wiscon-

sin will receive benefits from income and sales taxes paid by employees and other Project-related job creations. For every Project job, an estimated 3.4 jobs are required throughout the state. As such, the total Project-related employment (direct and indirect) is approximately 2,800 jobs. The indirect taxes from these jobs are projected to average approximately $29 million (current dollars) during the operation phase. The Project fiscal benefits, therefore, will enhance the local study area and the general State of Wisconsin economies.

CONCLUSIONS

The Crandon Project will increase local study area and overall state employment, personal income, per capita income, disposable per capita income and business activity levels. Due to unemployment levels in the local study area, Project development should not result in substantial employment-related migration to the local study area or harm existing industries.

The Crandon Project will have only limited effects on local study area population levels. "Boomtown" conditions should not occur in any jurisdiction during any phase of the Project.

No housing shortages are projected for the local study area. Housing prices will increase slightly because of the Project. Slowdowns in new housing construction can be expected following mine/mill complex closure.

Crandon Project development will accelerate land development. The overall land use patterns in the local study area will not change. The Project will not require development of prime agricultural or forest land.

The local study area has a well-developed infrastructure. Few additional public facilities are needed as a result of Project development. Population growth will accelerate the need for some capital improvements and will increase public expenditures and the number of public employees. There will be no difficulty in securing additional employees.

Project development will increase traffic on local study area highways, but no major highway expansions are projected to be required to handle this traffic. Providers of rail and air services will benefit from the Project.

Both seasonal and permanent residents of the local study area believe the effects of the Project, on the whole, will be beneficial. The Project will not materially disrupt or alter the existing social structure of the local study area.

Native American communities should receive more positive than negative impacts from the Project. Development of the Crandon Project will increase the employment opportunities for Native Americans and may make feasible the development of tribal enterprises.

Over the life of the Project and especially during the operation phase, the fiscal impact on state and local study area

governments should be highly positive. The total amount deposited in the Investment and Local Impact Fund through the Project's net proceeds tax payments should be more than sufficient to maintain current service standards without increased property tax rates for residents or deficits for jurisdictions. Increases in per capita income will not be offset by increased taxes as a result of the Project.

Mill rate increases are projected for some jurisdictions over rates without the Project as a result of delays in bringing properties of the Project and the homes of the new area residents onto the tax rolls and resulting from earlier needs for capital improvements. The total amounts to be paid by EMC into the Investment and Local Impact Fund are sufficient to make discretionary payments to these jurisdictions and eliminate the need for any Project-related increases in the property tax rate.

During the construction phase, the Mining Investment and Local Impact Fund may develop a cash flow shortage, even though the net proceeds tax payments generated during the life of the Project will be more than sufficient to mitigate any impacts which occur. The cash flow problem may arise if receipts from other than Project sources including tax payments and state loans are insufficient to cover the impacts which the Mining Investment and Local Impact Fund Board determines should be appropriately funded by grants from the fund.

No matter how much money is paid into the local impact fund during the construction phase, criteria as to what constitutes a negative impact eligible for mitigation must be developed by the state. There are many desirable public improvements that are not and will not be needed because of any impact of the Project. In these times of limited public funds, it is tempting to try to develop a rationale to draw on whatever pool of money is available.

Based on the findings of this study, few capital improvements will be needed during the construction phase. The negative fiscal impacts are due largely to increased operating expenses in advance of increased property tax collections. Construction-phase mitigation payments should primarily be to offset population-related increases in operating expenses. Further, this study indicates that population distribution in the construction and operation phases will differ. Where capital improvements are not required for public health and safety, it is more prudent to defer major capital projects until the operation phase.

Finally, on the basis of the data and analysis included in this study and supporting documentation, it is RPC's professional opinion that the proposed Crandon Project should have no net adverse economic impact on the local study area, that geographic area which RPC expects to be most affected by the proposed Project.

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APPENDIX A

DETAILED DEMOGRAPHIC PROJECTIONS

TABLE A1
TOTAL POPULATION
JURISDICTION: FOREST COUNTY

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	8348.	8348.	0.	8348.	0.	8348.	0.
1981	8376.	8386.	10.	8386.	10.	8386.	10.
1982	8391.	8398.	7.	8398.	7.	8398.	7.
1983	8415.	8424.	9.	8424.	9.	8424.	9.
1984	8433.	8445.	12.	8445.	12.	8445.	12.
1985	8456.	8642.	186.	8675.	219.	8704.	248.
1986	8456.	9043.	587.	9121.	665.	9193.	737.
1987	8466.	9004.	538.	9083.	617.	9150.	684.
1988	8482.	9413.	931.	9560.	1078.	9685.	1203.
1989	8503.	9580.	1077.	9745.	1242.	9895.	1392.
1990	8521.	9183.	662.	9279.	758.	9373.	852.
1991	8544.	9183.	639.	9271.	727.	9361.	817.
1992	8542.	9158.	616.	9241.	699.	9331.	789.
1993	8539.	9221.	682.	9315.	776.	9415.	876.
1994	8538.	9210.	672.	9301.	763.	9401.	863.
1995	8544.	9185.	641.	9275.	731.	9371.	827.
1996	8518.	9132.	614.	9213.	695.	9294.	776.
1997	8511.	9109.	598.	9178.	667.	9254.	743.
1998	8517.	9100.	583.	9171.	654.	9247.	730.
1999	8515.	9097.	582.	9168.	653.	9242.	727.
2000	8523.	9119.	596.	9194.	671.	9266.	743.
2001	8530.	9125.	595.	9201.	671.	9271.	741.
2002	8537.	9135.	598.	9208.	671.	9280.	743.
2003	8542.	9140.	598.	9213.	671.	9284.	742.
2004	8547.	9146.	599.	9218.	671.	9289.	742.
2005	8548.	9146.	598.	9220.	672.	9291.	743.
2006	8550.	9146.	596.	9221.	671.	9291.	741.
2007	8547.	9147.	600.	9223.	676.	9293.	746.
2008	8555.	9157.	602.	9230.	675.	9302.	747.
2009	8544.	9147.	603.	9219.	675.	9290.	746.
2010	8544.	9151.	607.	9224.	680.	9296.	752.
2011	8555.	9153.	598.	9229.	674.	9298.	743.
2012	8549.	9104.	555.	9172.	623.	9234.	685.
2013	8546.	9070.	524.	9137.	591.	9196.	650.
2014	8540.	9071.	531.	9135.	595.	9196.	656.
2015	8575.	9066.	491.	9132.	557.	9192.	617.
2016	8603.	9063.	460.	9129.	526.	9190.	587.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: CITY OF CRANDON

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	1969.	1969.	0.	1969.	0.	1969.	0.
1981	1982.	1984.	2.	1984.	2.	1984.	2.
1982	1991.	1992.	1.	1992.	1.	1992.	1.
1983	2002.	2003.	1.	2003.	1.	2003.	1.
1984	2011.	2013.	2.	2013.	2.	2013.	2.
1985	2021.	2047.	26.	2055.	34.	2056.	35.
1986	2027.	2122.	95.	2148.	121.	2163.	136.
1987	2036.	2143.	107.	2168.	132.	2182.	146.
1988	2046.	2225.	179.	2271.	225.	2299.	253.
1989	2058.	2273.	215.	2325.	267.	2358.	300.
1990	2070.	2242.	172.	2270.	200.	2292.	222.
1991	2079.	2246.	167.	2272.	193.	2293.	214.
1992	2081.	2241.	160.	2266.	185.	2287.	206.
1993	2083.	2262.	179.	2290.	207.	2314.	231.
1994	2085.	2262.	177.	2289.	204.	2312.	227.
1995	2087.	2256.	169.	2283.	196.	2306.	219.
1996	2087.	2247.	160.	2271.	184.	2290.	203.
1997	2088.	2244.	156.	2265.	177.	2282.	194.
1998	2090.	2245.	155.	2266.	176.	2283.	193.
1999	2091.	2246.	155.	2267.	176.	2284.	193.
2000	2095.	2253.	158.	2275.	180.	2291.	196.
2001	2099.	2257.	158.	2279.	180.	2295.	196.
2002	2103.	2262.	159.	2284.	181.	2300.	197.
2003	2107.	2266.	159.	2288.	181.	2304.	197.
2004	2111.	2271.	160.	2292.	181.	2308.	197.
2005	2115.	2274.	159.	2296.	181.	2312.	197.
2006	2118.	2278.	160.	2300.	182.	2316.	198.
2007	2121.	2282.	161.	2304.	183.	2320.	199.
2008	2124.	2286.	162.	2308.	184.	2324.	200.
2009	2126.	2289.	163.	2311.	185.	2327.	201.
2010	2130.	2294.	164.	2316.	186.	2332.	202.
2011	2134.	2298.	164.	2320.	186.	2336.	202.
2012	2135.	2287.	152.	2307.	172.	2321.	186.
2013	2137.	2279.	142.	2299.	162.	2312.	175.
2014	2138.	2282.	144.	2302.	164.	2316.	178.
2015	2156.	2284.	128.	2303.	147.	2318.	162.
2016	2171.	2285.	114.	2305.	134.	2319.	148.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: LAONA

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	1474.	1474.	0	1474.	0.	1474.	0.
1981	1479.	1479.	0.	1479.	0.	1479.	0.
1982	1481.	1481.	0.	1481.	0.	1481.	0.
1983	1486.	1487.	1.	1487.	1.	1487.	1.
1984	1491.	1491.	0.	1491.	0.	1491.	0.
1985	1496.	1514.	18.	1519.	23.	1523.	27.
1986	1497.	1543.	46.	1555.	58.	1564.	67.
1987	1499.	1552.	53.	1565.	66.	1573.	74.
1988	1503.	1583.	80.	1603.	100.	1616.	113.
1989	1508.	1601.	93.	1623.	115.	1639.	131.
1990	1512.	1574.	62.	1584.	72.	1594.	82.
1991	1518.	1574.	56.	1582.	64.	1592.	74.
1992	1519.	1570.	51.	1577.	58.	1586.	67.
1993	1520.	1579.	59.	1588.	68.	1597.	77.
1994	1521.	1578.	57.	1586.	65.	1596.	75.
1995	1523.	1575.	52.	1582.	59.	1591.	68.
1996	1518.	1565.	47.	1571.	53.	1578.	60.
1997	1517.	1561.	44.	1566.	49.	1571.	54.
1998	1518.	1560.	42.	1564.	46.	1570.	52.
1999	1518.	1559.	41.	1564.	46.	1569.	51.
2000	1519.	1561.	42.	1566.	47.	1571.	52.
2001	1520.	1562.	42.	1567.	47.	1572.	52.
2002	1521.	1563.	42.	1568.	47.	1573.	52.
2003	1522.	1564.	42.	1569.	47.	1574.	52.
2004	1523.	1565.	42.	1570.	47.	1575.	52.
2005	1523.	1565.	42.	1570.	47.	1575.	52.
2006	1523.	1565.	42.	1570.	47.	1575.	52.
2007	1523.	1565.	42.	1570.	47.	1575.	52.
2008	1524.	1566.	42.	1571.	47.	1576.	52.
2009	1522.	1564.	42.	1569.	47.	1574.	52.
2010	1522.	1565.	43.	1570.	48.	1575.	53.
2011	1524.	1565.	41.	1570.	46.	1575.	51.
2012	1523.	1557.	34.	1561.	38.	1565.	42.
2013	1523.	1552.	29.	1555.	32.	1558.	35.
2014	1522.	1552.	30.	1555.	33.	1559.	37.
2015	1529.	1551.	22.	1555.	26.	1558.	29.
2016	1534.	1551.	17.	1554.	20.	1558.	24.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: LINCOLN

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	577.	577.	0.	577.	0.	577.	0.
1981	578.	580.	2.	580.	2.	580.	2.
1982	578.	580.	2.	580.	2.	580.	2.
1983	579.	581.	2.	581.	2.	581.	2.
1984	579.	582.	3.	582.	3.	582.	3.
1985	580.	618.	38.	621.	41.	627.	47.
1986	579.	714.	135.	721.	142.	733.	154.
1987	579.	683.	104.	690.	111.	701.	122.
1988	579.	778.	199.	795.	216.	818.	239.
1989	579.	809.	230.	828.	249.	857.	278.
1990	579.	701.	122.	718.	139.	737.	158.
1991	580.	702.	122.	718.	138.	737.	157.
1992	579.	700.	121.	717.	138.	736.	157.
1993	578.	709.	131.	727.	149.	748.	170.
1994	577.	708.	131.	726.	149.	746.	169.
1995	578.	706.	128.	724.	146.	744.	166.
1996	575.	701.	126.	718.	143.	737.	162.
1997	574.	699.	125.	715.	141.	734.	160.
1998	574.	697.	123.	714.	140.	733.	159.
1999	574.	697.	123.	713.	139.	732.	158.
2000	574.	701.	127.	718.	144.	737.	163.
2001	574.	701.	127.	718.	144.	737.	163.
2002	574.	701.	127.	718.	144.	737.	163.
2003	574.	701.	127.	718.	144.	737.	163.
2004	574.	701.	127.	718.	144.	736.	162.
2005	573.	701.	128.	717.	144.	736.	163.
2006	573.	700.	127.	717.	144.	735.	162.
2007	572.	699.	127.	716.	144.	735.	163.
2008	572.	700.	128.	716.	144.	735.	163.
2009	571.	698.	127.	714.	143.	733.	162.
2010	570.	697.	127.	714.	144.	732.	162.
2011	571.	697.	126.	714.	143.	732.	161.
2012	570.	693.	123.	709.	139.	727.	157.
2013	569.	690.	121.	706.	137.	724.	155.
2014	568.	690.	122.	706.	138.	723.	155.
2015	569.	689.	120.	705.	136.	722.	153.
2016	570.	688.	118.	704.	134.	722.	152.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: NASHVILLE

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	703.	703.	0.	703.	0.	703.	0.
1981	705.	708.	3.	708.	3.	708.	3.
1982	706.	708.	2.	708.	2.	708.	2.
1983	707.	710.	3.	710.	3.	710.	3.
1984	708.	711.	3.	711.	3.	711.	3.
1985	709.	754.	45.	757.	48.	763.	54.
1986	709.	870.	161.	877.	168.	890.	181.
1987	709.	834.	125.	843.	134.	853.	144.
1988	710.	948.	238.	968.	258.	993.	283.
1989	711.	985.	274.	1008.	297.	1039.	328.
1990	711.	860.	149.	879.	168.	899.	188.
1991	712.	861.	149.	880.	168.	900.	188.
1992	712.	860.	148.	878.	166.	898.	186.
1993	711.	870.	159.	891.	180.	913.	202.
1994	711.	869.	158.	890.	179.	912.	201.
1995	711.	867.	156.	887.	176.	909.	198.
1996	709.	862.	153.	881.	172.	901.	192.
1997	708.	859.	151.	878.	170.	897.	189.
1998	709.	858.	149.	877.	168.	896.	187.
1999	708.	858.	150.	877.	169.	896.	188.
2000	709.	863.	154.	882.	173.	902.	193.
2001	709.	864.	155.	883.	174.	902.	193.
2002	710.	865.	155.	884.	174.	903.	193.
2003	710.	865.	155.	884.	174.	903.	193.
2004	710.	865.	155.	884.	174.	904.	194.
2005	710.	865.	155.	884.	174.	904.	194.
2006	710.	865.	155.	884.	174.	903.	193.
2007	710.	865.	155.	884.	174.	903.	193.
2008	711.	866.	155.	885.	174.	904.	193.
2009	709.	865.	156.	884.	175.	903.	194.
2010	709.	865.	156.	884.	175.	903.	194.
2011	710.	865.	155.	884.	174.	903.	193.
2012	709.	860.	151.	879.	170.	897.	188.
2013	709.	857.	148.	875.	166.	893.	184.
2014	708.	857.	149.	875.	167.	892.	184.
2015	710.	856.	146.	874.	164.	892.	182.
2016	711.	855.	144.	873.	162.	891.	180.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: WABENO

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	1222.	1222.	0.	1222.	0.	1222.	0.
1981	1226.	1227.	1.	1227.	1.	1227.	1.
1982	1227.	1228.	1.	1228.	1.	1228.	1.
1983	1230.	1230.	0.	1230.	0.	1230.	0.
1984	1231.	1232.	1.	1232.	1.	1232.	1.
1985	1233.	1253.	20.	1257.	24.	1261.	28.
1986	1232.	1282.	50.	1292.	60.	1301.	69.
1987	1232.	1284.	52.	1294.	62.	1302.	70.
1988	1233.	1315.	82.	1333.	100.	1346.	113.
1989	1235.	1329.	94.	1348.	113.	1363.	128.
1990	1236.	1300.	64.	1308.	72.	1317.	81.
1991	1238.	1298.	60.	1305.	67.	1314.	76.
1992	1237.	1294.	57.	1300.	63.	1309.	72.
1993	1236.	1300.	64.	1307.	71.	1317.	81.
1994	1235.	1297.	62.	1305.	70.	1314.	79.
1995	1236.	1294.	58.	1301.	65.	1310.	74.
1996	1232.	1286.	54.	1292.	60.	1300.	68.
1997	1231.	1283.	52.	1287.	56.	1294.	63.
1998	1232.	1282.	50.	1286.	54.	1293.	61.
1999	1232.	1281.	49.	1286.	54.	1292.	60.
2000	1233.	1284.	51.	1288.	55.	1294.	61.
2001	1234.	1284.	50.	1289.	55.	1295.	61.
2002	1235.	1285.	50.	1290.	55.	1296.	61.
2003	1236.	1286.	50.	1291.	55.	1297.	61.
2004	1236.	1287.	51.	1292.	56.	1297.	61.
2005	1237.	1287.	50.	1292.	55.	1298.	61.
2006	1237.	1287.	50.	1292.	55.	1298.	61.
2007	1237.	1287.	50.	1292.	55.	1298.	61.
2008	1238.	1289.	51.	1293.	55.	1299.	61.
2009	1236.	1287.	51.	1292.	56.	1297.	61.
2010	1236.	1288.	52.	1292.	56.	1298.	62.
2011	1237.	1288.	51.	1293.	56.	1299.	62.
2012	1236.	1281.	45.	1285.	49.	1290.	54.
2013	1235.	1276.	41.	1280.	45.	1284.	49.
2014	1234.	1275.	41.	1278.	44.	1283.	49.
2015	1237.	1274.	37.	1278.	41.	1282.	45.
2016	1239.	1273.	34.	1277.	38.	1281.	42.

Source: Research and P anr ing Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: LANGLADE COUNTY

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	19517.	19517.	0.	19517.	0.	19517.	0.
1981	19644.	19638.	-6.	19638.	-6.	19638.	-6.
1982	19687.	19684.	-3.	19684.	-3.	19684.	-3.
1983	19766.	19761.	-5.	19761.	-5.	19761.	-5.
1984	19833.	19828.	-5.	19828.	-5.	19828.	-5.
1985	19901.	20142.	241.	20216.	315.	20259.	358.
1986	19931.	20552.	621.	20714.	783.	20819.	888.
1987	19961.	20700.	739.	20854.	893.	20961.	1000.
1988	20018.	21103.	1085.	21345.	1327.	21513.	1495.
1989	20075.	21362.	1287.	21634.	1559.	21827.	1752.
1990	20140.	20956.	816.	21067.	927.	21183.	1043.
1991	20197.	20938.	741.	21029.	832.	21145.	948.
1992	20201.	20865.	664.	20951.	750.	21064.	863.
1993	20201.	20987.	786.	21083.	882.	21211.	1010.
1994	20196.	20963.	767.	21063.	867.	21182.	986.
1995	20205.	20914.	709.	21007.	802.	21119.	914.
1996	20212.	20830.	618.	20898.	686.	20979.	767.
1997	20224.	20801.	577.	20845.	621.	20908.	684.
1998	20241.	20814.	573.	20858.	617.	20918.	677.
1999	20254.	20823.	569.	20871.	617.	20926.	672.
2000	20294.	20861.	567.	20907.	613.	20962.	668.
2001	20335.	20902.	567.	20949.	614.	21003.	668.
2002	20375.	20945.	570.	20991.	616.	21044.	669.
2003	20414.	20987.	573.	21034.	620.	21086.	672.
2004	20454.	21030.	576.	21078.	624.	21132.	678.
2005	20484.	21068.	584.	21117.	633.	21168.	684.
2006	20514.	21105.	591.	21154.	640.	21206.	692.
2007	20546.	21143.	597.	21192.	646.	21244.	698.
2008	20582.	21183.	601.	21232.	650.	21286.	704.
2009	20602.	21213.	611.	21264.	662.	21319.	717.
2010	20639.	21260.	621.	21311.	672.	21369.	730.
2011	20678.	21306.	628.	21358.	680.	21415.	737.
2012	20673.	21190.	517.	21230.	557.	21269.	596.
2013	20671.	21119.	448.	21150.	479.	21188.	517.
2014	20664.	21108.	444.	21140.	476.	21173.	509.
2015	20791.	21106.	315.	21136.	345.	21169.	378.
2016	20895.	21108.	213.	21137.	242.	21169.	274.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: CITY OF ANTIGO

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	.OTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	8653.	8653.	0.	8653.	0.	8653.	0.
1981	8757.	8751.	-6.	8751.	-6.	8751.	-6.
1982	8794.	8788.	-6.	8788.	-6.	8788.	-6.
1983	8859.	8852.	-7.	8852.	-7.	8852.	-7.
1984	8915.	8909.	-6.	8909.	-6.	8909.	-6.
1985	8973.	9050.	77.	9083.	110.	9095.	122.
1986	9018.	9311.	293.	9406.	388.	9458.	440.
1987	9055.	9451.	396.	9539.	484.	9591.	536.
1988	9108.	9702.	594.	9847.	739.	9935.	827.
1989	9162.	9891.	729.	10058.	896.	10166.	1004.
1990	9222.	9735.	513.	9822.	600.	9895.	673.
1991	9270.	9741.	471.	9817.	547.	9890.	620.
1992	9283.	9715.	432.	9788.	505.	9860.	577.
1993	9297.	9806.	509.	9890.	593.	9972.	675.
1994	9309.	9811.	502.	9894.	585.	9973.	664.
1995	9318.	9790.	472.	9870.	552.	9946.	628.
1996	9367.	9783.	416.	9848.	481.	9905.	538.
1997	9395.	9786.	391.	9838.	443.	9882.	487.
1998	9403.	9816.	413.	9868.	465.	9911.	508.
1999	9425.	9840.	415.	9893.	468.	9935.	510.
2000	9460.	9867.	407.	9920.	460.	9961.	501.
2001	9496.	9907.	411.	9960.	464.	10001.	505.
2002	9533.	9947.	414.	9999.	466.	10041.	508.
2003	9572.	9990.	418.	10043.	471.	10084.	512.
2004	9611.	10033.	422.	10087.	476.	10129.	518.
2005	9650.	10078.	428.	10132.	482.	10174.	524.
2006	9688.	10122.	434.	10177.	489.	10220.	532.
2007	9727.	10166.	439.	10221.	494.	10265.	538.
2008	9756.	10200.	444.	10256.	500.	10300.	544.
2009	9806.	10259.	453.	10315.	509.	10361.	555.
2010	9848.	10308.	460.	10365.	517.	10411.	563.
2011	9881.	10357.	476.	10415.	534.	10462.	581.
2012	9888.	10306.	418.	10357.	469.	10395.	507.
2013	9898.	10271.	373.	10318.	420.	10353.	455.
2014	9907.	10276.	369.	10321.	414.	10353.	446.
2015	10013.	10283.	270.	10327.	314.	10358.	345.
2016	10103.	10294.	191.	10339.	236.	10370.	267.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: AINSWORTH

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	447.	447.	0.	447.	0.	447.	0.
1981	448.	448.	0.	448.	0.	448.	0.
1982	448.	448.	0.	448.	0.	448.	0.
1983	449.	449.	0.	449.	0.	449.	0.
1984	449.	449.	0.	449.	0.	449.	0.
1985	449.	459.	10.	461.	12.	462.	13.
1986	449.	473.	24.	476.	27.	479.	30.
1987	449.	472.	23.	474.	25.	476.	27.
1988	449.	486.	37.	491.	42.	495.	46.
1989	449.	491.	42.	496.	47.	500.	51.
1990	449.	471.	22.	473.	24.	475.	26.
1991	450.	470.	20.	472.	22.	474.	24.
1992	449.	468.	19.	470.	21.	472.	23.
1993	449.	470.	21.	472.	23.	474.	25.
1994	448.	469.	21.	471.	23.	473.	25.
1995	448.	467.	19.	470.	22.	471.	23.
1996	446.	464.	18.	466.	20.	467.	21.
1997	445.	463.	18.	464.	19.	465.	20.
1998	446.	462.	16.	463.	17.	464.	18.
1999	445.	461.	16.	463.	18.	463.	18.
2000	445.	462.	17.	463.	18.	464.	19.
2001	445.	462.	17.	463.	18.	464.	19.
2002	445.	462.	17.	463.	18.	464.	19.
2003	445.	462.	17.	463.	18.	464.	19.
2004	445.	462.	17.	463.	18.	464.	19.
2005	445.	461.	16.	463.	18.	463.	18.
2006	445.	461.	16.	462.	17.	463.	18.
2007	444.	461.	17.	462.	18.	462.	18.
2008	444.	461.	17.	462.	18.	463.	19.
2009	443.	459.	16.	461.	18.	461.	18.
2010	443.	459.	16.	461.	18.	461.	18.
2011	443.	459.	16.	460.	17.	461.	18.
2012	442.	456.	14.	457.	15.	458.	16.
2013	442.	455.	13.	456.	14.	456.	14.
2014	441.	454.	13.	455.	14.	455.	14.
2015	442.	454.	12.	455.	13.	455.	13.
2016	443.	453.	10.	454.	11.	454.	11.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: ELCHO

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	1078.	1078.	0.	1078.	0.	1078.	0.
1981	1082.	1082.	0.	1082.	0.	1082.	0.
1982	1083.	1084.	1.	1084.	1.	1084.	1.
1983	1086.	1086.	0.	1086.	0.	1086.	0.
1984	1088.	1088.	0.	1088.	0.	1088.	0.
1985	1089.	1111.	22.	1115.	26.	1120.	31.
1986	1089.	1151.	62.	1159.	70.	1168.	79.
1987	1090.	1147.	57.	1155.	65.	1165.	75.
1988	1091.	1187.	96.	1201.	110.	1216.	125.
1989	1092.	1201.	109.	1217.	125.	1234.	142.
1990	1094.	1156.	62.	1164.	70.	1174.	80.
1991	1096.	1155.	59.	1162.	66.	1172.	76.
1992	1096.	1151.	55.	1158.	62.	1168.	72.
1993	1095.	1157.	62.	1164.	69.	1175.	80.
1994	1094.	1155.	61.	1162.	68.	1173.	79.
1995	1094.	1152.	58.	1159.	65.	1169.	75.
1996	1091.	1145.	54.	1151.	60.	1159.	68.
1997	1090.	1142.	52.	1147.	57.	1154.	64.
1998	1091.	1141.	50.	1146.	55.	1153.	62.
1999	1090.	1140.	50.	1145.	55.	1152.	62.
2000	1091.	1142.	51.	1147.	56.	1155.	64.
2001	1092.	1143.	51.	1148.	56.	1155.	63.
2002	1093.	1144.	51.	1149.	56.	1156.	63.
2003	1093.	1144.	51.	1149.	56.	1156.	63.
2004	1094.	1145.	51.	1150.	56.	1157.	63.
2005	1094.	1145.	51.	1150.	56.	1157.	63.
2006	1094.	1145.	51.	1150.	56.	1157.	63.
2007	1094.	1145.	51.	1150.	56.	1157.	63.
2008	1094.	1146.	52.	1151.	57.	1158.	64.
2009	1093.	1144.	51.	1149.	56.	1156.	63.
2010	1093.	1145.	52.	1150.	57.	1157.	64.
2011	1094.	1145.	51.	1150.	56.	1157.	63.
2012	1093.	1139.	46.	1143.	50.	1149.	56.
2013	1092.	1135.	43.	1139.	47.	1144.	52.
2014	1091.	1134.	43.	1138.	47.	1144.	53.
2015	1095.	1133.	38.	1137.	42.	1143.	48.
2016	1097.	1132.	35.	1136.	39.	1142.	45.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: ONEIDA COUNTY

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	23825.	23825.	0.	23825.	0.	23825.	0.
1981	24008.	24004.	-4.	24004.	-4.	24004.	-4.
1982	24253.	24249.	-4.	24249.	-4.	24249.	-4.
1983	24492.	24488.	-4.	24488.	-4.	24488.	-4.
1984	24691.	24684.	-7.	24684.	-7.	24684.	-7.
1985	24892.	25116.	224.	25205.	313.	25133.	241.
1986	25086.	25927.	841.	26168.	1082.	25991.	905.
1987	25311.	26463.	1152.	26665.	1354.	26491.	1180.
1988	25582.	27243.	1661.	27595.	2013.	27302.	1720.
1989	25873.	27842.	1969.	28240.	2367.	27897.	2024.
1990	26154.	27252.	1098.	27437.	1283.	27227.	1073.
1991	26483.	27410.	927.	27562.	1079.	27356.	873.
1992	26643.	27399.	756.	27522.	879.	27319.	676.
1993	26791.	27706.	915.	27866.	1075.	27638.	847.
1994	26925.	27784.	859.	27937.	1012.	27718.	793.
1995	26983.	27741.	758.	27886.	903.	27678.	695.
1996	27064.	27674.	610.	27777.	713.	27615.	551.
1997	27114.	27647	533.	27728.	614.	27589.	475.
1998	27142	27694	552.	27773.	631.	27637.	495.
1999	27179.	27736.	557.	27811.	632.	27682.	503.
2000	27260.	27804.	544.	27877.	617.	27750.	490.
2001	27342.	27886.	544.	27956.	614.	27832.	490.
2002	27422.	27960.	538.	28034.	612.	27909.	487.
2003	27507.	28045.	538.	28119.	612.	27996.	489.
2004	27592.	28131.	539.	28205.	613.	28080.	488.
2005	27674.	28213.	539.	28285.	611.	28163.	489.
2006	27753.	28296.	543.	28368.	615.	28246.	493.
2007	27833.	28375.	542.	28447.	614.	28325.	492.
2008	27895.	28444.	549.	28520.	625.	28394.	499.
2009	27988.	28539.	551.	28615.	627.	28489.	501.
2010	28080.	28634.	554.	28711.	631.	28581.	501.
2011	28151.	28724.	573.	28800.	649.	28674.	523.
2012	28271.	28630.	359.	28683.	412.	28582.	311.
2013	28375.	28547.	172.	28578.	203.	28481.	106.
2014	28477.	28655.	178.	28688.	211.	28594.	117.
2015	29059.	28756.	-303.	28791.	-268.	28698.	-361.
2016	29546.	28840.	-706.	28877.	-669.	28784.	-762.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: RHINELANDER

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	7873.	7873.	0.	7873.	0.	7873.	0.
1981	8015.	8006.	-9.	8006.	-9.	8006.	-9.
1982	8018.	8009.	-9.	8009.	-9.	8009.	-9.
1983	8015.	8009.	-6.	8009.	-6.	8009.	-6.
1984	8018.	8006.	-12.	8006.	-12.	8006.	-12.
1985	8012.	8133.	121.	8162.	150.	8077.	65.
1986	7994.	8152.	158.	8182.	188.	7887.	-107.
1987	7985.	8142.	157.	8171.	186.	7893.	-92.
1988	7982.	8162.	180.	8189.	207.	7692.	-290.
1989	7968.	8168.	200.	8197.	229.	7598.	-370.
1990	7962.	7973.	11.	7954.	-8.	7575.	-387.
1991	7963.	7949.	-14.	7924.	-39.	7557.	-406.
1992	7948.	7911.	-37.	7878.	-70.	7527.	-421.
1993	7937.	7907.	-30.	7883.	-54.	7484.	-453.
1994	7918.	7887.	-31.	7857.	-61.	7472.	-446.
1995	7917.	7863.	-54.	7832.	-85.	7467.	-450.
1996	7873.	7805.	-68.	7765.	-108.	7483.	-390.
1997	7854.	7770.	-84.	7733.	-121.	7503.	-351.
1998	7864.	7753.	-111.	7717.	-147.	7490.	-374.
1999	7851.	7743.	-108.	7701.	-150.	7484.	-367.
2000	7851.	7746.	-105.	7701.	-150.	7488.	-363.
2001	7848.	7744.	-104.	7698.	-150.	7487.	-361.
2002	7844.	7734.	-110.	7691.	-153.	7481.	-363.
2003	7839.	7727.	-112.	7685.	-154.	7480.	-359.
2004	7836.	7724.	-112.	7680.	-156.	7469.	-367.
2005	7825.	7711.	-114.	7666.	-159.	7456.	-369.
2006	7813.	7702.	-111.	7657.	-156.	7443.	-370.
2007	7801.	7687.	-114.	7643.	-158.	7429.	-372.
2008	7799.	7687.	-112.	7644.	-155.	7425.	-374.
2009	7770.	7657.	-113.	7615.	-155.	7395.	-375.
2010	7764.	7650.	-114.	7607.	-157.	7382.	-382.
2011	7761.	7636	-125.	7593.	-168.	7370.	-391.
2012	7753.	7594	-159.	7549.	-204.	7380.	-373.
2013	7737.	7564	-173.	7517.	-220.	7364.	-373.
2014	7726.	7553.	-173.	7503.	-223.	7353.	-373.
2015	7722.	7543.	-179.	7496.	-226.	7345.	-377.
2016	7721.	7533.	-188.	7484.	-237.	7335.	-386.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: CRESCENT

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	1702.	1702.	0.	1702.	0.	1702.	0.
1981	1707.	1707.	0.	1707.	0.	1707.	0.
1982	1750.	1750.	0.	1750.	0.	1750.	0.
1983	1793.	1793.	0.	1793.	0.	1793.	0.
1984	1828.	1828.	0.	1828.	0.	1828.	0.
1985	1864.	1861.	-3.	1868.	4.	1867.	3.
1986	1904.	1979.	75.	2009.	105.	2024.	120.
1987	1948.	2081.	133.	2104.	156.	2118.	170.
1988	1998.	2192.	194.	2239.	241.	2266.	268.
1989	2053.	2290.	237.	2343.	290.	2379.	326.
1990	2106.	2257.	151.	2290.	184.	2314.	208.
1991	2165.	2293.	128.	2321.	156.	2345.	180.
1992	2198.	2303.	105.	2328.	130.	2349.	151.
1993	2229.	2355.	126.	2385.	156.	2410.	181.
1994	2260.	2377.	117.	2406.	146.	2430.	170.
1995	2270.	2377.	107.	2405.	135.	2428.	158.
1996	2298.	2383.	85.	2406.	108.	2424.	126.
1997	2312.	2388.	76.	2408.	96.	2422.	110.
1998	2314.	2401.	87.	2421.	107.	2435.	121.
1999	2325.	2412.	87.	2432.	107.	2445.	120.
2000	2339.	2422.	83.	2442.	103.	2455.	116.
2001	2354.	2437.	83.	2457.	103.	2470.	116.
2002	2369.	2452.	83.	2472.	103.	2485.	116.
2003	2385.	2469.	84.	2488.	103.	2501.	116.
2004	2401.	2485.	84.	2505.	104.	2518.	117.
2005	2419.	2503.	84.	2522.	103.	2536.	117.
2006	2436.	2520.	84.	2540.	104.	2554.	118.
2007	2454.	2538.	84.	2557.	103.	2571.	117.
2008	2465.	2550.	85.	2570.	105.	2584.	119.
2009	2490.	2575.	85.	2595.	105.	2610.	120.
2010	2509.	2594.	85.	2614.	105.	2629.	120.
2011	2522.	2613.	91.	2633.	111.	2648.	126.
2012	2547.	2611.	64.	2627.	80.	2638.	91.
2013	2570.	2605.	35.	2619.	49.	2627.	57.
2014	2593.	2629.	36.	2643.	50.	2652.	59.
2015	2699.	2650.	-49.	2664.	-35.	2673.	-26.
2016	2788.	2668.	-120.	2683.	-105.	2692.	-96.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: NEWBOLD

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	2171.	2171.	0.	2171.	0.	2171.	0.
1981	2174.	2175.	1.	2175.	1.	2175.	1.
1982	2216.	2217.	1.	2217.	1.	2217.	1.
1983	2258.	2258.	0.	2258.	0.	2258.	0.
1984	2291.	2291.	0.	2291.	0.	2291.	0.
1985	2326.	2334.	8.	2343.	17.	2343.	17.
1986	2364.	2458.	94.	2491.	127.	2507.	143.
1987	2405.	2553.	148.	2579.	174.	2593.	188.
1988	2452.	2670.	218.	2719.	267.	2747.	295.
1989	2505.	2766.	261.	2821.	316.	2858.	353.
1990	2554.	2713.	159.	2745.	191.	2769.	215.
1991	2610.	2745.	135.	2772.	162.	2796.	186.
1992	2641.	2752.	111.	2775.	134.	2797.	156.
1993	2669.	2802.	133.	2830.	161.	2855.	186.
1994	2697.	2820.	123.	2848.	151.	2872.	175.
1995	2706.	2818.	112.	2845.	139.	2868.	162.
1996	2729.	2819.	90.	2841.	112.	2858.	129.
1997	2741.	2822.	81.	2840.	99.	2853.	112.
1998	2744.	2833.	89.	2851.	107.	2863.	119.
1999	2753.	2842.	89.	2860.	107.	2872.	119.
2000	2766.	2852.	86.	2870.	104.	2882.	116.
2001	2780.	2865.	85.	2883.	103.	2895.	115.
2002	2794.	2879.	85.	2897.	103.	2909.	115.
2003	2809.	2894.	85.	2912.	103.	2923.	114.
2004	2823.	2908.	85.	2926.	103.	2938.	115.
2005	2839.	2924.	85.	2942.	103.	2954.	115.
2006	2854.	2939.	85.	2957.	103.	2969.	115.
2007	2870.	2954.	84.	2972.	102.	2985.	115.
2008	2880.	2965.	85.	2984.	104.	2996.	116.
2009	2902.	2986.	84.	3005.	103.	3017.	115.
2010	2918.	3003.	85.	3021.	103.	3034.	116.
2011	2930.	3020.	90.	3038.	108.	3051.	121.
2012	2952.	3014.	62.	3029.	77.	3038.	86.
2013	2973.	3007.	34.	3019.	46.	3025.	52.
2014	2993.	3027.	34.	3040.	47.	3047.	54.
2015	3092.	3046.	-46.	3058.	-34.	3066.	-26.
2016	3173.	3062.	-111.	3075.	-98.	3082.	-91.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: PELICAN

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	3387.	3387.	0.	3387.	0.	3387.	0.
1981	3399.	3400.	1.	3400.	1.	3400.	1.
1982	3494.	3495.	1.	3495.	1.	3495.	1.
1983	3587.	3588.	1.	3588.	1.	3588.	1.
1984	3663.	3664.	1.	3664.	1.	3664.	1.
1985	3743.	3734.	-9.	3747.	4.	3742.	-1.
1986	3833.	4008.	175.	4082.	249.	4117.	284.
1987	3929.	4236.	307.	4294.	365.	4325.	396.
1988	4040.	4506.	466.	4623.	583.	4691.	651.
1989	4163.	4736.	573.	4872.	709.	4960.	797.
1990	4279.	4682.	403.	4766.	487.	4831.	552.
1991	4410.	4766.	356.	4841.	431.	4904.	494.
1992	4485.	4792.	307.	4859.	374.	4918.	433.
1993	4554.	4916.	362.	4995.	441.	5063.	509.
1994	4622.	4966.	344.	5045.	423.	5111.	489.
1995	4646.	4967.	321.	5044.	398.	5107.	461.
1996	4711.	4987.	276.	5053.	342.	5103.	392.
1997	4744.	5001.	257.	5058.	314.	5100.	356.
1998	4748.	5033.	285.	5090.	342.	5132.	384.
1999	4772.	5058.	286.	5115.	343.	5156.	384.
2000	4804.	5084.	280.	5142.	338.	5183.	379.
2001	4838.	5120.	282.	5177.	339.	5218.	380.
2002	4872.	5154.	282.	5212.	340.	5253.	381.
2003	4909.	5193.	284.	5251.	342.	5292.	383.
2004	4946.	5232.	286.	5290.	344.	5332.	386.
2005	4987.	5274.	287.	5332.	345.	5375.	388.
2006	5027.	5316.	289.	5374.	347.	5418.	391.
2007	5067.	5357.	290.	5416.	349.	5460.	393.
2008	5093.	5386.	293.	5444.	351.	5489.	396.
2009	5152.	5447.	295.	5506.	354.	5551.	399.
2010	5194.	5492.	298.	5551.	357.	5597.	403.
2011	5223.	5538.	315.	5597.	374.	5643.	420.
2012	5280.	5535.	255.	5587.	307.	5623.	343.
2013	5334.	5524.	190.	5568.	234.	5600.	266.
2014	5385.	5579.	194.	5625.	240.	5657.	272.
2015	5624.	5629.	5.	5675.	51.	5707.	83.
2016	5823.	5673.	-150.	5719.	-104.	5752.	-71.

Source: Research and Planning Consultants, Inc.

TABLE A1
TOTAL POPULATION
JURISDICTION: PINE LAKE

	WITHOUT PROJECT	SCENARIO 1		SCENARIO 2		SCENARIO 3	
YEAR	TOTAL	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE	TOTAL	DIFFERENCE
1980	2656.	2656.	0.	2656.	0.	2656.	0.
1981	2661.	2661.	0.	2661.	0.	2661.	0.
1982	2715.	2715.	0.	2715.	0.	2715.	0.
1983	2767.	2768.	1.	2768.	1.	2768.	1.
1984	2810.	2811.	1.	2811.	1.	2811.	1.
1985	2855.	2860.	5.	2870.	15.	2870.	15.
1986	2903.	3008.	105.	3050.	147.	3071.	168.
1987	2956.	3134.	178.	3167.	211.	3185.	229.
1988	3017.	3276.	259.	3338.	321.	3375.	358.
1989	3084.	3397.	313.	3468.	384.	3515.	431.
1990	3148.	3347.	199.	3387.	239.	3421.	273.
1991	3220.	3388	168.	3423.	203.	3455.	235.
1992	3259.	3398	139.	3428.	169.	3457.	198.
1993	3296.	3462	166.	3498.	202.	3532.	236.
1994	3331.	3486.	155.	3521.	190.	3554.	223.
1995	3344.	3484.	140.	3518.	174.	3549.	205.
1996	3374.	3487.	113.	3515.	141.	3539.	165.
1997	3390.	3491.	101.	3514.	124.	3532.	142.
1998	3393.	3505.	112.	3528.	135.	3546.	153.
1999	3405.	3516.	111.	3540.	135.	3558.	153.
2000	3421.	3530.	109.	3553.	132.	3570.	149.
2001	3439.	3547.	108.	3570.	131.	3588.	149.
2002	3457.	3565.	108.	3588.	131.	3605.	148.
2003	3477.	3584.	107.	3607.	130.	3624.	147.
2004	3496.	3603.	107.	3626.	130.	3644.	148.
2005	3516.	3623.	107.	3646.	130.	3664.	148.
2006	3536.	3643.	107.	3666.	130.	3685.	149.
2007	3556.	3663.	107.	3686.	130.	3705.	149.
2008	3570.	3678.	108.	3701.	131.	3720.	150.
2009	3598.	3705.	107.	3729.	131.	3748.	150.
2010	3619.	3727.	108.	3751.	132.	3770.	151.
2011	3635.	3749.	114.	3773.	138.	3792.	157.
2012	3664.	3742.	78.	3762.	98.	3775.	111.
2013	3691.	3733.	42.	3749.	58.	3760.	69.
2014	3717.	3760.	43.	3776.	59.	3788.	71.
2015	3843.	3784.	-59.	3801.	-42.	3812.	-31.
2016	3949.	3806.	-143.	3822.	-127.	3834.	-115.

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: FOREST COUNTY

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	16.15	16.15	.00	16.15	.00	16.15	.00
1981	16.10	16.12	.02	16.12	.02	16.12	.02
1982	16.03	16.05	.01	16.05	.01	16.05	.01
1983	15.98	15.99	.02	15.99	.02	15.99	.02
1984	15.92	15.95	.02	15.95	.02	15.95	.02
1985	15.88	16.03	.15	16.04	.16	16.09	.21
1986	15.81	16.29	.47	16.29	.47	16.42	.60
1987	15.75	16.03	.28	16.05	.29	16.17	.41
1988	15.68	16.30	.61	16.34	.66	16.56	.87
1989	15.62	16.30	.68	16.35	.73	16.60	.98
1990	15.55	16.00	.46	16.06	.51	16.22	.68
1991	15.47	15.96	.49	16.02	.55	16.18	.71
1992	15.42	15.95	.53	16.01	.59	16.17	.74
1993	15.38	15.92	.54	15.99	.61	16.16	.78
1994	15.34	15.89	.55	15.95	.61	16.12	.79
1995	15.33	15.88	.55	15.95	.61	16.11	.78
1996	15.27	15.84	.58	15.92	.65	16.06	.79
1997	15.24	15,83	.59	15.89	.65	16.02	.78
1998	15.24	15.80	.56	15.87	.63	16.00	.76
1999	15.22	15.78	.56	15.85	.63	15.98	.76
2000	15.20	15.78	.58	15.86	.66	15.98	.78
2001	15.18	15.76	.58	15.83	.66	15.96	.78
2002	15.15	15.74	.58	15.81	.66	15.94	.78
2003	15.13	15.71	.58	15.78	.66	15.91	.78
2004	15.10	15.69	.58	15.76	.65	15.88	.78
2005	15.07	15.65	.58	15.73	.65	15.85	.77
2006	15.05	15.62	.57	15.70	.65	15.82	.77
2007	15.01	15.59	.58	15.67	.65	15.79	.77
2008	15.00	15.58	.58	15.65	.65	15.77	.77
2009	14.95	15.53	.58	15.60	.65	15.72	.77
2010	14.92	15.50	.58	15.57	.65	15.69	.77
2011	14.91	15.47	.56	15.54	.63	15.66	.75
2012	14.87	15.45	.58	15.52	.65	15.63	.76
2013	14.84	15.44	.60	15.52	.68	15.62	.78
2014	14.81	15.42	.61	15.49	.69	15.60	.79
2015	14.68	15.38	.71	15.46	.79	15.56	.89
2016	14.57	15.36	.79	15.44	.86	15.54	.97

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: CITY OF CRANDON

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	3.81	3.81	.00	3.81	.00	3.81	.00
1981	3.81	3.81	.00	3.81	.00	3.81	.00
1982	3.80	3.81	.00	3.81	.00	3.81	.00
1983	3.80	3.80	.00	3.80	.00	3.80	.00
1984	3.80	3.80	.00	3.80	.00	3.80	.00
1985	3.80	3.80	.00	3.80	.00	3.80	.01
1986	3.79	3.82	.03	3.84	.04	3.86	.07
1987	3.79	3.82	.03	3.83	.04	3.85	.07
1988	3.78	3.85	.07	3.88	.10	3.93	.15
1989	3.78	3.87	.09	3.90	.12	3.96	.18
1990	3.78	3.91	.13	3.93	.15	3.97	.19
1991	3.76	3.90	.14	3.93	.16	3.96	.20
1992	3.76	3.90	.15	3.93	.17	3.96	.21
1993	3.75	3.91	.15	3.93	.18	3.97	.22
1994	3.75	3.90	.16	3.93	.18	3.97	.22
1995	3.74	3.90	.16	3.92	.18	3.96	.22
1996	3.74	3.90	.16	3.92	.18	3.96	.22
1997	3.74	3.90	.16	3.92	.18	3.95	.21
1998	3.74	3.90	.16	3.92	.18	3.95	.21
1999	3.74	3.90	.16	3.92	.18	3.95	.21
2000	3.74	3.90	.16	3.92	.19	3.95	.22
2001	3.73	3.90	.16	3.92	.19	3.95	.22
2002	3.73	3.90	.16	3.92	.19	3.95	.22
2003	3.73	3.90	.16	3.92	.19	3.95	.22
2004	3.73	3.89	.16	3.92	.19	3.95	.22
2005	3.73	3.89	.16	3.92	.19	3.94	.21
2006	3.73	3.89	.16	3.92	.19	3.94	.21
2007	3.73	3.89	.16	3.91	.19	3.94	.22
2008	3.72	3.89	.16	3.91	.19	3.94	.22
2009	3.72	3.89	.17	3.91	.19	3.94	.22
2010	3.72	3.89	.17	3.91	.19	3.94	.22
2011	3.72	3.88	.16	3.91	.19	3.93	.21
2012	3.71	3.88	.17	3.90	.19	3.93	.21
2013	3.71	3.88	.17	3.91	.19	3.93	.22
2014	3.71	3.88	.17	3.90	.20	3.93	.22
2015	3.69	3.88	.19	3.90	.21	3.92	.23
2016	3.68	3.87	.20	3.90	.22	3.92	.24

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: LAONA

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	2.85	2.85	.00	2.85	.00	2.85	.00
1981	2.84	2.84	.00	2.84	.00	2.84	.00
1982	2.83	2.83	.00	2.83	.00	2.83	.00
1983	2.82	2.82	.00	2.82	.00	2.82	.00
1984	2.82	2.82	.00	2.82	.00	2.82	.00
1985	2.81	2.81	-.00	2.81	-.00	2.82	.01
1986	2.80	2.78	-.02	2.78	-.02	2.79	-.01
1987	2.79	2.76	-.03	2.76	-.02	2.78	-.01
1988	2.78	2.74	-.04	2.74	-.04	2.76	-.02
1989	2.77	2.72	-.05	2.72	-.05	2.75	-.02
1990	2.76	2.74	-.02	2.74	-.02	2.76	.00
1991	2.75	2.74	-.01	2.73	-.01	2.75	.00
1992	2.74	2.73	-.01	2.73	-.01	2.75	.01
1993	2.74	2.73	-.01	2.73	-.01	2.74	.00
1994	2.73	2.72	-.01	2.72	-.01	2.74	.00
1995	2.73	2.72	-.01	2.72	-.01	2.74	.00
1996	2.72	2.72	-.01	2.71	-.01	2.73	.01
1997	2.72	2.71	-.00	2.71	-.00	2.72	.00
1998	2.72	2.71	-.01	2.71	-.01	2.72	.00
1999	2.71	2.70	-.01	2.70	-.01	2.71	-.00
2000	2.71	2.70	-.01	2.70	-.01	2.71	.00
2001	2.70	2.70	-.01	2.70	-.01	2.71	.00
2002	2.70	2.69	-.01	2.69	-.01	2.70	.00
2003	2.70	2.69	-.01	2.69	-.01	2.70	.00
2004	2.69	2.68	-.01	2.68	-.01	2.69	.00
2005	2.69	2.68	-.01	2.68	-.01	2.69	.00
2006	2.68	2.67	-.01	2.67	-.01	2.68	.00
2007	2.68	2.67	-.01	2.67	-.01	2.68	.00
2008	2.67	2.66	-.01	2.66	-.01	2.67	-.00
2009	2.66	2.66	-.01	2.65	-.01	2.66	-.00
2010	2.66	2.65	-.01	2.65	-.01	2.66	.00
2011	2.66	2.64	-.01	2.64	-.01	2.65	-.00
2012	2.65	2.64	-.01	2.64	-.01	2.65	-.00
2013	2.64	2.64	-.00	2.64	-.00	2.65	.00
2014	2.64	2.64	-.00	2.64	-.00	2.64	.01
2015	2.62	2.63	.01	2.63	.02	2.64	.02
2016	2.60	2.63	.03	2.63	.03	2.63	.04

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: LINCOLN

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	1.12	1.12	.00	1.12	.00	1.12	.00
1981	1.11	1.11	.00	1.11	.00	1.11	.00
1982	1.10	1.11	.00	1.11	.00	1.11	.00
1983	1.10	1.10	.00	1.10	.00	1.10	.00
1984	1.09	1.10	.01	1.10	.01	1.10	.01
1985	1.09	1.15	.06	1.15	.06	1.16	.07
1986	1.08	1.29	.20	1.29	.20	1.31	.23
1987	1.08	1.22	.14	1.22	.14	1.24	.16
1988	1.07	1.35	.28	1.36	.29	1.40	.33
1989	1.06	1.38	.31	1.39	.33	1.44	.37
1990	1.06	1.22	.17	1.24	.19	1.28	.22
1991	1.05	1.22	.17	1.24	.19	1.27	.22
1992	1.05	1.22	.17	1.24	.20	1.28	.23
1993	1.04	1.22	.18	1.25	.21	1.28	.24
1994	1.04	1.22	.18	1.25	.21	1.28	.24
1995	1.04	1.22	.18	1.24	.21	1.28	.24
1996	1.03	1.22	.19	1.24	.21	1.27	.24
1997	1.03	1.21	.19	1.24	.21	1.27	.24
1998	1.03	1.21	.18	1.24	.21	1.27	.24
1999	1.03	1.21	.18	1.23	.21	1.27	.24
2000	1.02	1.21	.19	1.24	.21	1.27	.25
2001	1.02	1.21	.19	1.24	.21	1.27	.25
2002	1.02	1.21	.19	1.23	.21	1.27	.25
2003	1.02	1.21	.19	1.23	.21	1.26	.25
2004	1.01	1.20	.19	1.23	.21	1.26	.24
2005	1.01	1.20	.19	1.22	.21	1.26	.25
2006	1.01	1.20	.19	1.22	.21	1.25	.24
2007	1.00	1.19	.19	1.22	.21	1.25	.24
2008	1.00	1.19	.19	1.21	.21	1.25	.24
2009	1.00	1.19	.19	1.21	.21	1.24	.24
2010	1.00	1.18	.19	1.21	.21	1.24	.24
2011	1.00	1.18	.18	1.20	.21	1.23	.24
2012	.99	1.18	.18	1.20	.21	1.23	.24
2013	.99	1.17	.19	1.20	.21	1.23	.24
2014	.98	1.17	.19	1.20	.21	1.23	.24
2015	.97	1.17	.20	1.19	.22	1.22	.25
2016	.97	1.17	.20	1.19	.22	1.22	.26

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: NASHVILLE

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	1.36	1.36	.00	1.36	.00	1.36	.00
1981	1.36	1.36	.01	1.36	.01	1.36	.01
1982	1.35	1.35	.00	1.35	.00	1.35	.00
1983	1.34	1.35	.01	1.35	.01	1.35	.01
1984	1.34	1.34	.01	1.34	.01	1.34	.01
1985	1.33	1.40	.07	1.40	.07	1.41	.08
1986	1.33	1.57	.24	1.57	.24	1.59	.26
1987	1.32	1.49	.17	1.49	.17	1.51	.19
1988	1.31	1.64	.33	1.65	.34	1.70	.38
1989	1.31	1.68	.37	1.69	.38	1.74	.44
1990	1.30	1.50	.20	1.52	.22	1.56	.26
1991	1.29	1.50	.21	1.52	.23	1.56	.27
1992	1.29	1.50	.21	1.52	.24	1.56	.27
1993	1.28	1.50	.22	1.53	.25	1.57	.29
1994	1.28	1.50	.22	1.53	.25	1.56	.29
1995	1.28	1.50	.22	1.52	.25	1.56	.29
1996	1.27	1.50	.22	1.52	.25	1.56	.29
1997	1.27	1.49	.22	1.52	.25	1.55	.29
1998	1.27	1.49	.22	1.52	.25	1.55	.28
1999	1.27	1.49	.22	1.52	.25	1.55	.28
2000	1.26	1.49	.23	1.52	.26	1.56	.29
2001	1.26	1.49	.23	1.52	.26	1.55	.29
2002	1.26	1.49	.23	1.52	.26	1.55	.29
2003	1.26	1.49	.23	1.51	.26	1.55	.29
2004	1.25	1.48	.23	1.51	.26	1.55	.29
2005	1.25	1.48	.23	1.51	.26	1.54	.29
2006	1.25	1.48	.23	1.50	.26	1.54	.29
2007	1.25	1.47	.23	1.50	.25	1.53	.29
2008	1.25	1.47	.23	1.50	.25	1.53	.29
2009	1.24	1.47	.23	1.50	.25	1.53	.29
2010	1.24	1.46	.23	1.49	.25	1.52	.29
2011	1.24	1.46	.22	1.49	.25	1.52	.28
2012	1.23	1.46	.23	1.49	.25	1.52	.28
2013	1.23	1.46	.23	1.49	.26	1.52	.29
2014	1.23	1.46	.23	1.48	.26	1.51	.29
2015	1.22	1.45	.24	1.48	.26	1.51	.30
2016	1.20	1.45	.24	1.48	.27	1.51	.30

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: WABENO

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	2.36	2.36	.00	2.36	.00	2.36	.00
1981	2.36	2.36	.00	2.36	.00	2.36	.00
1982	2.34	2.35	.00	2.35	.00	2.35	.00
1983	2.34	2.34	.00	2.34	.00	2.34	.00
1984	2.32	2.33	.00	2.33	.00	2.33	.00
1985	2.32	2.32	.01	2.32	.01	2.33	.02
1986	2.30	2.31	.01	2.31	.00	2.32	.02
1987	2.29	2.29	-.01	2.29	-.01	2.30	.01
1988	2.28	2.28	-.00	2.28	-.00	2.30	.02
1989	2.27	2.26	-.01	2.26	-.01	2.29	.02
1990	2.25	2.27	.01	2.26	.01	2.28	.02
1991	2.24	2.26	.01	2.26	.01	2.27	.03
1992	2.23	2.25	.02	2.25	.02	2.27	.03
1993	2.23	2.24	.02	2.24	.02	2.26	.03
1994	2.22	2.24	.02	2.24	.02	2.25	.03
1995	2.22	2.24	.02	2.24	.02	2.25	.03
1996	2.21	2.23	.02	2.23	.02	2.25	.04
1997	2.20	2.23	.02	2.23	.02	2.24	.04
1998	2.20	2.23	.02	2.22	.02	2.24	.03
1999	2.20	2.22	.02	2.22	.02	2.23	.03
2000	2.20	2.22	.02	2.22	.02	2.23	.03
2001	2.20	2.22	.02	2.22	.02	2.23	.03
2002	2.19	2.21	.02	2.22	.02	2.23	.03
2003	2.19	2.21	.02	2.21	.02	2.22	.03
2004	2.18	2.21	.02	2.21	.02	2.22	.03
2005	2.18	2.20	.02	2.20	.02	2.21	.03
2006	2.18	2.20	.02	2.20	.02	2.21	.03
2007	2.17	2.19	.02	2.19	.02	2.21	.03
2008	2.17	2.19	.02	2.19	.02	2.20	.03
2009	2.16	2.19	.02	2.19	.02	2.19	.03
2010	2.16	2.18	.02	2.18	.02	2.19	.03
2011	2.16	2.18	.02	2.18	.02	2.19	.03
2012	2.15	2.17	.02	2.17	.03	2.18	.03
2013	2.14	2.17	.03	2.17	.03	2.18	.04
2014	2.14	2.17	.03	2.17	.03	2.18	.04
2015	2.12	2.16	.04	2.16	.05	2.17	.05
2016	2.10	2.16	.06	2.16	.06	2.17	.07

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: LANGLADE COUNTY

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	37.76	37.76	.00	37.76	.00	37.76	.00
1981	37.76	37.75	-.01	37.75	-.01	37.75	-.01
1982	37.62	37.61	-.01	37.61	-.01	37.61	-.01
1983	37.53	37.52	-.01	37.52	-.01	37.52	-.01
1984	37.45	37.44	-.01	37.44	-.01	37.44	-.01
1985	37.37	37.37	-.00	37.37	-.00	37.45	.08
1986	37.27	37.02	-.26	36.99	-.29	37.17	-.10
1987	37.15	36.85	-.29	36.84	-.30	37.03	-.11
1988	37.01	36.54	-.48	36.49	-.53	36.77	-.24
1989	36.87	36.34	-.53	36.29	-.58	36.61	-.26
1990	36.74	36.51	-.23	36.46	-.28	36.66	-.08
1991	36.57	36.39	-.18	36.34	-.23	36.54	-.03
1992	36.47	36.34	-.14	36.30	-.17	36.50	.02
1993	36.38	36.24	-.14	36.19	-.19	36.40	.03
1994	36.29	36.17	-.12	36.13	-.16	36.33	.05
1995	36.25	36.16	-.10	36.11	-.14	36.31	.05
1996	36.23	36.14	-.09	36.10	-.13	36.24	.01
1997	36.21	36.14	-.07	36.09	-.12	36.20	-.01
1998	36.21	36.13	-.08	36.09	-.12	36.19	-.02
1999	36.20	36.12	-.09	36.08	-.12	36.17	-.03
2000	36.19	36.10	-.09	36.06	-.13	36.16	-.03
2001	36.18	36.09	-.09	36.05	-.13	36.15	-.03
2002	36.17	36.09	-.08	36.05	-.12	36.14	-.03
2003	36.15	36.08	-.08	36.04	-.12	36.13	-.03
2004	36.14	36.07	-.07	36.03	-.11	36.12	-.02
2005	36.12	36.06	-.06	36.02	-.10	36.11	-.01
2006	36.11	36.05	-.06	36.01	-.09	36.10	-.01
2007	36.09	36.04	-.05	36.00	-.09	36.09	-.00
2008	36.09	36.04	-.05	36.00	-.09	36.09	.00
2009	36.06	36.02	-.04	35.98	-.08	36.07	.01
2010	36.04	36.01	-.04	35.97	-.07	36.07	.03
2011	36.03	36.00	-.03	35.96	-.07	36.06	.03
2012	35.96	35.96	.00	35.93	-.03	36.00	.04
2013	35.89	35.96	.06	35.93	.04	35.99	.10
2014	35.82	35.87	.05	35.85	.03	35.91	.08
2015	35.59	35.82	.23	35.79	.20	35.84	.26
2016	35.39	35.77	.38	35.74	.35	35.79	.40

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: CITY OF ANTIGO

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	16.74	16.74	.00	16.74	.00	16.74	.00
1981	16.83	16.82	-.01	16.82	-.01	16.82	-.01
1982	16.80	16.79	-.01	16.79	-.01	16.79	-.01
1983	16.82	16.81	-.01	16.81	-.01	16.81	-.01
1984	16.83	16.82	-.01	16.82	-.01	16.82	-.01
1985	16.85	16.79	-.06	16.79	-.06	16.81	-.04
1986	16.86	16.77	-.09	16.80	-.07	16.89	.02
1987	16.85	16.83	-.02	16.85	.00	16.94	.09
1988	16.84	16.80	-.04	16.83	-.01	16.98	.14
1989	16.83	16.83	-.00	16.87	.04	17.05	.23
1990	16.82	16.96	.14	17.00	.17	17.12	.30
1991	16.79	16.93	.15	16.97	.18	17.09	.31
1992	16.76	16.92	.16	16.96	.20	17.08	.32
1993	16.74	16.93	.19	16.97	.23	17.12	.37
1994	16.73	16.93	.20	16.97	.25	17.11	.38
1995	16.72	16.93	.21	16.97	.25	17.10	.38
1996	16.79	16.97	.19	17.01	.22	17.11	.32
1997	16.82	17.00	.18	17.04	.21	17.11	.29
1998	16.82	17.04	.22	17.07	.25	17.15	.33
1999	16.85	17.07	.22	17.10	.26	17.17	.33
2000	16.87	17.08	.21	17.11	.24	17.18	.31
2001	16.89	17.11	.21	17.14	.25	17.21	.32
2002	16.92	17.14	.22	17.17	.25	17.24	.32
2003	16.95	17.17	.22	17.20	.25	17.28	.32
2004	16.98	17.21	.22	17.24	.26	17.31	.33
2005	17.02	17.25	.23	17.28	.27	17.36	.34
2006	17.05	17.29	.24	17.32	.27	17.40	.35
2007	17.09	17.33	.24	17.36	.28	17.44	.35
2008	17.11	17.35	.25	17.39	.28	17.46	.36
2009	17.16	17.42	.25	17.45	.29	17.53	.37
2010	17.20	17.46	.26	17.49	.30	17.57	.37
2011	17.22	17.50	.28	17.54	.32	17.62	.40
2012	17.20	17.49	.29	17.53	.33	17.59	.39
2013	17.19	17.49	.30	17.53	.34	17.59	.40
2014	17.18	17.47	.29	17.50	.33	17.56	.38
2015	17.14	17.45	.31	17.49	.35	17.54	.40
2016	17.11	17.44	.33	17.48	.37	17.53	.42

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: AINSWORTH

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	.86	.86	.00	.86	.00	.86	.00
1981	.86	.86	.00	.86	.00	.86	.00
1982	.86	.86	.00	.86	.00	.86	.00
1983	.85	.85	.00	.85	.00	.85	.00
1984	.85	.85	.00	.85	.00	.85	.00
1985	.84	.85	.01	.85	.01	.85	.01
1986	.84	.85	.01	.85	.01	.86	.02
1987	.84	.84	.00	.84	.00	.84	.01
1988	.83	.84	.01	.84	.01	.85	.02
1989	.82	.84	.01	.83	.01	.84	.01
1990	.82	.82	.00	.82	-.00	.82	.00
1991	.81	.82	.00	.82	.00	.82	.00
1992	.81	.82	.00	.81	.00	.82	.01
1993	.81	.81	.00	.81	.00	.81	.00
1994	.80	.81	.00	.81	.00	.81	.01
1995	.80	.81	.00	.81	.00	.81	.01
1996	.80	.81	.01	.81	.01	.81	.01
1997	.80	.80	.01	.80	.01	.81	.01
1998	.80	.80	.00	.80	.00	.80	.00
1999	.80	.80	.00	.80	.00	.80	.00
2000	.79	.80	.01	.80	.01	.80	.01
2001	.79	.80	.01	.80	.01	.80	.01
2002	.79	.80	.01	.80	.01	.80	.01
2003	.79	.79	.01	.79	.01	.79	.01
2004	.79	.79	.01	.79	.01	.79	.01
2005	.78	.79	.00	.79	.01	.79	.01
2006	.78	.79	.00	.79	.00	.79	.00
2007	.78	.79	.01	.78	.00	.78	.00
2008	.78	.78	.01	.78	.00	.78	.01
2009	.78	.78	.00	.78	.00	.78	.00
2010	.77	.78	.00	.78	.00	.78	.00
2011	.77	.78	.00	.77	.00	.78	.00
2012	.77	.77	.01	.77	.00	.78	.01
2013	.77	.77	.01	.77	.01	.77	.01
2014	.76	.77	.01	.77	.01	.77	.01
2015	.76	.77	.01	.77	.01	.77	.01
2016	.75	.77	.02	.77	.02	.77	.02

Source: Research and Planning Consultants, Inc.

TABLE A2
POPL .. TION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: ELCHO

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	2.09	2.09	.00	2.09	.00	2.09	.00
1981	2.08	2.08	.00	2.08	.00	2.08	.00
1982	2.07	2.07	.00	2.07	.00	2.07	.00
1983	2.06	2.06	.00	2.06	.00	2.06	.00
1984	2.05	2.05	.00	2.05	.00	2.05	.00
1985	2.05	2.06	.02	2.06	.02	2.07	.03
1986	2.04	2.07	.04	2.07	.03	2.09	.05
1987	2.03	2.04	.01	2.04	.01	2.06	.03
1988	2.02	2.06	.04	2.05	.04	2.08	.06
1989	2.01	2.04	.04	2.04	.04	2.07	.06
1990	2.00	2.01	.02	2.01	.02	2.03	.04
1991	1.98	2.01	.02	2.01	.02	2.03	.04
1992	1.98	2.00	.03	2.01	.03	2.02	.04
1993	1.97	2.00	.03	2.00	.03	2.02	.04
1994	1.97	1.99	.03	1.99	.03	2.01	.05
1995	1.96	1.99	.03	1.99	.03	2.01	.05
1996	1.96	1.99	.03	1.99	.03	2.00	.05
1997	1.95	1.98	.03	1.99	.03	2.00	.05
1998	1.95	1.98	.03	1.98	.03	1.99	.04
1999	1.95	1.98	.03	1.98	.03	1.99	.04
2000	1.95	1.98	.03	1.98	.03	1.99	.05
2001	1.94	1.97	.03	1.98	.03	1.99	.04
2002	1.94	1.97	.03	1.97	.03	1.99	.04
2003	1.94	1.97	.03	1.97	.03	1.98	.04
2004	1.93	1.96	.03	1.97	.03	1.98	.04
2005	1.93	1.96	.03	1.96	.03	1.97	.04
2006	1.93	1.96	.03	1.96	.03	1.97	.04
2007	1.92	1.95	.03	1.95	.03	1.97	.04
2008	1.92	1.95	.03	1.95	.03	1.96	.05
2009	1.91	1.94	.03	1.94	.03	1.96	.04
2010	1.91	1.94	.03	1.94	.03	1.95	.04
2011	1.91	1.93	.03	1.94	.03	1.95	.04
2012	1.90	1.93	.03	1.93	.03	1.94	.04
2013	1.90	1.93	.04	1.93	.04	1.94	.05
2014	1.89	1.93	.04	1.93	.04	1.94	.05
2015	1.87	1.92	.05	1.93	.05	1.94	.06
2016	1.86	1.92	.06	1.92	.06	1.93	.07

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: ONEIDA COUNTY

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	46.09	46.09	.00	46.09	.00	46.09	.00
1981	46.14	46.13	-.01	46.14	-.01	46.14	-.01
1982	46.35	46.34	-.01	46.34	-.01	46.34	-.01
1983	46.50	46.49	-.01	46.49	-.01	46.49	-.01
1984	46.62	46.61	-.01	46.61	-.01	46.61	-.01
1985	46.75	46.60	-.15	46.59	-.15	46.46	-.29
1986	46.91	46.70	-.22	46.73	-.19	46.41	-.50
1987	47.10	47.11	.01	47.11	.01	46.80	-.30
1988	47.30	47.17	-.14	47.17	-.13	46.67	-.63
1989	47.52	47.36	-.15	47.37	-.15	46.79	-.72
1990	47.71	47.48	-.23	47.48	-.23	47.12	-.59
1991	47.96	47.64	-.31	47.63	-.32	47.28	-.68
1992	48.10	47.72	-.39	47.69	-.42	47.34	-.77
1993	48.25	47.84	-.41	47.83	-.42	47.44	-.81
1994	48.37	47.94	-.44	47.92	-.46	47.54	-.83
1995	48.42	47.96	-.45	47.94	-.48	47.58	-.83
1996	48.51	48.02	-.49	47.98	-.52	47.70	-.80
1997	48.55	48.03	-.51	48.01	-.54	47.77	-.78
1998	48.55	48.07	-.48	48.05	-.51	47.81	-.74
1999	48.58	48.11	-.47	48.07	-.50	47.85	-.73
2000	48.61	48.12	-.49	48.08	-.53	47.86	-.75
2001	48.65	48.15	-.49	48.11	-.53	47.90	-.75
2002	48.68	48.17	-.50	48.14	-.54	47.93	-.75
2003	48.72	48.21	-.51	48.18	-.54	47.97	-.75
2004	48.76	48.25	-.51	48.21	-.54	48.00	-.76
2005	48.80	48.29	-.51	48.25	-.55	48.04	-.76
2006	48.85	48.33	-.52	48.29	-.55	48.08	-.76
2007	48.89	48.37	-.53	48.33	-.57	48.12	-.77
2008	48.91	48.39	-.52	48.35	-.56	48.14	-.77
2009	48.99	48.45	-.53	48.42	-.57	48.21	-.78
2010	49.04	48.50	-.54	48.46	-.58	48.24	-.80
2011	49.06	48.53	-.52	48.50	-.56	48.28	-.77
2012	49.17	48.59	-.58	48.55	-.63	48.37	-.80
2013	49.27	48.60	-.67	48.55	-.72	48.38	-.89
2014	49.37	48.70	-.66	48.65	-.72	48.49	-.87
2015	49.74	48.80	-.94	48.75	-.99	48.59	-1.15
2016	50.04	48.87	-1.17	48.83	-1.21	48.67	-1.37

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: RHINELANDER

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	15.23	15.23	.00	15.23	.00	15.23	.00
1981	15.41	15.39	-.02	15.39	-.02	15.39	-.02
1982	15.32	15.30	-.02	15.30	-.02	15.30	-.02
1983	15.22	15.21	-.01	15.21	-.01	15.21	-.01
1984	15.14	15.12	-.02	15.12	-.02	15.12	-.02
1985	15.05	15.09	.04	15.09	.04	14.93	-.12
1986	14.95	14.68	-.27	14.61	-.34	14.08	-.87
1987	14.86	14.50	-.36	14.44	-.42	13.94	-.91
1988	14.76	14.13	-.63	14.00	-.76	13.15	-1.61
1989	14.63	13.89	-.74	13.75	-.88	12.74	-1.89
1990	14.53	13.89	-.63	13.77	-.76	13.11	-1.42
1991	14.42	13.82	-.60	13.69	-.72	13.06	-1.36
1992	14.35	13.78	-.57	13.65	-.70	13.04	-1.31
1993	14.29	13.65	-.64	13.53	-.76	12.84	-1.45
1994	14.23	13.61	-.62	13.48	-.75	12.82	-1.41
1995	14.21	[illegible]	-.61	13.46	-.74	12.84	-1.37
1996	14.11	13.54	-.57	13.41	-.70	12.93	-1.18
1997	14.06	13.50	-.56	13.39	-.67	12.99	-1.07
1998	14.07	13.46	-.61	13.35	-.72	12.96	-1.11
1999	14.03	13.43	-.60	13.31	-.72	12.94	-1.10
2000	14.00	13.41	-.60	13.28	-.72	12.92	-1.09
2001	13.96	13.37	-.59	13.25	-.71	12.89	-1.08
2002	13.92	13.33	-.60	13.21	-.72	12.85	-1.08
2003	13.88	13.28	-.60	13.17	-.72	12.82	-1.07
2004	13.85	13.25	-.60	13.13	-.72	12.77	-1.08
2005	13.80	13.20	-.60	13.08	-.72	12.72	-1.08
2006	13.75	13.16	-.60	13.03	-.72	12.67	-1.08
2007	13.70	13.10	-.60	12.98	-.72	12.62	-1.08
2008	13.67	13.08	-.60	12.96	-.71	12.59	-1.09
2009	13.60	13.00	-.60	12.89	-.71	12.51	-1.09
2010	13.56	12.96	-.60	12.84	-.72	12.46	-1.10
2011	13.52	12.90	-.62	12.79	-.74	12.41	-1.11
2012	13.49	12.89	-.60	12.78	-.71	12.49	-.99
2013	13.43	12.88	-.56	12.77	-.66	12.51	-.92
2014	13.39	12.84	-.56	12.72	-.67	12.47	-.92
2015	13.22	12.80	-.42	12.69	-.52	12.44	-.78
2016	13.08	12.77	-.31	12.65	-.42	12.40	-.67

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: CRESCENT

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	3.29	3.29	.00	3.29	.00	3.29	.00
1981	3.28	3.28	.00	3.28	.00	3.28	.00
1982	3.34	3.34	.00	3.34	.00	3.34	.00
1983	3.40	3.40	.00	3.40	.00	3.40	.00
1984	3.45	3.45	.00	3.45	.00	3.45	.00
1985	3.50	3.45	-.05	3.45	-.05	3.45	-.05
1986	3.56	3.56	.00	3.59	.03	3.61	.05
1987	3.62	3.71	.08	3.72	.09	3.74	.12
1988	3.69	3.80	.10	3.83	.13	3.87	.18
1989	3.77	3.90	.13	3.93	.16	3.99	.22
1990	3.84	3.93	.09	3.96	.12	4.00	.16
1991	3.92	3.99	.07	4.01	.09	4.05	.13
1992	3.97	4.01	.04	4.03	.07	4.07	.10
1993	4.01	4.07	.05	4.09	.08	4.14	.12
1994	4.06	4.10	.04	4.13	.07	4.17	.11
1995	4.07	4.11	.04	4.13	.06	4.17	.10
1996	4.12	4.13	.02	4.16	.04	4.19	.07
1997	4.14	4.15	.01	4.17	.03	4.19	.05
1998	4.14	4.17	.03	4.19	.05	4.21	.07
1999	4.16	4.18	.03	4.20	.05	4.23	.07
2000	4.17	4.19	.02	4.21	.04	4.23	.06
2001	4.19	4.21	.02	4.23	.04	4.25	.06
2002	4.21	4.22	.02	4.25	.04	4.27	.06
2003	4.22	4.24	.02	4.26	.04	4.29	.06
2004	4.24	4.26	.02	4.28	.04	4.30	.06
2005	4.27	4.28	.02	4.30	.04	4.33	.06
2006	4.29	4.30	.02	4.32	.04	4.35	.06
2007	4.31	4.33	.02	4.34	.03	4.37	.06
2008	4.32	4.34	.02	4.36	.04	4.38	.06
2009	4.36	[illegible]	.01	4.39	.03	4.42	.06
2010	4.38	[illegible]	.01	4.41	.03	4.44	.06
2011	4.39	[illegible]	.02	4.43	.04	4.46	.06
2012	4.43	4.43	.00	4.45	.02	4.46	.03
2013	4.46	4.44	-.03	4.45	-.01	4.46	.00
2014	4.50	4.47	-.03	4.48	-.01	4.50	.00
2015	4.62	4.50	-.12	4.51	-.11	4.53	-.09
2016	4.72	4.52	-.20	4.54	-.19	4.55	-.17

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: NEWBOLD

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	4.20	4.20	.00	4.20	.00	4.20	.00
1981	4.18	4.18	.00	4.18	.00	4.18	.00
1982	4.23	4.24	.00	4.24	.00	4.24	.00
1983	4.29	4.29	.00	4.29	.00	4.29	.00
1984	4.33	4.33	.00	4.33	.00	4.33	.00
1985	4.37	4.33	-.04	4.33	-.04	4.33	-.04
1986	4.42	4.43	.01	4.45	.03	4.48	.06
1987	4.48	4.55	.07	4.56	.08	4.58	.11
1988	4.53	4.62	.09	4.65	.11	4.70	.16
1989	4.60	4.71	.10	4.73	.13	4.79	.19
1990	4.66	4.73	.07	4.75	.09	4.79	.13
1991	4.73	4.77	.05	4.79	.06	4.83	.11
1992	4.77	4.79	.02	4.81	.04	4.85	.08
1993	4.81	4.84	.03	4.86	.05	4.90	.09
1994	4.85	4.87	.02	4.88	.04	4.93	.08
1995	4.86	4.87	.02	4.89	.04	4.93	.08
1996	4.89	4.89	-.00	4.91	.02	4.94	.05
1997	4.91	4.90	-.00	4.92	.01	4.94	.03
1998	4.91	4.92	.01	4.93	.02	4.95	.04
1999	4.92	4.93	.01	4.94	.02	4.96	.04
2000	4.93	4.94	.00	4.95	.02	4.97	.04
2001	4.95	4.95	.00	4.96	.02	4.98	.04
2002	4.96	4.96	.00	4.97	.02	5.00	.04
2003	4.97	4.97	-.00	4.99	.01	5.01	.03
2004	4.99	4.99	-.00	5.00	.01	5.02	.03
2005	5.01	5.00	-.00	5.02	.01	5.04	.03
2006	5.02	5.02	-.00	5.03	.01	5.05	.03
2007	5.04	5.04	-.01	5.05	.01	5.07	.03
2008	5.05	5.04	-.01	5.06	.01	5.08	.03
2009	5.08	5.07	-.01	5.08	.01	5.11	.03
2010	5.10	5.09	-.01	5.10	.00	5.12	.03
2011	5.11	5.10	-.00	5.12	.01	5.14	.03
2012	5.13	5.12	-.02	5.13	-.01	5.14	.01
2013	5.16	5.12	-.04	5.13	-.03	5.14	-.02
2014	5.19	5.14	-.04	5.16	-.03	5.17	-.02
2015	5.29	5.17	-.12	5.18	-.11	5.19	-.10
2016	5.37	5.19	-.19	5.20	-.17	5.21	-.16

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: PELICAN

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	6.55	6.55	.00	6.55	.00	6.55	.00
1981	6.53	6.53	.00	6.53	.00	6.53	.00
1982	6.68	6.68	.00	6.68	.00	6.68	.00
1983	6.81	6.81	.00	6.81	.00	6.81	.00
1984	6.92	6.92	.00	6.92	.00	6.92	.00
1985	7.03	6.93	-.10	6.93	-.10	6.92	-.11
1986	7.17	7.22	.05	7.29	.12	7.35	.18
1987	7.31	7.54	.23	7.59	.27	7.64	.33
1988	7.47	7.80	.33	7.90	.43	8.02	.55
1989	7.65	8.06	.41	8.17	.53	8.32	.67
1990	7.81	8.16	.35	8.25	.44	8.36	.55
1991	7.99	8.28	.30	8.37	.38	8.48	.49
1992	8.10	8.35	.25	8.42	.32	8.52	.42
1993	8.20	8.49	.29	8.57	.37	8.69	.49
1994	8.30	8.57	.26	8.65	.35	8.77	.46
1995	8.34	8.59	.25	8.67	.34	8.78	.44
1996	8.44	8.65	.21	8.73	.29	8.82	.37
1997	8.49	8.69	.19	8.76	.26	8.83	.34
1998	8.49	8.74	.24	8.81	.31	8.88	.38
1999	8.53	8.77	.24	8.84	.31	8.91	.38
2000	8.57	8.80	.23	8.87	.30	8.94	.37
2001	8.61	8.84	.23	8.91	.30	8.98	.37
2002	8.65	8.88	.23	8.95	.30	9.02	.37
2003	8.69	8.93	.23	9.00	.30	9.07	.37
2004	8.74	8.97	.23	9.04	.30	9.11	.37
2005	8.79	9.03	.23	9.10	.30	9.17	.37
2006	8.85	9.08	.23	9.15	.30	9.22	.38
2007	8.90	9.13	.23	9.20	.30	9.28	.37
2008	8.93	9.16	.23	9.23	.30	9.31	.38
2009	9.02	9.25	.23	9.32	.30	9.39	.38
2010	9.07	9.30	.23	9.37	.30	9.45	.38
2011	9.10	9.36	.26	9.42	.32	9.50	.40
2012	9.18	9.39	.21	9.46	.27	9.52	.33
2013	9.26	9.40	.14	9.46	.20	9.51	.25
2014	9.34	9.48	.15	9.54	.20	9.59	.26
2015	9.63	9.55	-.07	9.61	-.02	9.66	.04
2016	9.86	9.61	-.25	9.67	-.19	9.73	-.14

Source: Research and Planning Consultants, Inc.

TABLE A2
POPULATION AS A PERCENTAGE OF TOTAL LSA POPULATION
JURISDICTION: PINE LAKE

YEAR	WITHOUT PROJECT TOTAL	SCENARIO 1 TOTAL	SCENARIO 1 DIFFERENCE	SCENARIO 2 TOTAL	SCENARIO 2 DIFFERENCE	SCENARIO 3 TOTAL	SCENARIO 3 DIFFERENCE
1980	5.14	5.14	.00	5.14	.00	5.14	.00
1981	5.11	5.11	.00	5.11	.00	5.11	.00
1982	5.19	5.19	.00	5.19	.00	5.19	.00
1983	5.25	5.26	.00	5.26	.00	5.26	.00
1984	5.31	5.31	.00	5.31	.00	5.31	.00
1985	5.36	5.31	-.06	5.31	-.06	5.31	-.06
1986	5.43	5.42	-.01	5.45	.02	5.48	.05
1987	5.50	5.58	.08	5.60	.09	5.63	.13
1988	5.58	5.67	.09	5.71	.13	5.77	.19
1989	5.66	5.78	.11	5.82	.15	5.90	.23
1990	5.74	5.83	.09	5.86	.12	5.92	.18
1991	5.83	5.89	.06	5.92	.09	5.97	.14
1992	5.88	5.92	.03	5.94	.06	5.99	.11
1993	5.94	5.98	.04	6.00	.07	6.06	.13
1994	5.98	6.01	.03	6.04	.05	6.10	.11
1995	6.00	6.02	.02	6.05	.05	6.10	.10
1996	6.05	6.05	.00	6.07	.02	6.11	.07
1997	6.07	6.07	-.00	6.08	.01	6.12	.05
1998	6.07	6.08	.01	6.10	.03	6.13	.06
1999	6.09	6.10	.01	6.12	.03	6.15	.06
2000	6.10	6.11	.01	6.13	.03	6.16	.06
2001	6.12	6.12	.01	6.14	.03	6.17	.06
2002	6.14	6.14	.01	6.16	.02	6.19	.05
2003	6.16	6.16	.00	6.18	.02	6.21	.05
2004	6.18	6.18	.00	6.20	.02	6.23	.05
2005	6.20	6.20	.00	6.22	.02	6.25	.05
2006	6.22	6.22	-.00	6.24	.02	6.27	.05
2007	6.25	6.24	-.00	6.26	.02	6.29	.05
2008	6.26	6.26	-.00	6.27	.02	6.31	.05
2009	6.30	6.29	-.01	6.31	.01	6.34	.04
2010	6.32	6.31	-.01	6.33	.01	6.36	.04
2011	6.33	6.33	.00	6.35	.02	6.39	.05
2012	6.37	6.35	-.02	6.37	-.01	6.39	.02
2013	6.41	6.36	-.05	6.37	-.04	6.39	-.02
2014	6.44	6.39	-.05	6.40	-.04	6.42	-.02
2015	6.58	6.42	-.16	6.44	-.14	6.45	-.12
2016	6.69	6.45	-.24	6.46	-.23	6.48	-.21

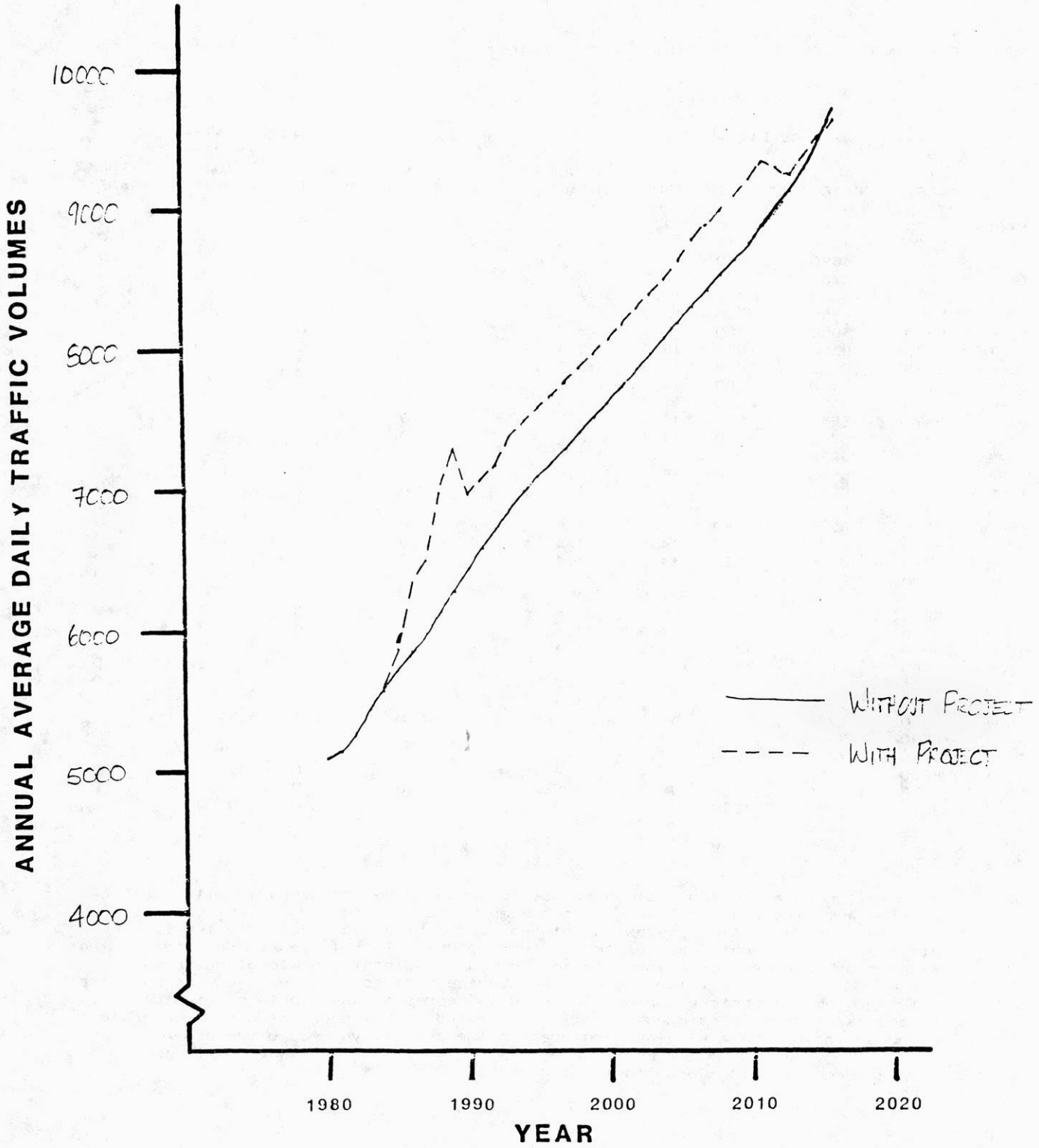
Source: Research and Planning Consultants, Inc.

APPENDIX B

DETAILED TRANSPORTATION PROJECTIONS

FIGURE B-1

TRAFFIC FORECAST FOR US 8
BETWEEN RHINELANDER AND MONICO



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-1

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR US 8
RHINELANDER - MONICO

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	5070	4460	610	12.1	.0	0	0	1.0	0
1981	5120	4510	610	12.0	1.0	0	0	1.0	0
1982	5260	4620	640	12.2	2.7	0	0	1.0	0
1983	5410	4730	680	12.6	2.9	0	0	1.0	0
1984	5550	4830	720	13.0	2.6	0	0	1.0	0
1985	5700	4950	750	13.2	2.7	0	0	1.0	0
1986	5830	5050	780	13.4	2.3	0	0	1.0	0
1987	5970	5160	810	13.6	2.4	0	0	1.0	0
1988	6110	5270	840	13.8	2.3	0	0	1.0	0
1989	6260	5400	860	13.8	2.5	0	0	1.0	0
1990	6410	5520	890	13.9	2.4	0	0	1.0	0
1991	6570	5650	920	14.1	2.5	0	0	1.0	0
1992	6700	5760	940	14.1	2.0	0	0	1.0	0
1993	6820	5850	970	14.3	1.8	0	0	1.0	0
1994	6950	5950	1000	14.4	1.9	0	0	1.0	0
1995	7070	6050	1020	14.5	1.7	0	0	1.0	0
1996	7170	6130	1040	14.6	1.4	0	0	1.0	0
1997	7270	6210	1060	14.6	1.4	0	0	1.0	0
1998	7380	6310	1070	14.5	1.5	0	0	1.0	0
1999	7480	6390	1090	14.6	1.4	0	0	1.0	0
2000	7590	6490	1100	14.5	1.5	0	0	1.0	0
2001	7700	6580	1120	14.6	1.4	0	0	1.0	0
2002	7810	6680	1130	14.5	1.4	0	0	1.0	0
2003	7920	6770	1150	14.6	1.4	0	0	1.0	0
2004	8030	6870	1160	14.5	1.4	0	0	1.0	0
2005	8150	6970	1180	14.5	1.5	0	0	1.0	0
2006	8260	7060	1200	14.6	1.3	0	0	1.0	0
2007	8370	7160	1210	14.5	1.3	0	0	1.0	0
2008	8480	7250	1230	14.6	1.3	0	0	1.0	0
2009	8590	7350	1240	14.5	1.3	0	0	1.0	0
2010	8700	7440	1260	14.5	1.3	0	0	1.0	0
2011	8820	7550	1270	14.4	1.4	0	0	1.0	0
2012	8950	7660	1290	14.5	1.5	0	0	1.0	0
2013	9070	7750	1320	14.6	1.3	0	0	1.0	0
2014	9210	7860	1350	14.7	1.5	0	0	1.0	0
2015	9440	8060	1380	14.7	2.5	0	0	1.0	0
2016	9650	8240	1410	14.7	2.2	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-1

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR US 8
RHINELANDER - MONICO

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	5070	4460	610	12.1	.0	0	0	1.0	0
1981	5110	4500	610	12.0	.8	0	0	1.0	0
1982	5260	4620	640	12.2	2.9	0	0	1.0	0
1983	5410	4730	680	12.6	2.9	0	0	1.0	0
1984	5550	4830	720	13.0	2.6	0	0	1.0	0
1985	5840	5080	760	13.1	5.2	63	55	1.6	8
1986	6310	5500	810	12.9	8.0	236	212	1.6	24
1987	6470	5620	850	13.2	2.5	222	198	1.6	24
1988	6970	6090	880	12.7	7.7	407	383	1.6	24
1989	7270	6350	920	12.7	4.3	474	450	1.6	24
1990	6920	5980	940	13.6	-4.8	225	207	1.6	18
1991	7040	6090	950	13.5	1.7	230	218	1.6	12
1992	7140	6170	970	13.6	1.4	239	227	1.6	12
1993	7340	6340	1000	13.7	2.8	267	255	1.6	12
1994	7460	6430	1030	13.9	1.6	267	255	1.6	12
1995	7560	6500	1060	14.1	1.3	267	255	1.6	12
1996	7630	6560	1070	14.1	.9	267	255	1.6	12
1997	7710	6620	1090	14.2	1.0	267	255	1.6	12
1998	7820	6720	1100	14.1	1.4	267	255	1.6	12
1999	7920	6800	1120	14.2	1.3	267	255	1.6	12
2000	8030	6900	1130	14.1	1.4	267	255	1.6	12
2001	8130	6980	1150	14.2	1.2	259	247	1.6	12
2002	8250	7090	1160	14.1	1.5	259	247	1.6	12
2003	8360	7180	1180	14.2	1.3	259	247	1.6	12
2004	8470	7280	1190	14.1	1.3	259	247	1.6	12
2005	8590	7380	1210	14.1	1.4	259	247	1.6	12
2006	8710	7480	1230	14.2	1.4	259	247	1.6	12
2007	8820	7580	1240	14.1	1.3	259	247	1.6	12
2008	8930	7670	1260	14.2	1.2	259	247	1.6	12
2009	9040	7770	1270	14.1	1.2	259	247	1.6	12
2010	9160	7870	1290	14.1	1.3	259	247	1.6	12
2011	9280	7980	1300	14.1	1.3	259	247	1.6	6
2012	9220	7900	1320	14.4	-.6	124	123	1.6	1
2013	9180	7830	1350	14.8	-.4	0	0	1.0	0
2014	9310	7940	1370	14.8	1.4	0	0	1.0	0
2015	9450	8040	1410	15.0	1.5	0	0	1.0	0
2016	9580	8150	1430	15.0	1.4	0	0	1.0	0

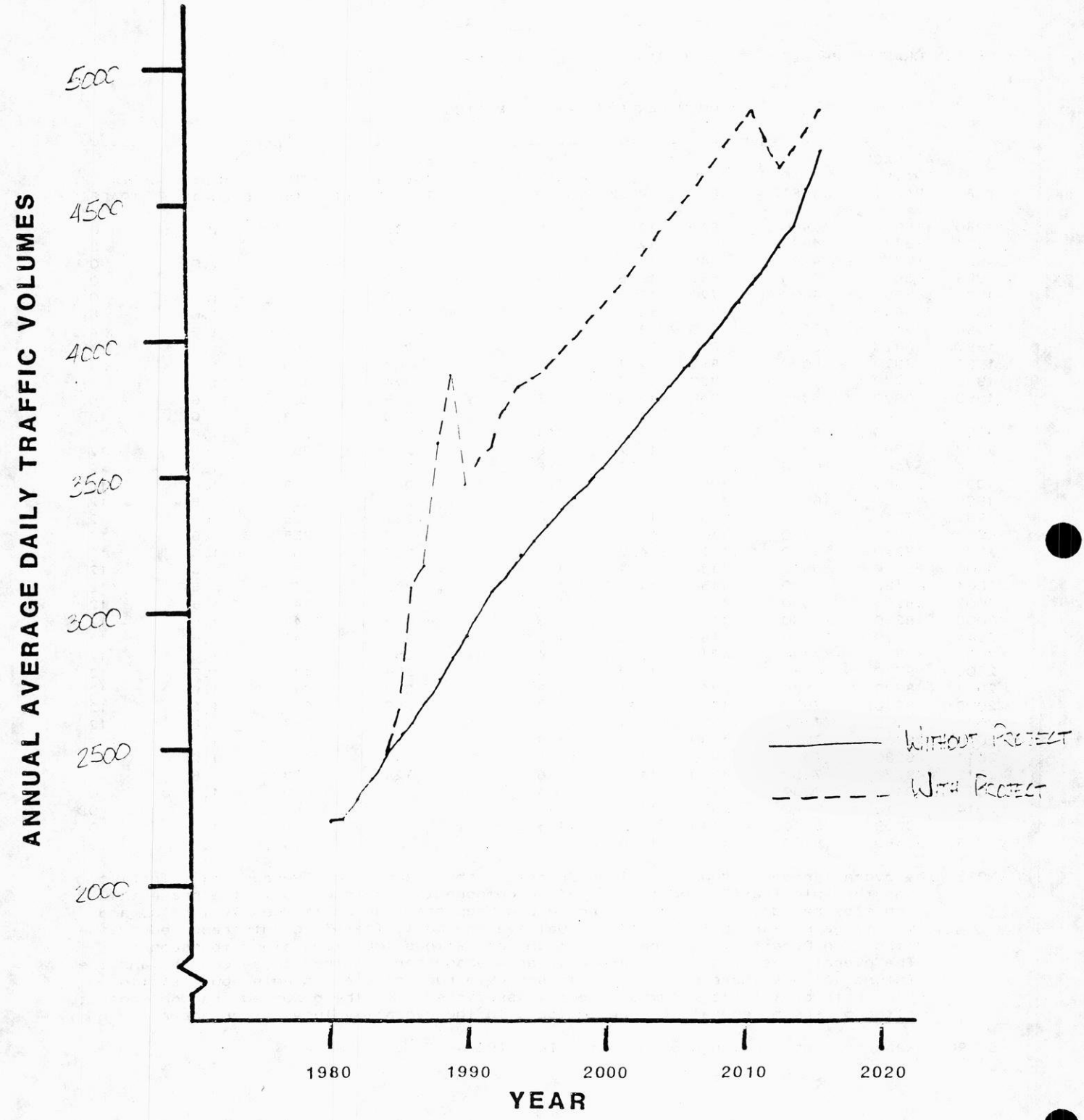
NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-2

TRAFFIC FORECAST FOR US 8

BETWEEN MONICO AND FOREST CO. 'S'



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-2

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR US 8
MONICO - FOREST CO. 'S'

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	2230	1960	270	12.2	.0	0	0	1.0	0
1981	2240	1970	270	12.1	.4	0	0	1.0	0
1982	2310	2040	270	11.7	3.1	0	0	1.0	0
1983	2390	2110	280	11.8	3.5	0	0	1.0	0
1984	2460	2170	290	11.8	2.9	0	0	1.0	0
1985	2530	2230	300	11.9	2.8	0	0	1.0	0
1986	2590	2280	310	12.0	2.4	0	0	1.0	0
1987	2670	2350	320	12.0	3.1	0	0	1.0	0
1988	2750	2420	330	12.0	3.0	0	0	1.0	0
1989	2830	2490	340	12.1	2.9	0	0	1.0	0
1990	2910	2560	350	12.1	2.8	0	0	1.0	0
1991	3000	2650	350	11.7	3.1	0	0	1.0	0
1992	3070	2710	360	11.8	2.3	0	0	1.0	0
1993	3130	2760	370	11.9	2.0	0	0	1.0	0
1994	3200	2820	380	11.9	2.2	0	0	1.0	0
1995	3250	2870	380	11.7	1.6	0	0	1.0	0
1996	3310	2920	390	11.8	1.8	0	0	1.0	0
1997	3370	2970	400	11.9	1.8	0	0	1.0	0
1998	3410	3010	400	11.8	1.2	0	0	1.0	0
1999	3470	3060	410	11.9	1.8	0	0	1.0	0
2000	3520	3110	410	11.7	1.4	0	0	1.0	0
2001	3580	3160	420	11.8	1.7	0	0	1.0	0
2002	3640	3220	420	11.6	1.7	0	0	1.0	0
2003	3700	3270	430	11.7	1.6	0	0	1.0	0
2004	3760	3330	430	11.5	1.6	0	0	1.0	0
2005	3820	3380	440	11.6	1.6	0	0	1.0	0
2006	3880	3440	440	11.4	1.6	0	0	1.0	0
2007	3940	3490	450	11.5	1.5	0	0	1.0	0
2008	3990	3540	450	11.3	1.3	0	0	1.0	0
2009	4060	3600	460	11.4	1.8	0	0	1.0	0
2010	4120	3660	460	11.2	1.5	0	0	1.0	0
2011	4180	3710	470	11.3	1.5	0	0	1.0	0
2012	4250	3770	480	11.3	1.7	0	0	1.0	0
2013	4320	3840	480	11.2	1.6	0	0	1.0	0
2014	4390	3900	490	11.2	1.6	0	0	1.0	0
2015	4530	4030	500	11.1	3.2	0	0	1.0	0
2016	4670	4160	510	11.0	3.1	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-2

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR US 8
MONICO - FOREST CO. 'S'

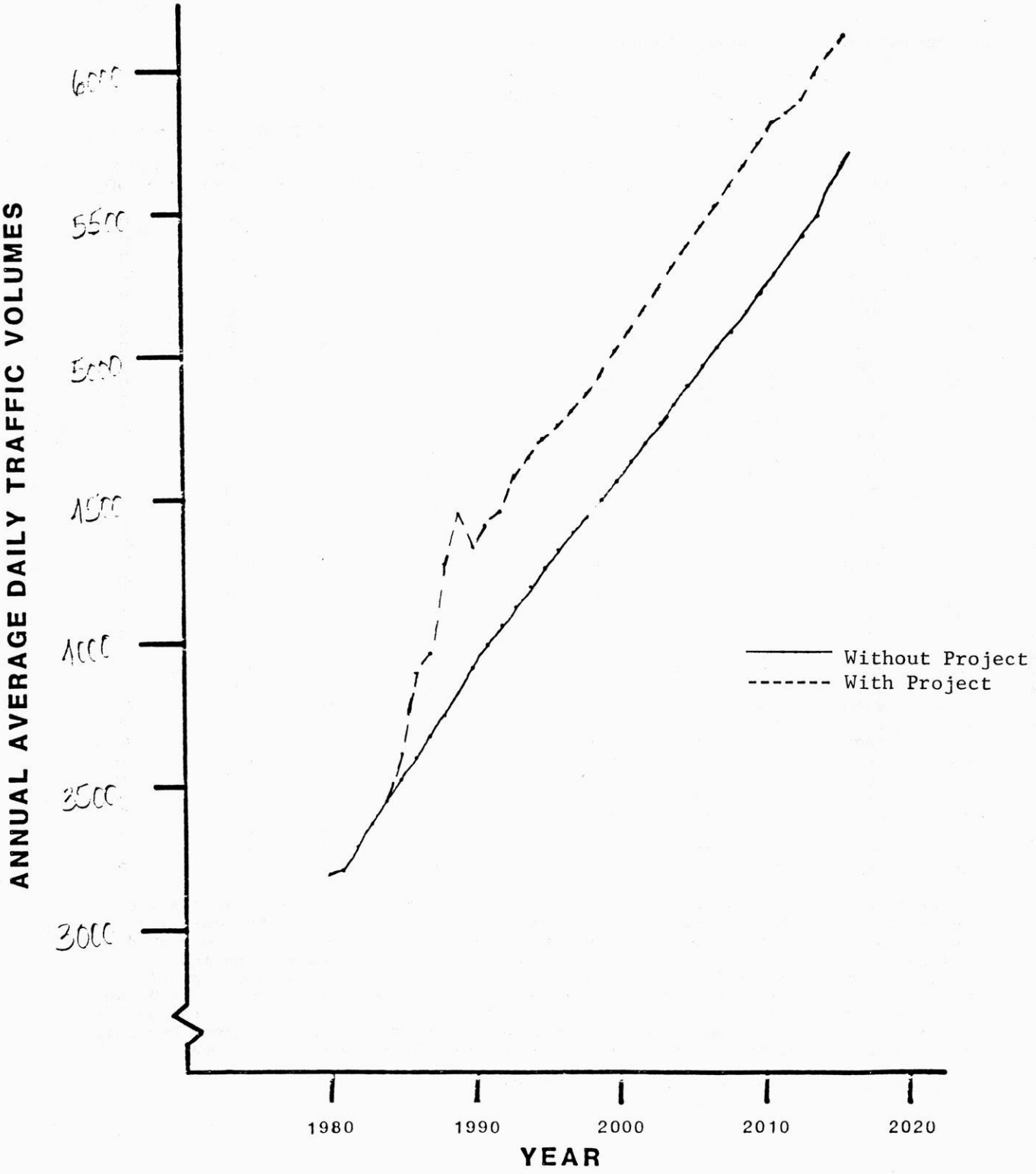
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	2230	1960	270	12.2	.0	0	0	1.0	0
1981	2240	1970	270	12.1	.4	0	0	1.0	0
1982	2310	2040	270	11.7	3.1	0	0	1.0	0
1983	2390	2110	280	11.8	3.5	0	0	1.0	0
1984	2460	2170	290	11.8	2.9	0	0	1.0	0
1985	2640	2320	320	12.2	7.3	76	68	1.6	8
1986	3080	2730	350	11.4	16.7	310	286	1.6	24
1987	3160	2800	360	11.4	2.6	280	256	1.6	24
1988	3620	3250	370	10.3	14.6	512	488	1.6	24
1989	3860	3480	380	9.9	6.6	594	570	1.6	24
1990	3470	3090	380	11.0	-10.1	256	238	1.6	18
1991	3550	3170	380	10.8	2.3	263	251	1.6	12
1992	3600	3210	390	10.9	1.4	274	262	1.6	12
1993	3740	3340	400	10.7	3.9	304	292	1.6	12
1994	3810	3400	410	10.8	1.9	304	292	1.6	12
1995	3850	3430	420	11.0	1.0	304	292	1.6	12
1996	3890	3470	420	10.8	1.0	304	292	1.6	12
1997	3940	3510	430	11.0	1.3	304	292	1.6	12
1998	3990	3560	430	10.8	1.3	304	292	1.6	12
1999	4050	3610	440	10.9	1.5	304	292	1.6	12
2000	4110	3670	440	10.8	1.5	304	292	1.6	12
2001	4160	3710	450	10.9	1.2	295	283	1.6	12
2002	4220	3760	460	11.0	1.4	295	283	1.6	12
2003	4290	3830	460	10.8	1.7	295	283	1.6	12
2004	4350	3880	470	10.9	1.4	295	283	1.6	12
2005	4420	3950	470	10.7	1.6	295	283	1.6	12
2006	4480	4000	480	10.8	1.4	295	283	1.6	12
2007	4550	4070	480	10.6	1.6	295	283	1.6	12
2008	4610	4120	490	10.7	1.3	295	283	1.6	12
2009	4680	4190	490	10.5	1.5	295	283	1.6	12
2010	4750	4250	500	10.6	1.5	295	283	1.6	12
2011	4810	4300	510	10.7	1.3	295	283	1.6	6
2012	4700	4190	510	10.9	-2.3	142	141	1.6	1
2013	4600	4090	510	11.1	-2.1	0	0	1.0	0
2014	4670	4150	520	11.2	1.5	0	0	1.0	0
2015	4740	4210	530	11.2	1.5	0	0	1.0	0
2016	4810	4270	540	11.3	1.5	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-3

TRAFFIC FORECAST FOR US 8
BETWEEN FOREST CO. 'S' AND CRANDON



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-3

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR US 8
FOREST CO. 'S' - CRANDON

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	3190	2800	390	12.3	.0	0	0	1.0	0
1981	3200	2820	380	11.9	.3	0	0	1.0	0
1982	3280	2890	390	11.9	2.5	0	0	1.0	0
1983	3360	2960	400	12.0	2.4	0	0	1.0	0
1984	3440	3020	420	12.3	2.4	0	0	1.0	0
1985	3520	3090	430	12.3	2.3	0	0	1.0	0
1986	3590	3150	440	12.3	2.0	0	0	1.0	0
1987	3660	3210	450	12.3	1.9	0	0	1.0	0
1988	3740	3280	460	12.3	2.2	0	0	1.0	0
1989	3820	3350	470	12.4	2.1	0	0	1.0	0
1990	3900	3410	490	12.6	2.1	0	0	1.0	0
1991	3980	3480	500	12.6	2.1	0	0	1.0	0
1992	4050	3540	510	12.6	1.8	0	0	1.0	0
1993	4120	3600	520	12.7	1.7	0	0	1.0	0
1994	4180	3650	530	12.7	1.5	0	0	1.0	0
1995	4250	3710	540	12.8	1.7	0	0	1.0	0
1996	4310	3760	550	12.8	1.4	0	0	1.0	0
1997	4370	3810	560	12.9	1.4	0	0	1.0	0
1998	4430	3870	560	12.7	1.4	0	0	1.0	0
1999	4490	3920	570	12.7	1.4	0	0	1.0	0
2000	4550	3970	580	12.8	1.3	0	0	1.0	0
2001	4620	4030	590	12.8	1.5	0	0	1.0	0
2002	4680	4090	590	12.7	1.3	0	0	1.0	0
2003	4750	4150	600	12.7	1.5	0	0	1.0	0
2004	4820	4210	610	12.7	1.5	0	0	1.0	0
2005	4880	4260	620	12.8	1.2	0	0	1.0	0
2006	4950	4320	630	12.8	1.4	0	0	1.0	0
2007	5010	4380	630	12.6	1.2	0	0	1.0	0
2008	5070	4430	640	12.7	1.2	0	0	1.0	0
2009	5140	4490	650	12.7	1.4	0	0	1.0	0
2010	5200	4540	660	12.7	1.2	0	0	1.0	0
2011	5270	4610	660	12.6	1.3	0	0	1.0	0
2012	5340	4670	670	12.6	1.3	0	0	1.0	0
2013	5400	4710	690	12.8	1.1	0	0	1.0	0
2014	5470	4770	700	12.8	1.3	0	0	1.0	0
2015	5580	4870	710	12.8	2.0	0	0	1.0	0
2016	5680	4960	720	12.7	1.8	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-3

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR US 8
FOREST CO. 'S' - CRANDON

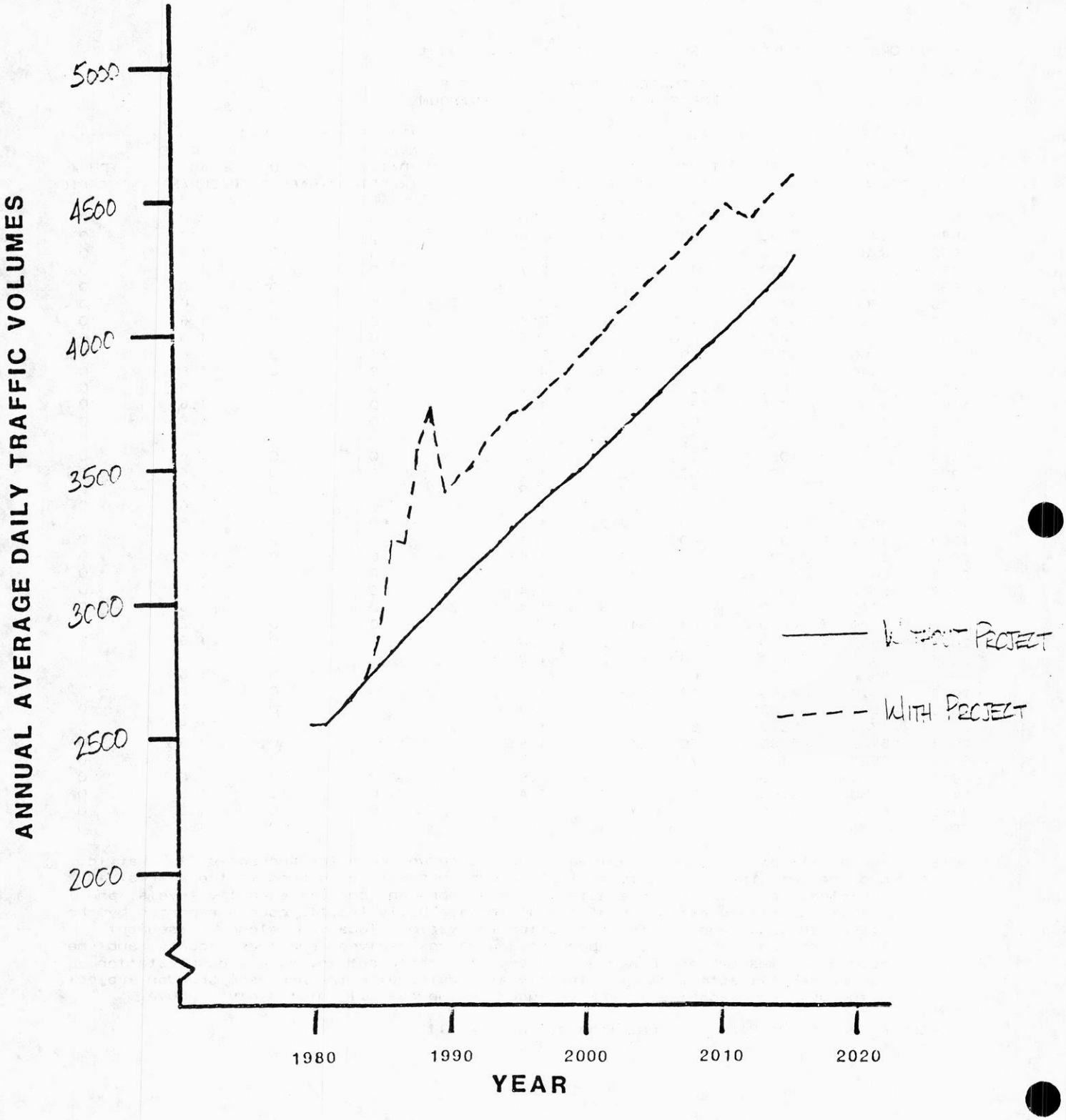
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	3190	2800	390	12.3	.0	0	0	1.0	0
1981	3210	2830	380	11.9	.6	0	0	1.0	0
1982	3280	2890	390	11.9	2.2	0	0	1.0	0
1983	3370	2970	400	11.9	2.7	0	0	1.0	0
1984	3440	3020	420	12.3	2.1	0	0	1.0	0
1985	3600	3170	430	12.0	4.7	0	0	1.6	0
1986	3880	3430	450	11.6	7.8	0	0	1.6	0
1987	3950	3480	470	11.9	1.8	0	0	1.6	0
1988	4260	3770	490	11.6	7.8	0	0	1.6	0
1989	4440	3940	500	11.3	4.2	0	0	1.6	0
1990	4320	3810	510	11.9	-2.7	0	0	1.6	0
1991	4400	3880	520	11.9	1.9	0	0	1.6	0
1992	4450	3920	530	12.0	1.1	0	0	1.6	0
1993	4570	4020	550	12.1	2.7	0	0	1.6	0
1994	4640	4080	560	12.1	1.5	0	0	1.6	0
1995	4700	4130	570	12.2	1.3	0	0	1.6	0
1996	4740	4160	580	12.3	.9	0	0	1.6	0
1997	4790	4200	590	12.4	1.1	0	0	1.6	0
1998	4850	4260	590	12.2	1.3	0	0	1.6	0
1999	4920	4320	600	12.2	1.4	0	0	1.6	0
2000	5000	4390	610	12.2	1.6	0	0	1.6	0
2001	5070	4450	620	12.3	1.4	0	0	1.6	0
2002	5140	4510	630	12.3	1.4	0	0	1.6	0
2003	5210	4570	640	12.3	1.4	0	0	1.6	0
2004	5290	4650	640	12.1	1.5	0	0	1.6	0
2005	5360	4710	650	12.2	1.3	0	0	1.6	0
2006	5430	4770	660	12.2	1.3	0	0	1.6	0
2007	5500	4830	670	12.2	1.3	0	0	1.6	0
2008	5570	4890	680	12.3	1.3	0	0	1.6	0
2009	5640	4960	680	12.1	1.3	0	0	1.6	0
2010	5710	5020	690	12.1	1.2	0	0	1.6	0
2011	5790	5090	700	12.1	1.4	0	0	1.6	0
2012	5820	5110	710	12.2	.5	0	0	1.6	0
2013	5870	5150	720	12.3	.9	0	0	1.0	0
2014	5950	5220	730	12.3	1.4	0	0	1.0	0
2015	6020	5280	740	12.3	1.2	0	0	1.0	0
2016	6090	5340	750	12.4	1.2	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-4

TRAFFIC FORECAST FOR US 8 BETWEEN CRANDON AND LAONA



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-4

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR US 8
CRANDON - LAONA

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	2540	2230	310	12.3	.0	0	0	1.0	0
1981	2540	2240	300	11.9	.0	0	0	1.0	0
1982	2590	2290	300	11.6	2.0	0	0	1.0	0
1983	2650	2340	310	11.7	2.3	0	0	1.0	0
1984	2710	2390	320	11.9	2.3	0	0	1.0	0
1985	2760	2430	330	12.0	1.8	0	0	1.0	0
1986	2810	2470	340	12.1	1.8	0	0	1.0	0
1987	2860	2510	350	12.3	1.8	0	0	1.0	0
1988	2910	2550	360	12.4	1.7	0	0	1.0	0
1989	2970	2600	370	12.5	2.1	0	0	1.0	0
1990	3020	2650	370	12.3	1.7	0	0	1.0	0
1991	3080	2700	380	12.4	2.0	0	0	1.0	0
1992	3120	2730	390	12.5	1.3	0	0	1.0	0
1993	3170	2770	400	12.7	1.6	0	0	1.0	0
1994	3220	2810	410	12.8	1.6	0	0	1.0	0
1995	3270	2850	420	12.9	1.6	0	0	1.0	0
1996	3310	2890	420	12.7	1.2	0	0	1.0	0
1997	3350	2920	430	12.9	1.2	0	0	1.0	0
1998	3400	2960	440	13.0	1.5	0	0	1.0	0
1999	3440	3000	440	12.8	1.2	0	0	1.0	0
2000	3490	3040	450	12.9	1.5	0	0	1.0	0
2001	3540	3090	450	12.8	1.4	0	0	1.0	0
2002	3580	3120	460	12.9	1.1	0	0	1.0	0
2003	3630	3160	470	13.0	1.4	0	0	1.0	0
2004	3680	3210	470	12.8	1.4	0	0	1.0	0
2005	3730	3250	480	12.9	1.4	0	0	1.0	0
2006	3770	3280	490	13.0	1.1	0	0	1.0	0
2007	3820	3330	490	12.9	1.3	0	0	1.0	0
2008	3860	3360	500	13.0	1.0	0	0	1.0	0
2009	3910	3410	500	12.8	1.3	0	0	1.0	0
2010	3950	3440	510	13.0	1.0	0	0	1.0	0
2011	4000	3480	520	13.0	1.3	0	0	1.0	0
2012	4050	3530	520	12.9	1.3	0	0	1.0	0
2013	4090	3560	530	13.0	1.0	0	0	1.0	0
2014	4140	3600	540	13.1	1.2	0	0	1.0	0
2015	4200	3650	550	13.1	1.4	0	0	1.0	0
2016	4260	3700	560	13.2	1.4	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-4

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR US 8
CRANDON - LAONA

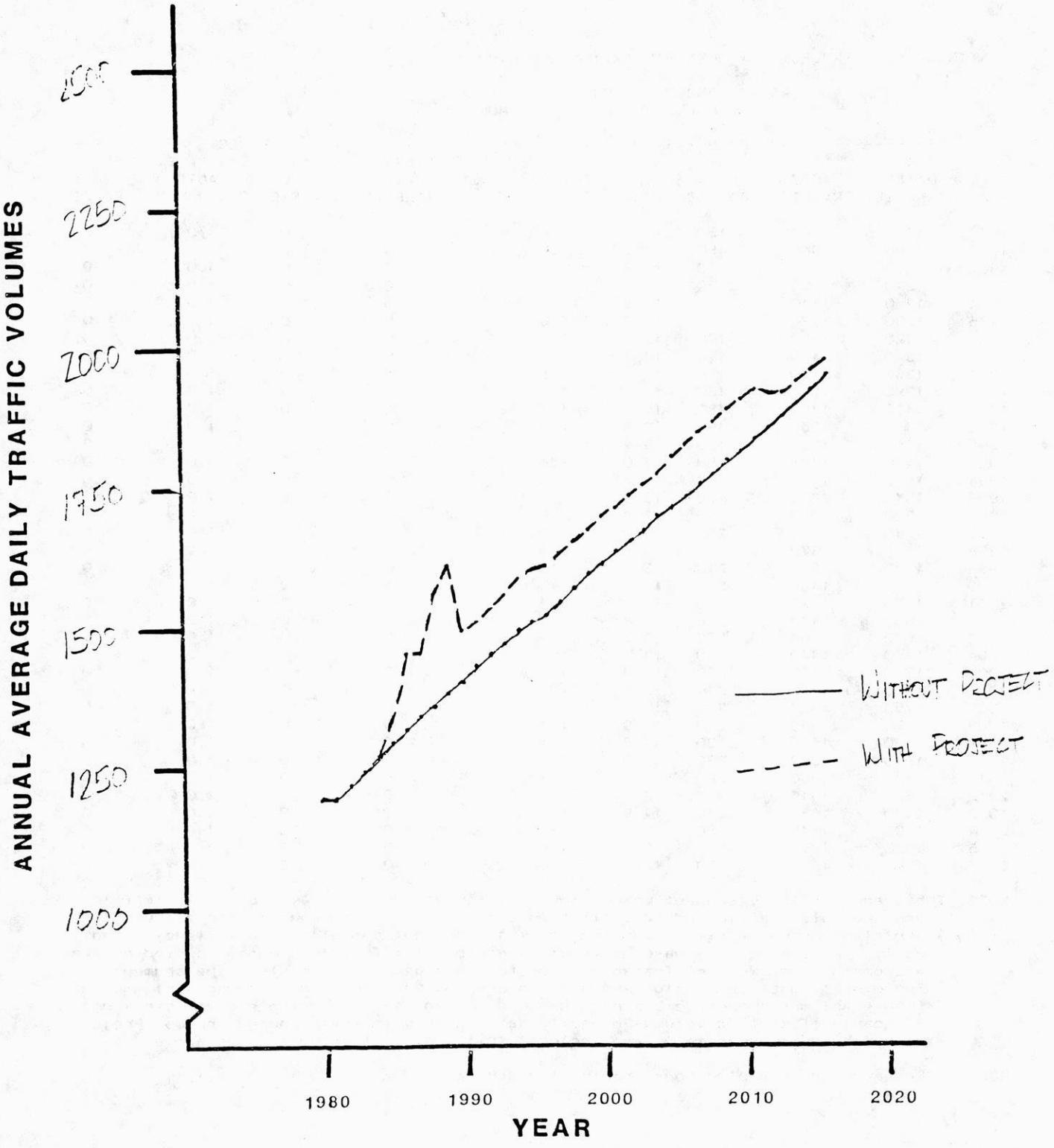
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	2540	2230	310	12.3	.0	0	0	1.0	0
1981	2540	2240	300	11.9	.0	0	0	1.0	0
1982	2590	2290	300	11.6	2.0	0	0	1.0	0
1983	2660	2350	310	11.7	2.7	0	0	1.0	0
1984	2710	2390	320	11.9	1.9	0	0	1.0	0
1985	2860	2520	340	11.9	5.5	32	32	1.6	0
1986	3220	2870	350	10.9	12.6	178	178	1.6	0
1987	3210	2850	360	11.3	-.3	135	135	1.6	0
1988	3560	3190	370	10.4	10.9	263	263	1.6	0
1989	3720	3340	380	10.3	4.5	301	301	1.6	0
1990	3400	3010	390	11.5	-8.6	87	87	1.6	0
1991	3460	3060	400	11.6	1.8	91	91	1.6	0
1992	3500	3090	410	11.8	1.2	93	93	1.6	0
1993	3590	3170	420	11.7	2.6	107	107	1.6	0
1994	3640	3210	430	11.9	1.4	107	107	1.6	0
1995	3690	3260	430	11.7	1.4	107	107	1.6	0
1996	3710	3270	440	11.9	.5	107	107	1.6	0
1997	3750	3300	450	12.0	1.1	107	107	1.6	0
1998	3800	3350	450	11.9	1.3	107	107	1.6	0
1999	3840	3380	460	12.0	1.1	107	107	1.6	0
2000	3900	3430	470	12.1	1.6	107	107	1.6	0
2001	3950	3480	470	11.9	1.3	103	103	1.6	0
2002	4000	3520	480	12.0	1.3	103	103	1.6	0
2003	4060	3570	490	12.1	1.5	103	103	1.6	0
2004	4110	3620	490	12.0	1.2	103	103	1.6	0
2005	4160	3660	500	12.1	1.2	103	103	1.6	0
2006	4210	3700	510	12.2	1.2	103	103	1.6	0
2007	4260	3750	510	12.0	1.2	103	103	1.6	0
2008	4310	3790	520	12.1	1.2	103	103	1.6	0
2009	4350	3830	520	12.0	.9	103	103	1.6	0
2010	4410	3880	530	12.1	1.4	103	103	1.6	0
2011	4460	3920	540	12.2	1.1	103	103	1.6	0
2012	4430	3890	540	12.2	-.7	51	51	1.6	0
2013	4410	3860	550	12.5	-.5	0	0	1.0	0
2014	4470	3910	560	12.6	1.4	0	0	1.0	0
2015	4510	3940	570	12.7	.9	0	0	1.0	0
2016	4560	3990	570	12.5	1.1	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-5

TRAFFIC FORECAST FOR US 45
BETWEEN THREE LAKES AND MONICO



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-5

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR US 45
THREE LAKES - MONICO

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	1190	1040	150	12.7	.0	0	0	1.0	0
1981	1190	1040	150	12.7	.0	0	0	1.0	0
1982	1220	1070	150	12.3	2.5	0	0	1.0	0
1983	1240	1090	150	12.1	1.6	0	0	1.0	0
1984	1270	1110	160	12.6	2.4	0	0	1.0	0
1985	1290	1130	160	12.5	1.6	0	0	1.0	0
1986	1320	1150	170	12.9	2.3	0	0	1.0	0
1987	1340	1170	170	12.7	1.5	0	0	1.0	0
1988	1360	1190	170	12.5	1.5	0	0	1.0	0
1989	1380	1200	180	13.1	1.5	0	0	1.0	0
1990	1400	1220	180	12.9	1.4	0	0	1.0	0
1991	1430	1250	180	12.6	2.1	0	0	1.0	0
1992	1450	1260	190	13.2	1.4	0	0	1.0	0
1993	1470	1280	190	13.0	1.4	0	0	1.0	0
1994	1490	1300	190	12.8	1.4	0	0	1.0	0
1995	1510	1310	200	13.3	1.3	0	0	1.0	0
1996	1520	1320	200	13.2	.7	0	0	1.0	0
1997	1540	1340	200	13.0	1.3	0	0	1.0	0
1998	1570	1370	200	12.8	1.9	0	0	1.0	0
1999	1590	1380	210	13.3	1.3	0	0	1.0	0
2000	1610	1400	210	13.1	1.3	0	0	1.0	0
2001	1630	1420	210	12.9	1.2	0	0	1.0	0
2002	1650	1440	210	12.8	1.2	0	0	1.0	0
2003	1670	1450	220	13.2	1.2	0	0	1.0	0
2004	1690	1470	220	13.1	1.2	0	0	1.0	0
2005	1710	1490	220	12.9	1.2	0	0	1.0	0
2006	1730	1510	220	12.8	1.2	0	0	1.0	0
2007	1750	1520	230	13.2	1.2	0	0	1.0	0
2008	1770	1540	230	13.0	1.1	0	0	1.0	0
2009	1790	1560	230	12.9	1.1	0	0	1.0	0
2010	1810	1580	230	12.8	1.1	0	0	1.0	0
2011	1830	1590	240	13.2	1.1	0	0	1.0	0
2012	1850	1610	240	13.0	1.1	0	0	1.0	0
2013	1870	1630	240	12.9	1.1	0	0	1.0	0
2014	1890	1640	250	13.3	1.1	0	0	1.0	0
2015	1920	1670	250	13.1	1.6	0	0	1.0	0
2016	1940	1690	250	12.9	1.0	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-5

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR US 45
THREE LAKES - MONICO

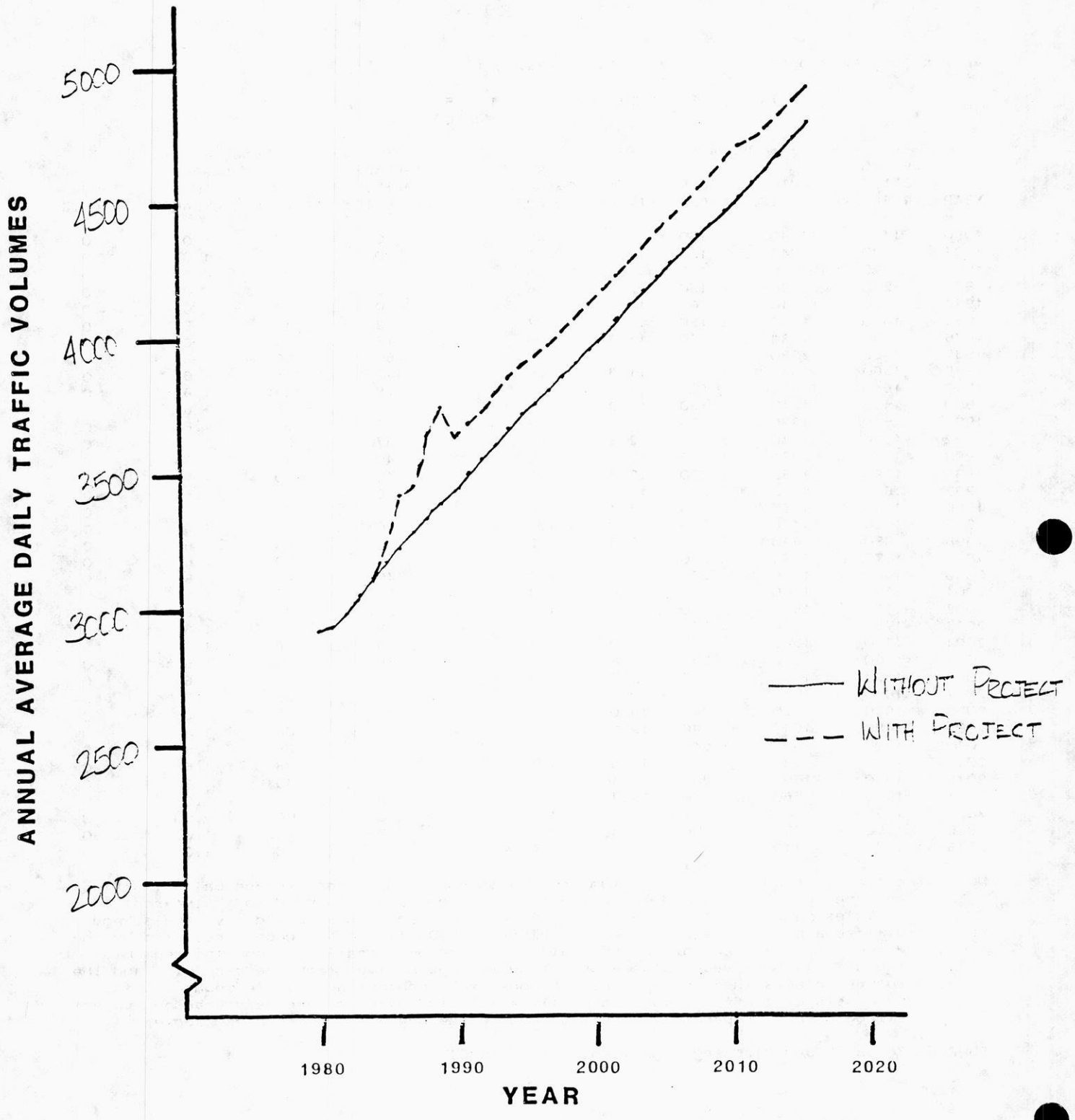
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	1190	1040	150	12.7	.0	0	0	1.0	0
1981	1190	1040	150	12.7	.0	0	0	1.0	0
1982	1220	1070	150	12.3	2.5	0	0	1.0	0
1983	1240	1090	150	12.1	1.6	0	0	1.0	0
1984	1270	1110	160	12.6	2.4	0	0	1.0	0
1985	1330	1170	160	12.1	4.7	12	12	1.6	0
1986	1450	1280	170	11.8	9.0	76	76	1.6	0
1987	1450	1280	170	11.8	.0	60	60	1.6	0
1988	1560	1380	180	11.6	7.6	112	112	1.6	0
1989	1610	1430	180	11.2	3.2	128	128	1.6	0
1990	1490	1300	190	12.8	-7.5	32	32	1.6	0
1991	1510	1320	190	12.6	1.3	35	35	1.6	0
1992	1530	1340	190	12.5	1.3	37	37	1.6	0
1993	1560	1360	200	12.9	2.0	40	40	1.6	0
1994	1580	1380	200	12.7	1.3	40	40	1.6	0
1995	1600	1400	200	12.5	1.3	40	40	1.6	0
1996	1610	1400	210	13.1	.6	40	40	1.6	0
1997	1630	1420	210	12.9	1.2	40	40	1.6	0
1998	1650	1440	210	12.8	1.2	40	40	1.6	0
1999	1670	1460	210	12.6	1.2	40	40	1.6	0
2000	1690	1470	220	13.1	1.2	40	40	1.6	0
2001	1710	1490	220	12.9	1.2	38	38	1.6	0
2002	1730	1510	220	12.8	1.2	38	38	1.6	0
2003	1750	1530	220	12.6	1.2	38	38	1.6	0
2004	1770	1540	230	13.0	1.1	38	38	1.6	0
2005	1800	1570	230	12.8	1.7	38	38	1.6	0
2006	1820	1590	230	12.7	1.1	38	38	1.6	0
2007	1840	1610	230	12.5	1.1	38	38	1.6	0
2008	1860	1620	240	13.0	1.1	38	38	1.6	0
2009	1880	1640	240	12.8	1.1	38	38	1.6	0
2010	1900	1660	240	12.7	1.1	38	38	1.6	0
2011	1920	1680	240	12.5	1.1	38	38	1.6	0
2012	1910	1660	250	13.1	-.5	19	19	1.6	0
2013	1910	1660	250	13.1	.0	0	0	1.0	0
2014	1930	1680	250	13.0	1.0	0	0	1.0	0
2015	1950	1690	260	13.4	1.0	0	0	1.0	0
2016	1970	1710	260	13.2	1.0	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-6

TRAFFIC FORECAST FOR US 45 BETWEEN MONICO AND ELCHO



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-6

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR US 45
MONICO - ELCHO

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	2910	2550	360	12.4	.0	0	0	1.0	0
1981	2920	2560	360	12.4	.3	0	0	1.0	0
1982	2980	2610	370	12.5	2.1	0	0	1.0	0
1983	3050	2670	380	12.5	2.3	0	0	1.0	0
1984	3110	2710	400	12.9	2.0	0	0	1.0	0
1985	3170	2760	410	13.0	1.9	0	0	1.0	0
1986	3220	2800	420	13.1	1.6	0	0	1.0	0
1987	3280	2850	430	13.2	1.9	0	0	1.0	0
1988	3330	2890	440	13.3	1.5	0	0	1.0	0
1989	3390	2940	450	13.3	1.8	0	0	1.0	0
1990	3440	2980	460	13.4	1.5	0	0	1.0	0
1991	3500	3030	470	13.5	1.7	0	0	1.0	0
1992	3550	3070	480	13.6	1.4	0	0	1.0	0
1993	3600	3110	490	13.7	1.4	0	0	1.0	0
1994	3660	3160	500	13.7	1.7	0	0	1.0	0
1995	3710	3200	510	13.8	1.4	0	0	1.0	0
1996	3750	3230	520	13.9	1.1	0	0	1.0	0
1997	3800	3270	530	14.0	1.3	0	0	1.0	0
1998	3850	3320	530	13.8	1.3	0	0	1.0	0
1999	3900	3360	540	13.9	1.3	0	0	1.0	0
2000	3950	3400	550	14.0	1.3	0	0	1.0	0
2001	4000	3450	550	13.8	1.3	0	0	1.0	0
2002	4060	3500	560	13.8	1.5	0	0	1.0	0
2003	4110	3540	570	13.9	1.2	0	0	1.0	0
2004	4160	3580	580	14.0	1.2	0	0	1.0	0
2005	4210	3630	580	13.8	1.2	0	0	1.0	0
2006	4260	3670	590	13.9	1.2	0	0	1.0	0
2007	4310	3710	600	14.0	1.2	0	0	1.0	0
2008	4360	3750	610	14.0	1.2	0	0	1.0	0
2009	4400	3790	610	13.9	.9	0	0	1.0	0
2010	4450	3830	620	14.0	1.1	0	0	1.0	0
2011	4500	3870	630	14.0	1.1	0	0	1.0	0
2012	4550	3910	640	14.1	1.1	0	0	1.0	0
2013	4600	3950	650	14.2	1.1	0	0	1.0	0
2014	4650	3990	660	14.2	1.1	0	0	1.0	0
2015	4720	4050	670	14.2	1.5	0	0	1.0	0
2016	4770	4090	680	14.3	1.1	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-6

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR MONICO - US 45 ELCHO

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	2910	2550	360	12.4	.0	0	0	1.0	0
1981	2920	2560	360	12.4	.3	0	0	1.0	0
1982	2990	2620	370	12.4	2.4	0	0	1.0	0
1983	3050	2670	380	12.5	2.0	0	0	1.0	0
1984	3110	2710	400	12.9	2.0	0	0	1.0	0
1985	3240	2830	410	12.7	4.2	0	0	1.6	0
1986	3410	2980	430	12.7	5.2	0	0	1.6	0
1987	3450	3010	440	12.8	1.2	0	0	1.6	0
1988	3640	3180	460	12.7	5.5	0	0	1.6	0
1989	3740	3270	470	12.6	2.7	0	0	1.6	0
1990	3630	3140	490	13.5	-2.9	0	0	1.6	0
1991	3680	3190	490	13.4	1.4	0	0	1.6	0
1992	3720	3220	500	13.5	1.1	0	0	1.6	0
1993	3790	3280	510	13.5	1.9	0	0	1.6	0
1994	3850	3320	530	13.8	1.6	0	0	1.6	0
1995	3890	3350	540	13.9	1.0	0	0	1.6	0
1996	3920	3380	540	13.8	.8	0	0	1.6	0
1997	3960	3410	550	13.9	1.0	0	0	1.6	0
1998	4010	3450	560	14.0	1.3	0	0	1.6	0
1999	4060	3490	570	14.1	1.2	0	0	1.6	0
2000	4120	3540	580	14.1	1.5	0	0	1.6	0
2001	4170	3590	580	14.0	1.2	0	0	1.6	0
2002	4220	3630	590	14.0	1.2	0	0	1.6	0
2003	4270	3670	600	14.1	1.2	0	0	1.6	0
2004	4330	3730	600	13.9	1.4	0	0	1.6	0
2005	4380	3770	610	14.0	1.2	0	0	1.6	0
2006	4430	3810	620	14.0	1.1	0	0	1.6	0
2007	4480	3850	630	14.1	1.1	0	0	1.6	0
2008	4540	3900	640	14.1	1.3	0	0	1.6	0
2009	4580	3930	650	14.2	.9	0	0	1.6	0
2010	4640	3990	650	14.1	1.3	0	0	1.6	0
2011	4690	4030	660	14.1	1.1	0	0	1.6	0
2012	4710	4040	670	14.3	.4	0	0	1.6	0
2013	4750	4070	680	14.4	.8	0	0	1.0	0
2014	4800	4120	680	14.2	1.1	0	0	1.0	0
2015	4850	4150	700	14.5	1.0	0	0	1.0	0
2016	4900	4200	700	14.3	1.0	0	0	1.0	0

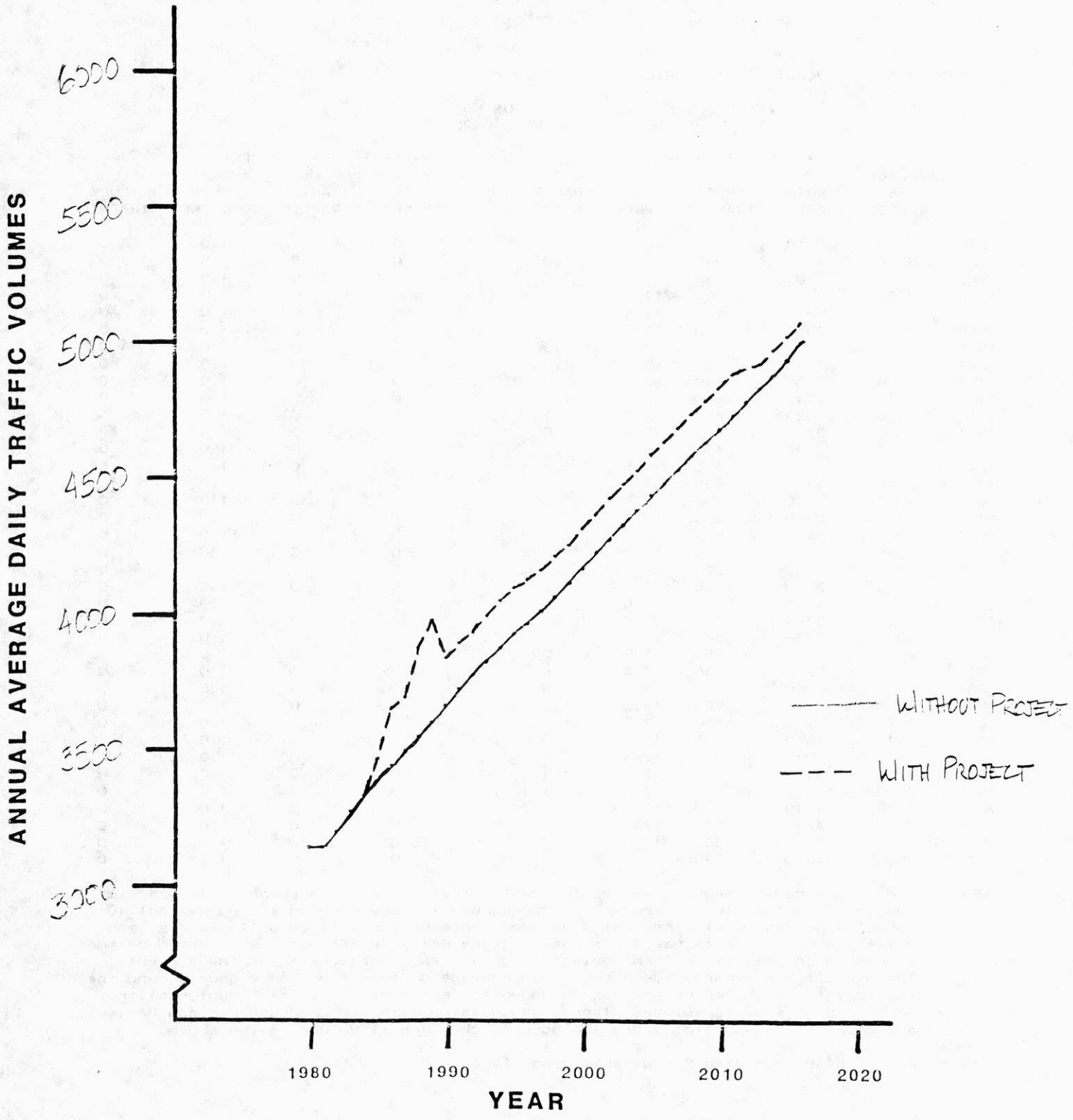
NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-7

TRAFFIC FORECAST FOR US 45

BETWEEN ELCHO AND NEVA CORNERS



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-7

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR US 45
ELCHO - NEVA CORNERS

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	3130	2740	390	12.5	.0	0	0	1.0	0
1981	3130	2750	380	12.2	.0	0	0	1.0	0
1982	3190	2800	390	12.3	1.9	0	0	1.0	0
1983	3260	2860	400	12.3	2.2	0	0	1.0	0
1984	3320	2910	410	12.4	1.8	0	0	1.0	0
1985	3370	2950	420	12.5	1.5	0	0	1.0	0
1986	3430	3000	430	12.6	1.8	0	0	1.0	0
1987	3480	3050	430	12.4	1.5	0	0	1.0	0
1988	3540	3100	440	12.5	1.7	0	0	1.0	0
1989	3590	3140	450	12.6	1.4	0	0	1.0	0
1990	3650	3190	460	12.7	1.7	0	0	1.0	0
1991	3710	3250	460	12.4	1.6	0	0	1.0	0
1992	3760	3290	470	12.5	1.3	0	0	1.0	0
1993	3810	3330	480	12.6	1.3	0	0	1.0	0
1994	3860	3370	490	12.7	1.3	0	0	1.0	0
1995	3910	3410	500	12.8	1.3	0	0	1.0	0
1996	3950	3450	500	12.7	1.0	0	0	1.0	0
1997	4000	3490	510	12.8	1.3	0	0	1.0	0
1998	4050	3540	510	12.6	1.3	0	0	1.0	0
1999	4100	3580	520	12.7	1.2	0	0	1.0	0
2000	4150	3630	520	12.6	1.2	0	0	1.0	0
2001	4210	3680	530	12.6	1.4	0	0	1.0	0
2002	4260	3720	540	12.7	1.2	0	0	1.0	0
2003	4310	3770	540	12.6	1.2	0	0	1.0	0
2004	4360	3810	550	12.7	1.2	0	0	1.0	0
2005	4420	3870	550	12.5	1.4	0	0	1.0	0
2006	4460	3900	560	12.6	.9	0	0	1.0	0
2007	4510	3950	560	12.5	1.1	0	0	1.0	0
2008	4570	4000	570	12.5	1.3	0	0	1.0	0
2009	4610	4040	570	12.4	.9	0	0	1.0	0
2010	4660	4080	580	12.5	1.1	0	0	1.0	0
2011	4710	4130	580	12.4	1.1	0	0	1.0	0
2012	4760	4170	590	12.4	1.1	0	0	1.0	0
2013	4810	4210	600	12.5	1.1	0	0	1.0	0
2014	4860	4250	610	12.6	1.0	0	0	1.0	0
2015	4920	4310	610	12.4	1.2	0	0	1.0	0
2016	4980	4360	620	12.5	1.2	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-7

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR US 45
ELCHO - NEVA CORNERS

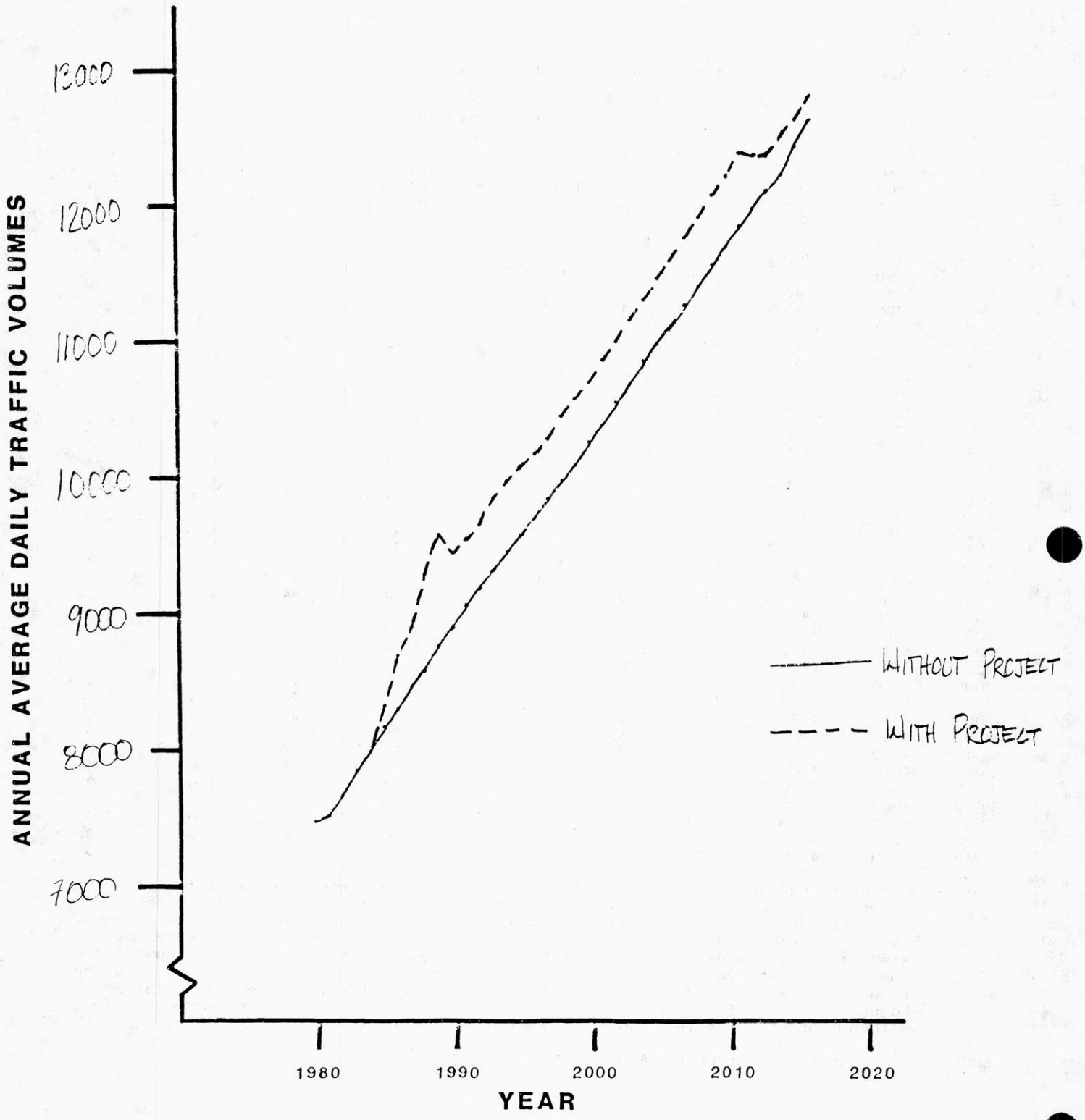
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	3130	2740	390	12.5	.0	0	0	1.0	0
1981	3130	2750	380	12.2	.0	0	0	1.0	0
1982	3190	2800	390	12.3	1.9	0	0	1.0	0
1983	3260	2860	400	12.3	2.2	0	0	1.0	0
1984	3320	2910	410	12.4	1.8	0	0	1.0	0
1985	3450	3030	420	12.2	3.9	10	10	1.6	0
1986	3640	3210	430	11.9	5.5	60	60	1.6	0
1987	3680	3240	440	12.0	1.1	45	45	1.6	0
1988	3860	3400	460	12.0	4.9	87	87	1.6	0
1989	3960	3490	470	11.9	2.6	96	96	1.6	0
1990	3820	3350	470	12.4	-3.5	25	25	1.6	0
1991	3870	3390	480	12.5	1.3	26	26	1.6	0
1992	3910	3420	490	12.6	1.0	27	27	1.6	0
1993	3990	3490	500	12.6	2.0	31	31	1.6	0
1994	4040	3530	510	12.7	1.3	31	31	1.6	0
1995	4080	3560	520	12.8	1.0	31	31	1.6	0
1996	4110	3590	520	12.7	.7	31	31	1.6	0
1997	4150	3620	530	12.8	1.0	31	31	1.6	0
1998	4200	3670	530	12.7	1.2	31	31	1.6	0
1999	4240	3700	540	12.8	1.0	31	31	1.6	0
2000	4300	3760	540	12.6	1.4	31	31	1.6	0
2001	4350	3800	550	12.7	1.2	28	28	1.6	0
2002	4410	3860	550	12.5	1.4	28	28	1.6	0
2003	4460	3900	560	12.6	1.1	28	28	1.6	0
2004	4510	3940	570	12.7	1.1	28	28	1.6	0
2005	4570	4000	570	12.5	1.3	28	28	1.6	0
2006	4620	4040	580	12.6	1.1	28	28	1.6	0
2007	4670	4090	580	12.5	1.1	28	28	1.6	0
2008	4720	4130	590	12.5	1.1	28	28	1.6	0
2009	4760	4170	590	12.4	.8	28	28	1.6	0
2010	4820	4220	600	12.5	1.3	28	28	1.6	0
2011	4870	4260	610	12.6	1.0	28	28	1.6	0
2012	4880	4270	610	12.5	.2	14	14	1.6	0
2013	4900	4280	620	12.7	.4	0	0	1.0	0
2014	4950	4330	620	12.6	1.0	0	0	1.0	0
2015	5000	4370	630	12.6	1.0	0	0	1.0	0
2016	5050	4410	640	12.7	1.0	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-8

TRAFFIC FORECAST FOR US 45
BETWEEN NEVA CORNERS AND ANTIGO



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-8

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR US 45
NEVA CORNERS - ANTIGO

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	7460	6530	930	12.5	.0	0	0	1.0	0
1981	7500	6590	910	12.2	.5	0	0	1.0	0
1982	7650	6730	920	12.1	2.0	0	0	1.0	0
1983	7830	6880	950	12.2	2.4	0	0	1.0	0
1984	7990	7020	970	12.2	2.0	0	0	1.0	0
1985	8150	7150	1000	12.3	2.0	0	0	1.0	0
1986	8290	7270	1020	12.4	1.7	0	0	1.0	0
1987	8430	7400	1030	12.3	1.7	0	0	1.0	0
1988	8580	7530	1050	12.3	1.8	0	0	1.0	0
1989	8730	7660	1070	12.3	1.7	0	0	1.0	0
1990	8890	7810	1080	12.2	1.8	0	0	1.0	0
1991	9040	7940	1100	12.2	1.7	0	0	1.0	0
1992	9170	8050	1120	12.3	1.4	0	0	1.0	0
1993	9300	8160	1140	12.3	1.4	0	0	1.0	0
1994	9430	8280	1150	12.2	1.4	0	0	1.0	0
1995	9560	8390	1170	12.3	1.4	0	0	1.0	0
1996	9690	8510	1180	12.2	1.4	0	0	1.0	0
1997	9820	8630	1190	12.2	1.3	0	0	1.0	0
1998	9960	8760	1200	12.1	1.4	0	0	1.0	0
1999	10080	8870	1210	12.1	1.2	0	0	1.0	0
2000	10230	9010	1220	12.0	1.5	0	0	1.0	0
2001	10370	9140	1230	11.9	1.4	0	0	1.0	0
2002	10520	9280	1240	11.8	1.4	0	0	1.0	0
2003	10660	9400	1260	11.9	1.3	0	0	1.0	0
2004	10810	9540	1270	11.8	1.4	0	0	1.0	0
2005	10950	9670	1280	11.7	1.3	0	0	1.0	0
2006	11090	9800	1290	11.7	1.3	0	0	1.0	0
2007	11230	9930	1300	11.6	1.3	0	0	1.0	0
2008	11370	10060	1310	11.6	1.2	0	0	1.0	0
2009	11510	10180	1330	11.6	1.2	0	0	1.0	0
2010	11650	10310	1340	11.6	1.2	0	0	1.0	0
2011	11800	10450	1350	11.5	1.3	0	0	1.0	0
2012	11930	10570	1360	11.4	1.1	0	0	1.0	0
2013	12060	10680	1380	11.5	1.1	0	0	1.0	0
2014	12190	10800	1390	11.5	1.1	0	0	1.0	0
2015	12390	10980	1410	11.4	1.6	0	0	1.0	0
2016	12570	11140	1430	11.4	1.5	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-8

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR NEVA CORNERS - US 45 ANTIGO

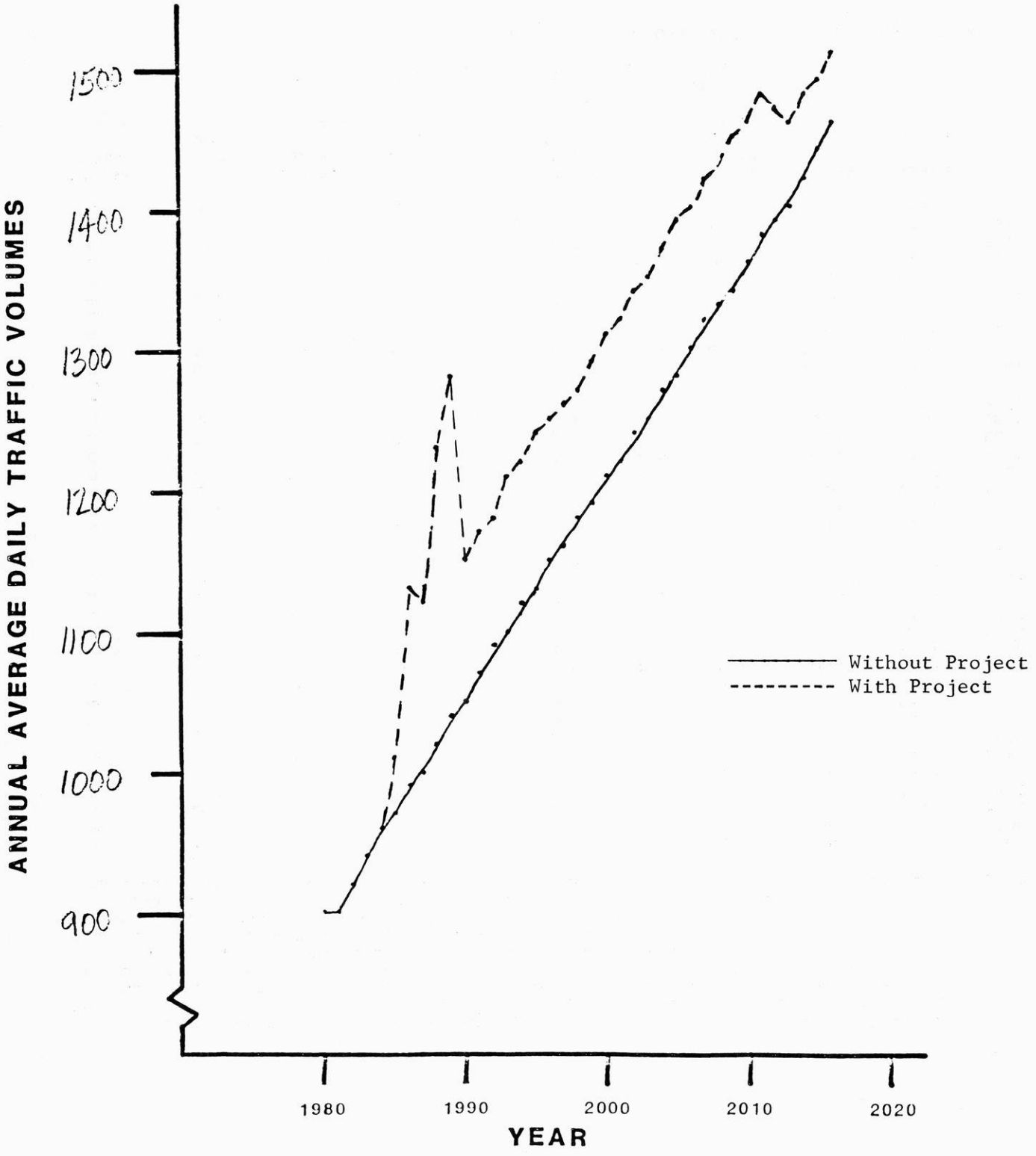
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	7460	6530	930	12.5	.0	0	0	1.0	0
1981	7500	6590	910	12.2	.5	0	0	1.0	0
1982	7650	6730	920	12.1	2.0	0	0	1.0	0
1983	7820	6870	950	12.2	2.2	0	0	1.0	0
1984	7990	7020	970	12.2	2.2	0	0	1.0	0
1985	8300	7290	1010	12.2	3.9	38	30	1.6	8
1986	8680	7620	1060	12.3	4.6	116	92	1.6	24
1987	8880	7800	1080	12.2	2.3	116	92	1.6	24
1988	9280	8170	1110	12.0	4.5	200	176	1.6	24
1989	9560	8430	1130	11.9	3.0	237	213	1.6	24
1990	9410	8270	1140	12.2	-1.6	140	122	1.6	18
1991	9530	8380	1150	12.1	1.3	139	127	1.6	12
1992	9640	8470	1170	12.2	1.2	143	131	1.6	12
1993	9840	8650	1190	12.1	2.1	159	147	1.6	12
1994	9970	8770	1200	12.1	1.3	159	147	1.6	12
1995	10080	8860	1220	12.2	1.1	159	147	1.6	12
1996	10160	8930	1230	12.2	.8	159	147	1.6	12
1997	10270	9030	1240	12.1	1.1	159	147	1.6	12
1998	10410	9160	1250	12.1	1.4	159	147	1.6	12
1999	10540	9280	1260	12.0	1.2	159	147	1.6	12
2000	10680	9410	1270	11.9	1.3	159	147	1.6	12
2001	10820	9530	1290	12.0	1.3	154	142	1.6	12
2002	10970	9670	1300	11.9	1.4	154	142	1.6	12
2003	11120	9810	1310	11.8	1.4	154	142	1.6	12
2004	11280	9950	1330	11.8	1.4	154	142	1.6	12
2005	11420	10080	1340	11.8	1.2	154	142	1.6	12
2006	11570	10220	1350	11.7	1.3	154	142	1.6	12
2007	11720	10360	1360	11.7	1.3	154	142	1.6	12
2008	11870	10500	1370	11.6	1.3	154	142	1.6	12
2009	12020	10640	1380	11.5	1.3	154	142	1.6	12
2010	12170	10780	1390	11.5	1.2	154	142	1.6	12
2011	12320	10910	1410	11.5	1.2	154	142	1.6	6
2012	12310	10900	1410	11.5	-.1	72	71	1.6	1
2013	12330	10910	1420	11.6	.2	0	0	1.0	0
2014	12460	11020	1440	11.6	1.1	0	0	1.0	0
2015	12590	11140	1450	11.6	1.0	0	0	1.0	0
2016	12730	11260	1470	11.6	1.1	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-9

TRAFFIC FORECAST FOR LANGLADE CO. 'K' BETWEEN ELCHO AND SH 55



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-9

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR LANGLADE CO. 'K'
ELCHO - SH 55

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	900	860	40	4.5	.0	0	0	1.0	0
1981	900	860	40	4.5	.0	0	0	1.0	0
1982	920	870	50	5.5	2.2	0	0	1.0	0
1983	940	890	50	5.4	2.2	0	0	1.0	0
1984	960	910	50	5.3	2.1	0	0	1.0	0
1985	970	920	50	5.2	1.0	0	0	1.0	0
1986	990	940	50	5.1	2.1	0	0	1.0	0
1987	1000	950	50	5.1	1.0	0	0	1.0	0
1988	1020	970	50	5.0	2.0	0	0	1.0	0
1989	1040	980	60	5.8	2.0	0	0	1.0	0
1990	1050	990	60	5.8	1.0	0	0	1.0	0
1991	1070	1010	60	5.7	1.9	0	0	1.0	0
1992	1090	1030	60	5.6	1.9	0	0	1.0	0
1993	1100	1040	60	5.5	.9	0	0	1.0	0
1994	1120	1060	60	5.4	1.8	0	0	1.0	0
1995	1130	1070	60	5.4	.9	0	0	1.0	0
1996	1150	1090	60	5.3	1.8	0	0	1.0	0
1997	1160	1100	60	5.2	.9	0	0	1.0	0
1998	1180	1110	70	6.0	1.7	0	0	1.0	0
1999	1190	1120	70	5.9	.8	0	0	1.0	0
2000	1210	1140	70	5.8	1.7	0	0	1.0	0
2001	1220	1150	70	5.8	.8	0	0	1.0	0
2002	1240	1170	70	5.7	1.6	0	0	1.0	0
2003	1250	1180	70	5.7	.8	0	0	1.0	0
2004	1270	1200	70	5.6	1.6	0	0	1.0	0
2005	1280	1210	70	5.5	.8	0	0	1.0	0
2006	1300	1230	70	5.4	1.6	0	0	1.0	0
2007	1320	1250	70	5.4	1.5	0	0	1.0	0
2008	1330	1260	70	5.3	.8	0	0	1.0	0
2009	1340	1270	70	5.3	.8	0	0	1.0	0
2010	1360	1290	70	5.2	1.5	0	0	1.0	0
2011	1380	1300	80	5.8	1.5	0	0	1.0	0
2012	1390	1310	80	5.8	.7	0	0	1.0	0
2013	1400	1320	80	5.8	.7	0	0	1.0	0
2014	1420	1340	80	5.7	1.4	0	0	1.0	0
2015	1440	1360	80	5.6	1.4	0	0	1.0	0
2016	1460	1380	80	5.5	1.4	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-9

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

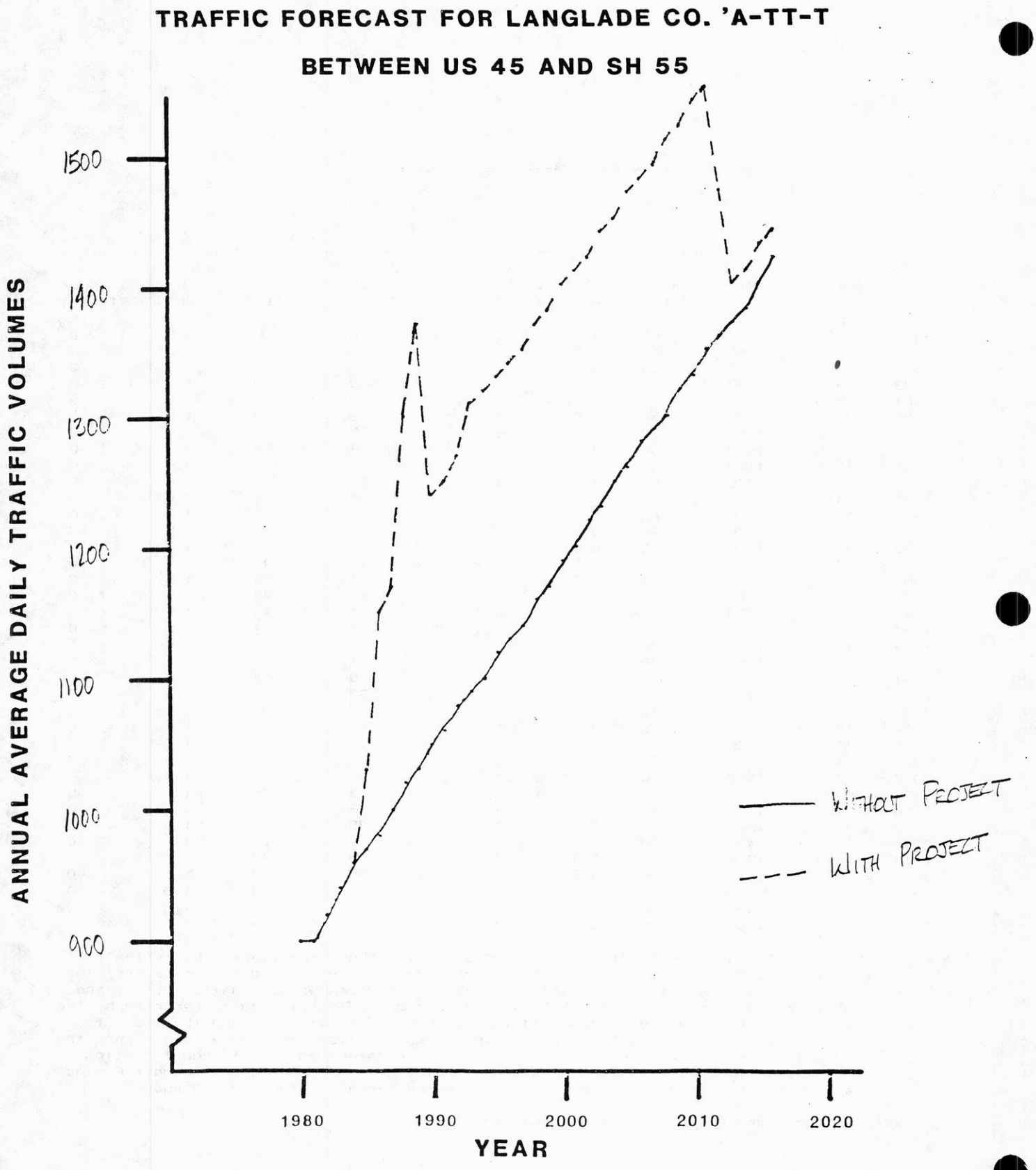
TRAFFIC FORECAST FOR LANGLADE CO. 'K'
ELCHO - SH 55

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	900	860	40	4.5	.0	0	0	1.0	0
1981	900	860	40	4.5	.0	0	0	1.0	0
1982	920	870	50	5.5	2.2	0	0	1.0	0
1983	940	890	50	5.4	2.2	0	0	1.0	0
1984	960	910	50	5.3	2.1	0	0	1.0	0
1985	1010	960	50	5.0	5.2	13	13	1.6	0
1986	1130	1080	50	4.5	11.9	77	77	1.6	0
1987	1120	1070	50	4.5	-.9	58	58	1.6	0
1988	1230	1170	60	4.9	9.8	113	113	1.6	0
1989	1280	1220	60	4.7	4.1	125	125	1.6	0
1990	1150	1090	60	5.3	-10.2	32	32	1.6	0
1991	1170	1110	60	5.2	1.7	35	35	1.6	0
1992	1180	1120	60	5.1	.9	36	36	1.6	0
1993	1210	1150	60	5.0	2.5	41	41	1.6	0
1994	1220	1160	60	5.0	.8	41	41	1.6	0
1995	1240	1170	70	5.7	1.6	41	41	1.6	0
1996	1250	1180	70	5.7	.8	41	41	1.6	0
1997	1260	1190	70	5.6	.8	41	41	1.6	0
1998	1270	1200	70	5.6	.8	41	41	1.6	0
1999	1290	1220	70	5.5	1.6	41	41	1.6	0
2000	1310	1240	70	5.4	1.6	41	41	1.6	0
2001	1320	1250	70	5.4	.8	38	38	1.6	0
2002	1340	1270	70	5.3	1.5	38	38	1.6	0
2003	1350	1280	70	5.2	.7	38	38	1.6	0
2004	1370	1300	70	5.2	1.5	38	38	1.6	0
2005	1390	1320	70	5.1	1.5	38	38	1.6	0
2006	1400	1320	80	5.8	.7	38	38	1.6	0
2007	1420	1340	80	5.7	1.4	38	38	1.6	0
2008	1430	1350	80	5.6	.7	38	38	1.6	0
2009	1450	1370	80	5.6	1.4	38	38	1.6	0
2010	1460	1380	80	5.5	.7	38	38	1.6	0
2011	1480	1400	80	5.5	1.4	38	38	1.6	0
2012	1470	1390	80	5.5	-.7	19	19	1.6	0
2013	1460	1380	80	5.5	-.7	0	0	1.0	0
2014	1480	1400	80	5.5	1.4	0	0	1.0	0
2015	1490	1410	80	5.4	.7	0	0	1.0	0
2016	1510	1430	80	5.3	1.3	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-10



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-10

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR LANGLADE CO. 'A-TT-T'
US 45 - SH 55

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	900	850	50	5.6	.0	0	0	1.0	0
1981	900	860	40	4.5	.0	0	0	1.0	0
1982	920	880	40	4.4	2.2	0	0	1.0	0
1983	940	890	50	5.4	2.2	0	0	1.0	0
1984	960	910	50	5.3	2.1	0	0	1.0	0
1985	970	920	50	5.2	1.0	0	0	1.0	0
1986	980	930	50	5.2	1.0	0	0	1.0	0
1987	1000	950	50	5.1	2.0	0	0	1.0	0
1988	1020	970	50	5.0	2.0	0	0	1.0	0
1989	1030	980	50	4.9	1.0	0	0	1.0	0
1990	1050	1000	50	4.8	1.9	0	0	1.0	0
1991	1060	1010	50	4.8	1.0	0	0	1.0	0
1992	1080	1030	50	4.7	1.9	0	0	1.0	0
1993	1090	1040	50	4.6	.9	0	0	1.0	0
1994	1100	1040	60	5.5	.9	0	0	1.0	0
1995	1120	1060	60	5.4	1.8	0	0	1.0	0
1996	1130	1070	60	5.4	.9	0	0	1.0	0
1997	1140	1080	60	5.3	.9	0	0	1.0	0
1998	1160	1100	60	5.2	1.8	0	0	1.0	0
1999	1170	1110	60	5.2	.9	0	0	1.0	0
2000	1190	1130	60	5.1	1.7	0	0	1.0	0
2001	1200	1140	60	5.1	.8	0	0	1.0	0
2002	1220	1160	60	5.0	1.7	0	0	1.0	0
2003	1230	1170	60	4.9	.8	0	0	1.0	0
2004	1250	1190	60	4.9	1.6	0	0	1.0	0
2005	1260	1200	60	4.8	.8	0	0	1.0	0
2006	1280	1220	60	4.7	1.6	0	0	1.0	0
2007	1290	1230	60	4.7	.8	0	0	1.0	0
2008	1300	1240	60	4.7	.8	0	0	1.0	0
2009	1320	1260	60	4.6	1.5	0	0	1.0	0
2010	1330	1270	60	4.6	.8	0	0	1.0	0
2011	1350	1290	60	4.5	1.5	0	0	1.0	0
2012	1360	1290	70	5.2	.7	0	0	1.0	0
2013	1370	1300	70	5.2	.7	0	0	1.0	0
2014	1380	1310	70	5.1	.7	0	0	1.0	0
2015	1400	1330	70	5.1	1.4	0	0	1.0	0
2016	1420	1350	70	5.0	1.4	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-10

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR LANGLADE CO. 'A-TT-T'
US 45 - SH 55

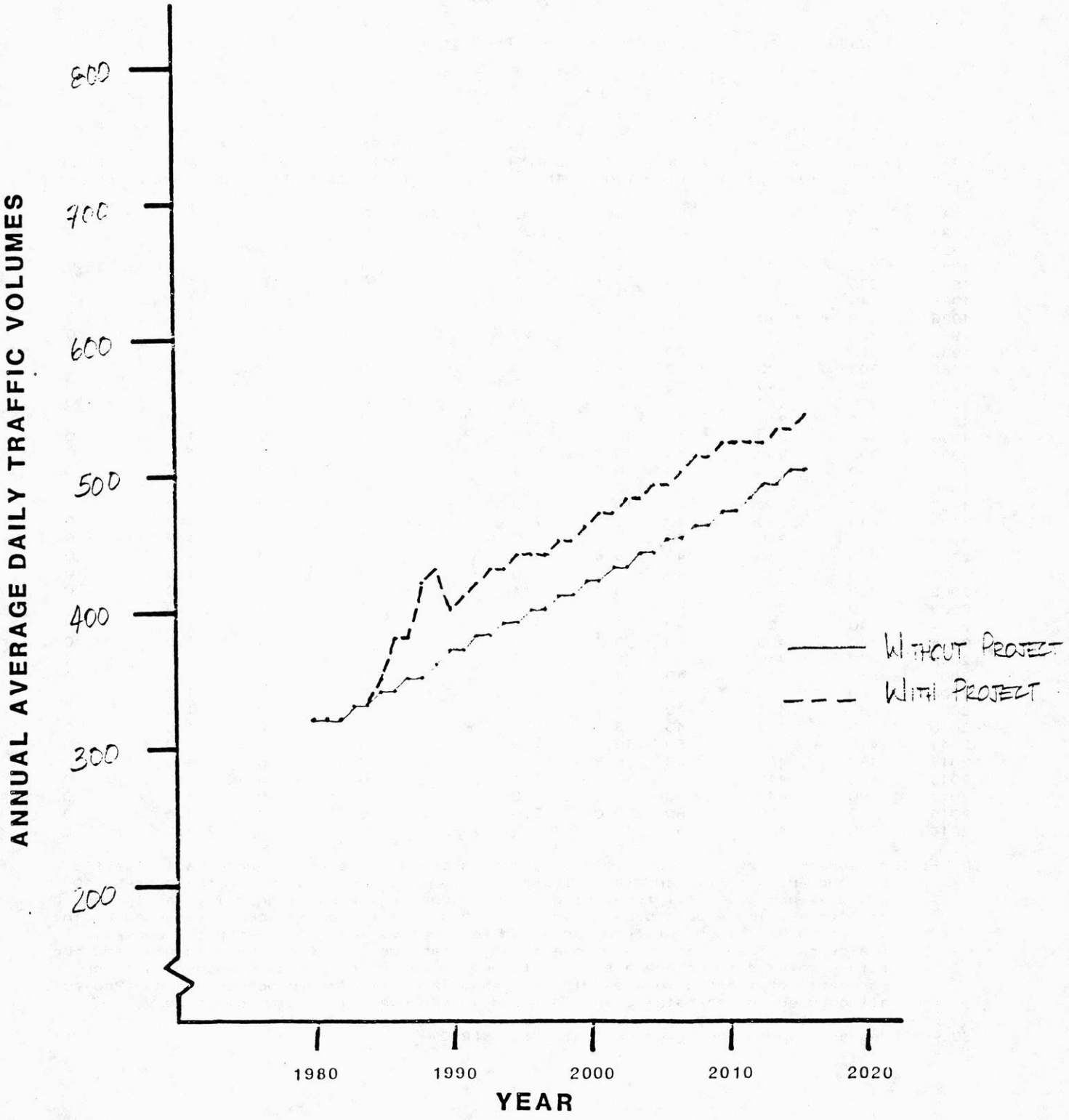
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	900	850	50	5.6	.0	0	0	1.0	0
1981	900	860	40	4.5	.0	0	0	1.0	0
1982	920	880	40	4.4	2.2	0	0	1.0	0
1983	940	890	50	5.4	2.2	0	0	1.0	0
1984	960	910	50	5.3	2.1	0	0	1.0	0
1985	1030	970	60	5.9	7.3	41	33	1.6	8
1986	1150	1080	70	6.1	11.7	126	102	1.6	24
1987	1170	1100	70	6.0	1.7	126	102	1.6	24
1988	1300	1220	80	6.2	11.1	220	196	1.6	24
1989	1370	1290	80	5.9	5.4	261	237	1.6	24
1990	1240	1170	70	5.7	-9.5	154	136	1.6	18
1991	1250	1180	70	5.7	.8	154	142	1.6	12
1992	1270	1200	70	5.6	1.6	159	147	1.6	12
1993	1310	1240	70	5.4	3.1	177	165	1.6	12
1994	1320	1250	70	5.4	.8	177	165	1.6	12
1995	1330	1260	70	5.3	.8	177	165	1.6	12
1996	1340	1270	70	5.3	.8	177	165	1.6	12
1997	1350	1280	70	5.2	.7	177	165	1.6	12
1998	1370	1300	70	5.2	1.5	177	165	1.6	12
1999	1380	1310	70	5.1	.7	177	165	1.6	12
2000	1400	1330	70	5.1	1.4	177	165	1.6	12
2001	1410	1340	70	5.0	.7	172	160	1.6	12
2002	1420	1350	70	5.0	.7	172	160	1.6	12
2003	1440	1370	70	4.9	1.4	172	160	1.6	12
2004	1450	1370	80	5.6	.7	172	160	1.6	12
2005	1470	1390	80	5.5	1.4	172	160	1.6	12
2006	1480	1400	80	5.5	.7	172	160	1.6	12
2007	1490	1410	80	5.4	.7	172	160	1.6	12
2008	1510	1430	80	5.3	1.3	172	160	1.6	12
2009	1520	1440	80	5.3	.7	172	160	1.6	12
2010	1540	1460	80	5.2	1.3	172	160	1.6	12
2011	1550	1470	80	5.2	.6	172	160	1.6	6
2012	1470	1400	70	4.8	-5.2	81	80	1.6	1
2013	1400	1330	70	5.1	-4.8	0	0	1.0	0
2014	1410	1340	70	5.0	.7	0	0	1.0	0
2015	1430	1360	70	4.9	1.4	0	0	1.0	0
2016	1440	1360	80	5.6	.7	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-11

TRAFFIC FORECAST FOR SH 55
BETWEEN JONES CREEK AND ARGONNE



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-11

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR SH 55
JONES CREEK - ARGONNE

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	320	290	30	9.4	.0	0	0	1.0	0
1981	320	290	30	9.4	.0	0	0	1.0	0
1982	320	290	30	9.4	.0	0	0	1.0	0
1983	330	300	30	9.1	3.1	0	0	1.0	0
1984	330	300	30	9.1	.0	0	0	1.0	0
1985	340	310	30	8.9	3.0	0	0	1.0	0
1986	340	310	30	8.9	.0	0	0	1.0	0
1987	350	320	30	8.6	2.9	0	0	1.0	0
1988	350	320	30	8.6	.0	0	0	1.0	0
1989	360	330	30	8.4	2.9	0	0	1.0	0
1990	370	340	30	8.2	2.8	0	0	1.0	0
1991	370	340	30	8.2	.0	0	0	1.0	0
1992	380	340	40	10.6	2.7	0	0	1.0	0
1993	380	340	40	10.6	.0	0	0	1.0	0
1994	390	350	40	10.3	2.6	0	0	1.0	0
1995	390	350	40	10.3	.0	0	0	1.0	0
1996	400	360	40	10.0	2.6	0	0	1.0	0
1997	400	360	40	10.0	.0	0	0	1.0	0
1998	410	370	40	9.8	2.5	0	0	1.0	0
1999	410	370	40	9.8	.0	0	0	1.0	0
2000	420	380	40	9.6	2.4	0	0	1.0	0
2001	420	380	40	9.6	.0	0	0	1.0	0
2002	430	390	40	9.4	2.4	0	0	1.0	0
2003	430	390	40	9.4	.0	0	0	1.0	0
2004	440	400	40	9.1	2.3	0	0	1.0	0
2005	440	400	40	9.1	.0	0	0	1.0	0
2006	450	410	40	8.9	2.3	0	0	1.0	0
2007	450	410	40	8.9	.0	0	0	1.0	0
2008	460	420	40	8.7	2.2	0	0	1.0	0
2009	460	420	40	8.7	.0	0	0	1.0	0
2010	470	430	40	8.6	2.2	0	0	1.0	0
2011	470	420	50	10.7	.0	0	0	1.0	0
2012	480	430	50	10.5	2.1	0	0	1.0	0
2013	490	440	50	10.3	2.1	0	0	1.0	0
2014	490	440	50	10.3	.0	0	0	1.0	0
2015	500	450	50	10.0	2.0	0	0	1.0	0
2016	500	450	50	10.0	.0	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-11

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR SH 55
JONES CREEK - ARGONNE

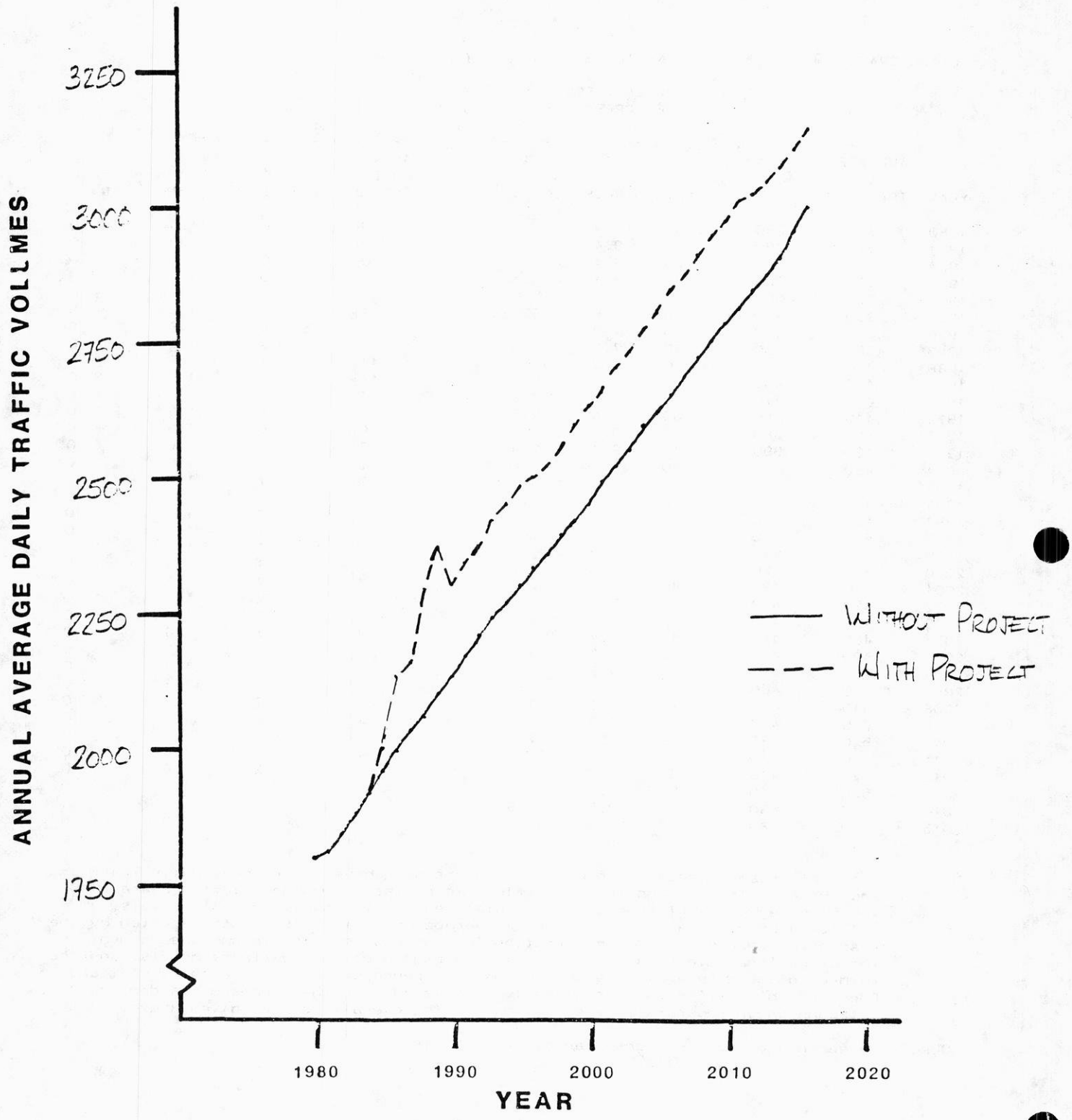
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	320	290	30	9.4	.0	0	0	1.0	0
1981	320	290	30	9.4	.0	0	0	1.0	0
1982	320	290	30	9.4	.0	0	0	1.0	0
1983	330	300	30	9.1	3.1	0	0	1.0	0
1984	330	300	30	9.1	.0	0	0	1.0	0
1985	350	320	30	8.6	6.1	1	1	1.6	0
1986	380	350	30	7.9	8.6	6	6	1.6	0
1987	380	350	30	7.9	.0	3	3	1.6	0
1988	420	390	30	7.2	10.5	11	11	1.6	0
1989	430	400	30	7.0	2.4	11	11	1.6	0
1990	400	370	30	7.6	-7.0	1	1	1.6	0
1991	410	380	30	7.4	2.5	6	6	1.6	0
1992	420	380	40	9.6	2.4	6	6	1.6	0
1993	430	390	40	9.4	2.4	7	7	1.6	0
1994	430	390	40	9.4	.0	7	7	1.6	0
1995	440	400	40	9.1	2.3	7	7	1.6	0
1996	440	400	40	9.1	.0	7	7	1.6	0
1997	440	400	40	9.1	.0	7	7	1.6	0
1998	450	410	40	8.9	2.3	7	7	1.6	0
1999	450	410	40	8.9	.0	7	7	1.6	0
2000	460	420	40	8.7	2.2	7	7	1.6	0
2001	470	430	40	8.6	2.2	7	7	1.6	0
2002	470	430	40	8.6	.0	7	7	1.6	0
2003	480	440	40	8.4	2.1	7	7	1.6	0
2004	480	440	40	8.4	.0	7	7	1.6	0
2005	490	450	40	8.2	2.1	7	7	1.6	0
2006	490	450	40	8.2	.0	7	7	1.6	0
2007	500	460	40	8.0	2.0	7	7	1.6	0
2008	510	470	40	7.9	2.0	7	7	1.6	0
2009	510	470	40	7.9	.0	7	7	1.6	0
2010	520	480	40	7.7	2.0	7	7	1.6	0
2011	520	470	50	9.7	.0	7	7	1.6	0
2012	520	470	50	9.7	.0	3	3	1.6	0
2013	520	470	50	9.7	.0	0	0	1.0	0
2014	530	480	50	9.5	1.9	0	0	1.0	0
2015	530	480	50	9.5	.0	0	0	1.0	0
2016	540	490	50	9.3	1.9	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-12

TRAFFIC FORECAST FOR SH 55 & 32 BETWEEN ARGONNE AND CRANDON



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-12

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR SH 55 & 32
ARGONNE - CRANDON

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	1800	1630	170	9.5	.0	0	0	1.0	0
1981	1810	1650	160	8.9	.6	0	0	1.0	0
1982	1840	1670	170	9.3	1.7	0	0	1.0	0
1983	1880	1710	170	9.1	2.2	0	0	1.0	0
1984	1920	1740	180	9.4	2.1	0	0	1.0	0
1985	1960	1780	180	9.2	2.1	0	0	1.0	0
1986	1990	1800	190	9.6	1.5	0	0	1.0	0
1987	2030	1840	190	9.4	2.0	0	0	1.0	0
1988	2060	1870	190	9.3	1.5	0	0	1.0	0
1989	2100	1900	200	9.6	1.9	0	0	1.0	0
1990	2130	1930	200	9.4	1.4	0	0	1.0	0
1991	2170	1960	210	9.7	1.9	0	0	1.0	0
1992	2210	2000	210	9.6	1.8	0	0	1.0	0
1993	2240	2020	220	9.9	1.4	0	0	1.0	0
1994	2270	2050	220	9.7	1.3	0	0	1.0	0
1995	2300	2070	230	10.0	1.3	0	0	1.0	0
1996	2330	2100	230	9.9	1.3	0	0	1.0	0
1997	2360	2130	230	9.8	1.3	0	0	1.0	0
1998	2390	2150	240	10.1	1.3	0	0	1.0	0
1999	2420	2180	240	10.0	1.3	0	0	1.0	0
2000	2450	2210	240	9.8	1.2	0	0	1.0	0
2001	2490	2240	250	10.1	1.6	0	0	1.0	0
2002	2520	2270	250	10.0	1.2	0	0	1.0	0
2003	2550	2300	250	9.9	1.2	0	0	1.0	0
2004	2590	2330	260	10.1	1.6	0	0	1.0	0
2005	2620	2360	260	10.0	1.2	0	0	1.0	0
2006	2650	2390	260	9.9	1.1	0	0	1.0	0
2007	2680	2410	270	10.1	1.1	0	0	1.0	0
2008	2720	2450	270	10.0	1.5	0	0	1.0	0
2009	2750	2480	270	9.9	1.1	0	0	1.0	0
2010	2780	2500	280	10.1	1.1	0	0	1.0	0
2011	2810	2530	280	10.0	1.1	0	0	1.0	0
2012	2840	2560	280	9.9	1.1	0	0	1.0	0
2013	2870	2580	290	10.2	1.1	0	0	1.0	0
2014	2900	2610	290	10.0	1.0	0	0	1.0	0
2015	2950	2650	300	10.2	1.7	0	0	1.0	0
2016	2990	2690	300	10.1	1.4	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-12

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR SH 55 & 32
ARGONNE - CRANDON

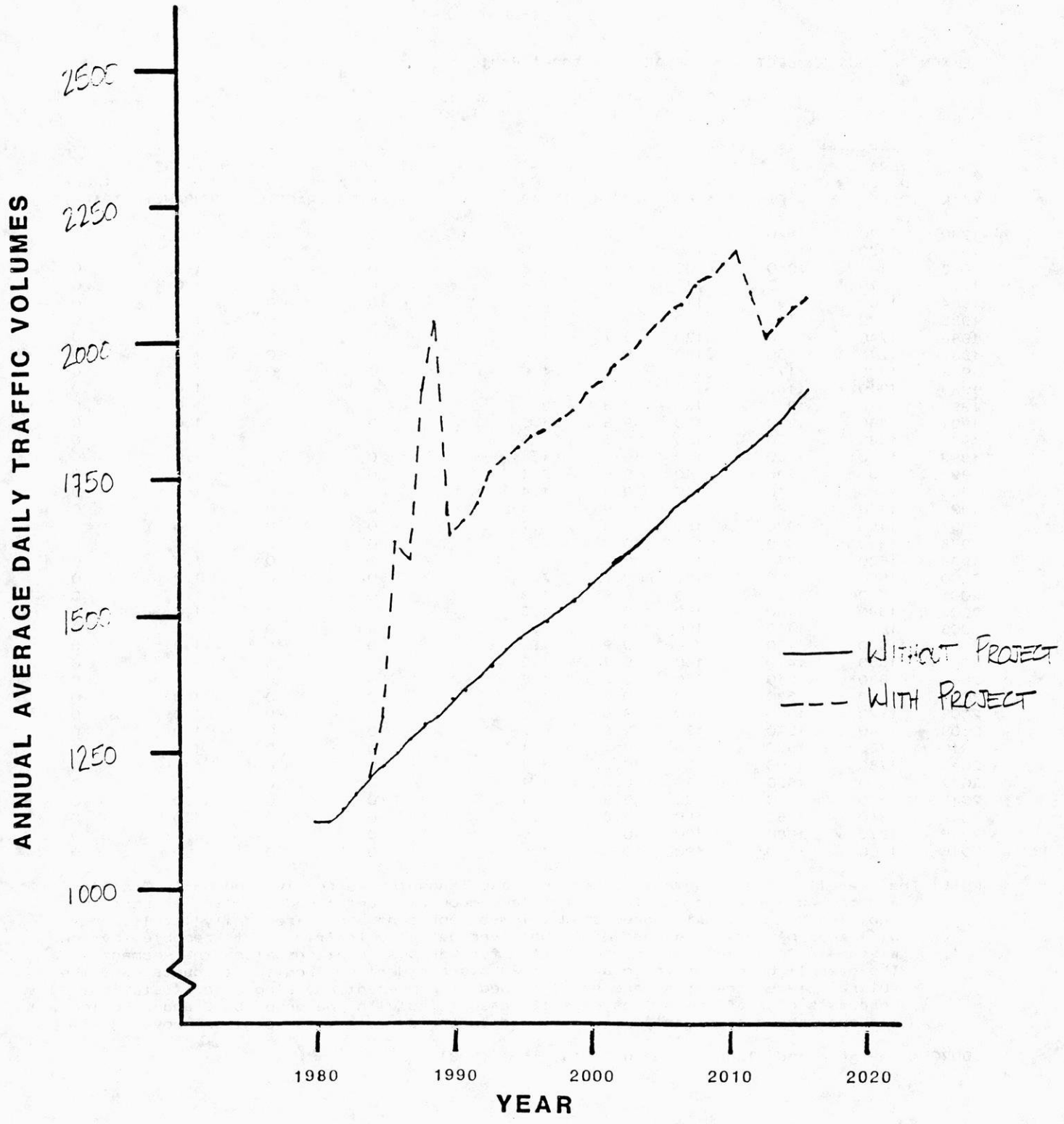
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	1800	1630	170	9.5	.0	0	0	1.0	0
1981	1810	1650	160	8.9	.6	0	0	1.0	0
1982	1840	1670	170	9.3	1.7	0	0	1.0	0
1983	1890	1720	170	9.0	2.7	0	0	1.0	0
1984	1920	1740	180	9.4	1.6	0	0	1.0	0
1985	2000	1820	180	9.0	4.2	2	2	1.6	0
1986	2130	1940	190	9.0	6.5	8	8	1.6	0
1987	2160	1960	200	9.3	1.4	6	6	1.6	0
1988	2290	2090	200	8.8	6.0	15	15	1.6	0
1989	2370	2160	210	8.9	3.5	16	16	1.6	0
1990	2300	2090	210	9.2	-3.0	1	1	1.6	0
1991	2340	2120	220	9.5	1.7	7	7	1.6	0
1992	2370	2150	220	9.3	1.3	7	7	1.6	0
1993	2420	2190	230	9.6	2.1	8	8	1.6	0
1994	2450	2220	230	9.4	1.2	8	8	1.6	0
1995	2480	2240	240	9.7	1.2	8	8	1.6	0
1996	2500	2260	240	9.6	.8	8	8	1.6	0
1997	2520	2280	240	9.6	.8	8	8	1.6	0
1998	2560	2310	250	9.8	1.6	8	8	1.6	0
1999	2590	2340	250	9.7	1.2	8	8	1.6	0
2000	2630	2380	250	9.6	1.5	8	8	1.6	0
2001	2660	2400	260	9.8	1.1	8	8	1.6	0
2002	2700	2440	260	9.7	1.5	8	8	1.6	0
2003	2730	2470	260	9.6	1.1	8	8	1.6	0
2004	2770	2500	270	9.8	1.5	8	8	1.6	0
2005	2800	2530	270	9.7	1.1	8	8	1.6	0
2006	2840	2570	270	9.6	1.4	8	8	1.6	0
2007	2870	2590	280	9.8	1.1	8	8	1.6	0
2008	2910	2630	280	9.7	1.4	8	8	1.6	0
2009	2940	2650	290	9.9	1.0	8	8	1.6	0
2010	2970	2680	290	9.8	1.0	8	8	1.6	0
2011	3010	2720	290	9.7	1.3	8	8	1.6	0
2012	3020	2720	300	10.0	.3	4	4	1.6	0
2013	3040	2740	300	9.9	.7	0	0	1.0	0
2014	3070	2770	300	9.8	1.0	0	0	1.0	0
2015	3100	2790	310	10.0	1.0	0	0	1.0	0
2016	3140	2830	310	9.9	1.3	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-13

TRAFFIC FORECAST FOR SH 55 BETWEEN CRANDON AND FOREST CO. 'S'



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-13

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR SH 55
CRANDON - FOREST CO. 'S'

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	1120	1020	100	9.0	.0	0	0	1.0	0
1981	1120	1020	100	9.0	.0	0	0	1.0	0
1982	1140	1040	100	8.8	1.8	0	0	1.0	0
1983	1170	1060	110	9.5	2.6	0	0	1.0	0
1984	1200	1090	110	9.2	2.6	0	0	1.0	0
1985	1220	1110	110	9.1	1.7	0	0	1.0	0
1986	1240	1120	120	9.7	1.6	0	0	1.0	0
1987	1270	1150	120	9.5	2.4	0	0	1.0	0
1988	1290	1170	120	9.4	1.6	0	0	1.0	0
1989	1310	1180	130	10.0	1.6	0	0	1.0	0
1990	1340	1210	130	9.8	2.3	0	0	1.0	0
1991	1360	1230	130	9.6	1.5	0	0	1.0	0
1992	1380	1250	130	9.5	1.5	0	0	1.0	0
1993	1400	1260	140	10.0	1.4	0	0	1.0	0
1994	1430	1290	140	9.8	2.1	0	0	1.0	0
1995	1450	1310	140	9.7	1.4	0	0	1.0	0
1996	1470	1330	140	9.6	1.4	0	0	1.0	0
1997	1480	1330	150	10.2	.7	0	0	1.0	0
1998	1510	1360	150	10.0	2.0	0	0	1.0	0
1999	1520	1370	150	9.9	.7	0	0	1.0	0
2000	1550	1400	150	9.7	2.0	0	0	1.0	0
2001	1570	1420	150	9.6	1.3	0	0	1.0	0
2002	1590	1430	160	10.1	1.3	0	0	1.0	0
2003	1610	1450	160	10.0	1.3	0	0	1.0	0
2004	1630	1470	160	9.9	1.2	0	0	1.0	0
2005	1650	1490	160	9.7	1.2	0	0	1.0	0
2006	1680	1510	170	10.2	1.8	0	0	1.0	0
2007	1700	1530	170	10.0	1.2	0	0	1.0	0
2008	1720	1550	170	9.9	1.2	0	0	1.0	0
2009	1740	1570	170	9.8	1.2	0	0	1.0	0
2010	1760	1590	170	9.7	1.1	0	0	1.0	0
2011	1780	1600	180	10.2	1.1	0	0	1.0	0
2012	1800	1620	180	10.0	1.1	0	0	1.0	0
2013	1820	1640	180	9.9	1.1	0	0	1.0	0
2014	1840	1660	180	9.8	1.1	0	0	1.0	0
2015	1870	1680	190	10.2	1.6	0	0	1.0	0
2016	1900	1710	190	10.0	1.6	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-13

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR SH 55
CRANDON - FOREST CO. 'S'

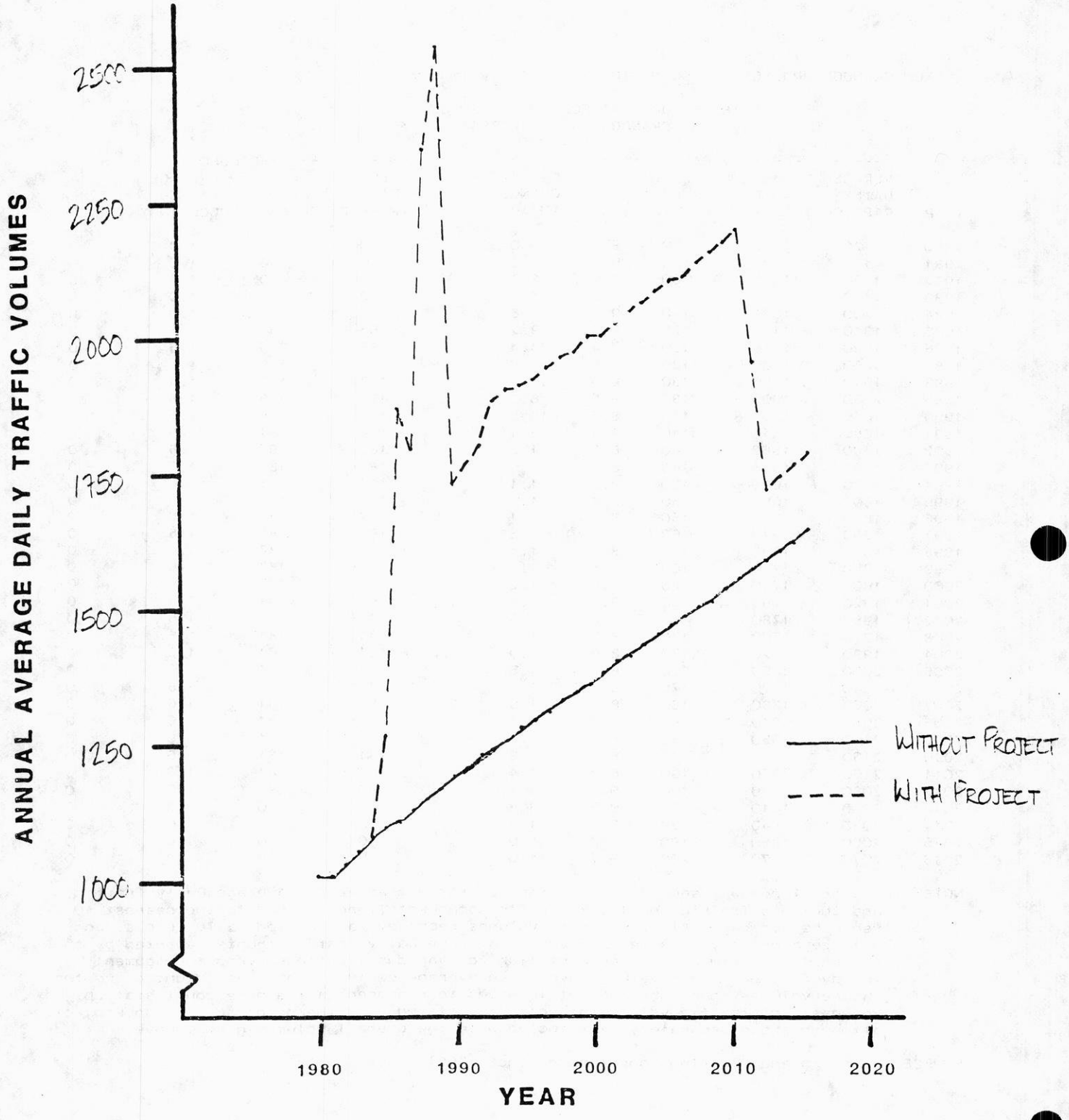
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	1120	1020	100	9.0	.0	0	0	1.0	0
1981	1120	1020	100	9.0	.0	0	0	1.0	0
1982	1150	1050	100	8.7	2.7	0	0	1.0	0
1983	1170	1060	110	9.5	1.7	0	0	1.0	0
1984	1200	1090	110	9.2	2.6	0	0	1.0	0
1985	1310	1190	120	9.2	9.2	55	55	1.6	0
1986	1630	1510	120	7.4	24.4	275	275	1.6	0
1987	1600	1480	120	7.6	-1.8	225	225	1.6	0
1988	1910	1780	130	6.9	19.4	417	417	1.6	0
1989	2030	1900	130	6.5	6.3	476	476	1.6	0
1990	1640	1500	140	8.6	-19.2	147	147	1.6	0
1991	1680	1540	140	8.4	2.4	161	161	1.6	0
1992	1700	1560	140	8.3	1.2	165	165	1.6	0
1993	1760	1620	140	8.0	3.5	187	187	1.6	0
1994	1780	1630	150	8.5	1.1	187	187	1.6	0
1995	1800	1650	150	8.4	1.1	187	187	1.6	0
1996	1820	1670	150	8.3	1.1	187	187	1.6	0
1997	1830	1670	160	8.8	.5	187	187	1.6	0
1998	1850	1690	160	8.7	1.1	187	187	1.6	0
1999	1870	1710	160	8.6	1.1	187	187	1.6	0
2000	1900	1740	160	8.5	1.6	187	187	1.6	0
2001	1920	1760	160	8.4	1.1	181	181	1.6	0
2002	1950	1780	170	8.8	1.6	181	181	1.6	0
2003	1970	1800	170	8.7	1.0	181	181	1.6	0
2004	1990	1820	170	8.6	1.0	181	181	1.6	0
2005	2020	1850	170	8.5	1.5	181	181	1.6	0
2006	2040	1870	170	8.4	1.0	181	181	1.6	0
2007	2060	1880	180	8.8	1.0	181	181	1.6	0
2008	2090	1910	180	8.7	1.5	181	181	1.6	0
2009	2110	1930	180	8.6	1.0	181	181	1.6	0
2010	2130	1950	180	8.5	.9	181	181	1.6	0
2011	2160	1970	190	8.8	1.4	181	181	1.6	0
2012	2080	1890	190	9.2	-3.7	90	90	1.6	0
2013	2000	1810	190	9.5	-3.8	0	0	1.0	0
2014	2030	1840	190	9.4	1.5	0	0	1.0	0
2015	2050	1860	190	9.3	1.0	0	0	1.0	0
2016	2070	1870	200	9.7	1.0	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-14

TRAFFIC FORECAST FOR SH 55
BETWEEN FOREST CO. 'S' AND FOREST CO. 'B'



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-14

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR SH 55
FOREST CO. 'S' - FOREST CO. 'B'

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	1010	920	90	9.0	.0	0	0	1.0	0
1981	1010	920	90	9.0	.0	0	0	1.0	0
1982	1030	940	90	8.8	2.0	0	0	1.0	0
1983	1060	960	100	9.5	2.9	0	0	1.0	0
1984	1080	980	100	9.3	1.9	0	0	1.0	0
1985	1100	1000	100	9.1	1.9	0	0	1.0	0
1986	1110	1000	110	10.0	.9	0	0	1.0	0
1987	1130	1020	110	9.8	1.8	0	0	1.0	0
1988	1150	1040	110	9.6	1.8	0	0	1.0	0
1989	1170	1060	110	9.5	1.7	0	0	1.0	0
1990	1190	1070	120	10.1	1.7	0	0	1.0	0
1991	1210	1090	120	10.0	1.7	0	0	1.0	0
1992	1230	1110	120	9.8	1.7	0	0	1.0	0
1993	1240	1120	120	9.7	.8	0	0	1.0	0
1994	1260	1130	130	10.4	1.6	0	0	1.0	0
1995	1280	1150	130	10.2	1.6	0	0	1.0	0
1996	1290	1160	130	10.1	.8	0	0	1.0	0
1997	1310	1180	130	10.0	1.6	0	0	1.0	0
1998	1330	1200	130	9.8	1.5	0	0	1.0	0
1999	1340	1200	140	10.5	.8	0	0	1.0	0
2000	1360	1220	140	10.3	1.5	0	0	1.0	0
2001	1380	1240	140	10.2	1.5	0	0	1.0	0
2002	1400	1260	140	10.0	1.4	0	0	1.0	0
2003	1410	1270	140	10.0	.7	0	0	1.0	0
2004	1430	1280	150	10.5	1.4	0	0	1.0	0
2005	1450	1300	150	10.4	1.4	0	0	1.0	0
2006	1470	1320	150	10.3	1.4	0	0	1.0	0
2007	1480	1330	150	10.2	.7	0	0	1.0	0
2008	1500	1350	150	10.0	1.4	0	0	1.0	0
2009	1510	1360	150	10.0	.7	0	0	1.0	0
2010	1530	1370	160	10.5	1.3	0	0	1.0	0
2011	1550	1390	160	10.4	1.3	0	0	1.0	0
2012	1570	1410	160	10.2	1.3	0	0	1.0	0
2013	1580	1420	160	10.2	.6	0	0	1.0	0
2014	1600	1440	160	10.0	1.3	0	0	1.0	0
2015	1620	1450	170	10.5	1.3	0	0	1.0	0
2016	1640	1470	170	10.4	1.2	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-14

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR SH 55
FOREST CO. 'S' - FOREST CO. 'B'

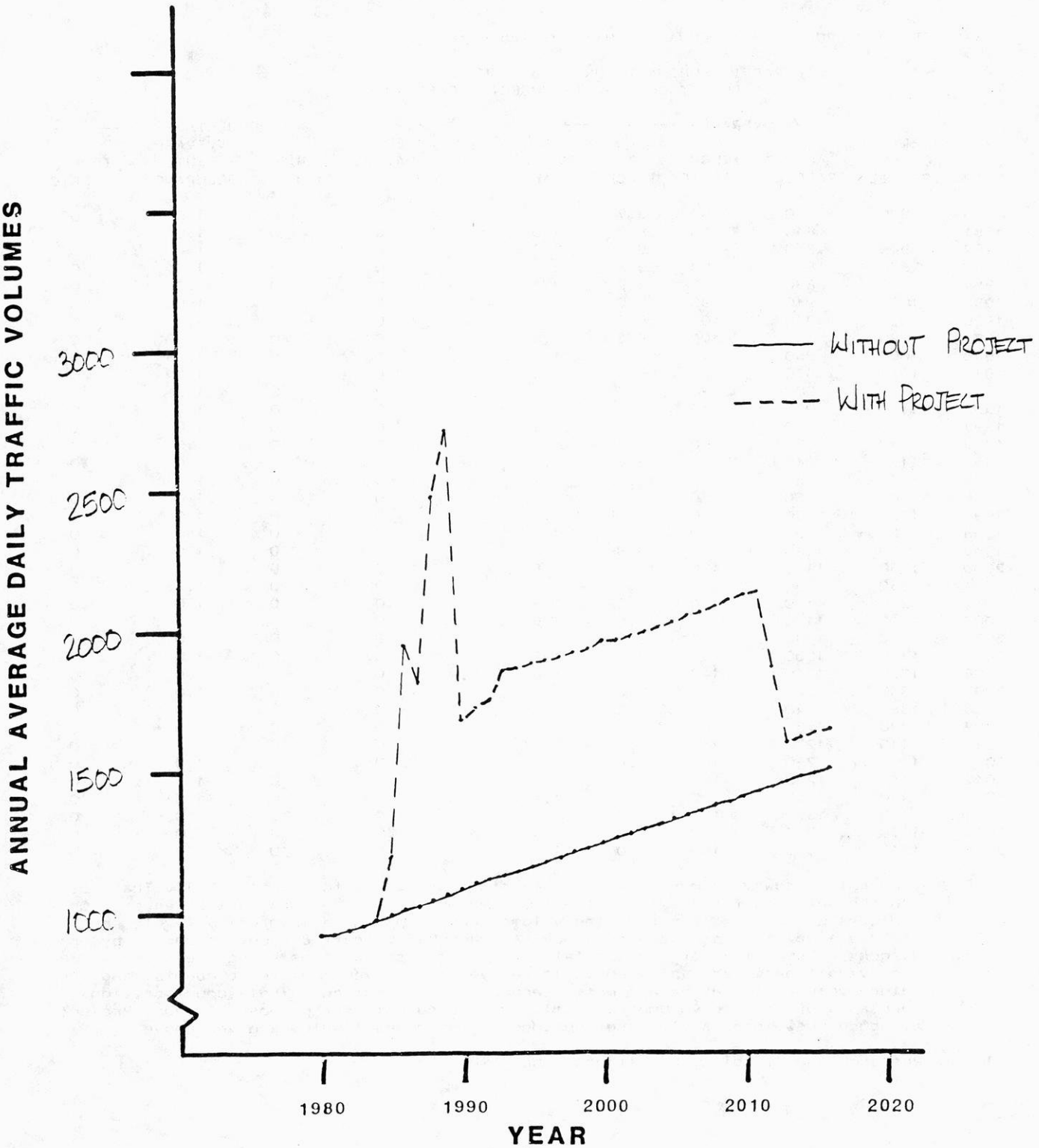
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	1010	920	90	9.0	.0	0	0	1.0	0
1981	1020	930	90	8.9	1.0	0	0	1.0	0
1982	1040	950	90	8.7	2.0	0	0	1.0	0
1983	1060	960	100	9.5	1.9	0	0	1.0	0
1984	1080	980	100	9.3	1.9	0	0	1.0	0
1985	1270	1160	110	8.7	17.6	142	134	1.6	8
1986	1870	1740	130	7.0	47.2	640	616	1.6	24
1987	1790	1650	140	7.9	-4.3	556	532	1.6	24
1988	2340	2200	140	6.0	30.7	1006	982	1.6	24
1989	2530	2390	140	5.6	8.1	1152	1128	1.6	24
1990	1730	1590	140	8.1	-31.6	419	401	1.6	18
1991	1770	1630	140	8.0	2.3	440	428	1.6	12
1992	1800	1660	140	7.8	1.7	455	443	1.6	12
1993	1880	1740	140	7.5	4.4	510	498	1.6	12
1994	1900	1750	150	7.9	1.1	510	498	1.6	12
1995	1910	1760	150	7.9	.5	510	498	1.6	12
1996	1920	1770	150	7.9	.5	510	498	1.6	12
1997	1940	1790	150	7.8	1.0	510	498	1.6	12
1998	1960	1810	150	7.7	1.0	510	498	1.6	12
1999	1970	1810	160	8.2	.5	510	498	1.6	12
2000	2000	1840	160	8.0	1.5	510	98	1.6	12
2001	2000	1840	160	8.0	.0	494	4 2	1.6	12
2002	2020	1860	160	8.0	1.0	494	482	1.6	12
2003	2040	1880	160	7.9	1.0	494	482	1.6	12
2004	2060	1890	170	8.3	1.0	494	482	1.6	12
2005	2080	1910	170	8.2	1.0	494	482	1.6	12
2006	2100	1930	170	8.1	1.0	494	482	1.6	12
2007	2110	1940	170	8.1	.5	494	482	1.6	12
2008	2130	1960	170	8.0	.9	494	482	1.6	12
2009	2150	1980	170	8.0	.9	494	482	1.6	12
2010	2170	1990	180	8.3	.9	494	482	1.6	12
2011	2190	2010	180	8.3	.9	494	482	1.6	6
2012	1950	1770	180	9.3	-11.0	242	241	1.6	1
2013	1720	1540	180	10.5	-11.8	0	0	1.0	0
2014	1740	1560	180	10.4	1.2	0	0	1.0	0
2015	1760	1580	180	10.3	1.1	0	0	1.0	0
2016	1780	1600	180	10.2	1.1	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-15

TRAFFIC FORECAST FOR SH 55
BETWEEN FOREST CO. 'B' AND PROJECT ACCESS RD.



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-15

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR SH 55
FOREST CO. 'B' -PROJECT ACCESS RD.

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	920	840	80	8.7	.0	0	0	1.0	0
1981	920	840	80	8.7	.0	0	0	1.0	0
1982	940	850	90	9.6	2.2	0	0	1.0	0
1983	960	870	90	9.4	2.1	0	0	1.0	0
1984	980	890	90	9.2	2.1	0	0	1.0	0
1985	1000	910	90	9.0	2.0	0	0	1.0	0
1986	1020	920	100	9.9	2.0	0	0	1.0	0
1987	1030	930	100	9.8	1.0	0	0	1.0	0
1988	1050	950	100	9.6	1.9	0	0	1.0	0
1989	1070	970	100	9.4	1.9	0	0	1.0	0
1990	1090	980	110	10.1	1.9	0	0	1.0	0
1991	1110	1000	110	10.0	1.8	0	0	1.0	0
1992	1120	1010	110	9.9	.9	0	0	1.0	0
1993	1140	1030	110	9.7	1.8	0	0	1.0	0
1994	1150	1040	110	9.6	.9	0	0	1.0	0
1995	1170	1050	120	10.3	1.7	0	0	1.0	0
1996	1180	1060	120	10.2	.9	0	0	1.0	0
1997	1200	1080	120	10.0	1.7	0	0	1.0	0
1998	1220	1100	120	9.9	1.7	0	0	1.0	0
1999	1230	1110	120	9.8	.8	0	0	1.0	0
2000	1250	1120	130	10.4	1.6	0	0	1.0	0
2001	1260	1130	130	10.4	.8	0	0	1.0	0
2002	1280	1150	130	10.2	1.6	0	0	1.0	0
2003	1300	1170	130	10.0	1.6	0	0	1.0	0
2004	1310	1180	130	10.0	.8	0	0	1.0	0
2005	1330	1200	130	9.8	1.5	0	0	1.0	0
2006	1350	1210	140	10.4	1.5	0	0	1.0	0
2007	1360	1220	140	10.3	.7	0	0	1.0	0
2008	1380	1240	140	10.2	1.5	0	0	1.0	0
2009	1390	1250	140	10.1	.7	0	0	1.0	0
2010	1410	1270	140	10.0	1.4	0	0	1.0	0
2011	1430	1290	140	9.8	1.4	0	0	1.0	0
2012	1440	1290	150	10.5	.7	0	0	1.0	0
2013	1460	1310	150	10.3	1.4	0	0	1.0	0
2014	1470	1320	150	10.3	.7	0	0	1.0	0
2015	1490	1340	150	10.1	1.4	0	0	1.0	0
2016	1510	1360	150	10.0	1.3	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-15

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR SH 55
FOREST CO. 'B' -PROJECT ACCESS RD.

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	920	840	80	8.7	.0	0	0	1.0	0
1981	920	840	80	8.7	.0	0	0	1.0	0
1982	940	850	90	9.6	2.2	0	0	1.0	0
1983	960	870	90	9.4	2.1	0	0	1.0	0
1984	980	890	90	9.2	2.1	0	0	1.0	0
1985	1200	1100	100	8.4	22.4	172	164	1.6	8
1986	1950	1830	120	6.2	62.5	830	806	1.6	24
1987	1820	1690	130	7.2	-6.7	691	667	1.6	24
1988	2490	2360	130	5.3	36.8	1267	1243	1.6	24
1989	2720	2590	130	4.8	9.2	1449	1425	1.6	24
1990	1690	1560	130	7.7	-37.9	484	466	1.6	18
1991	1730	1600	130	7.6	2.4	508	496	1.6	12
1992	1760	1630	130	7.4	1.7	525	513	1.6	12
1993	1860	1730	130	7.0	5.7	589	577	1.6	12
1994	1870	1740	130	7.0	.5	589	577	1.6	12
1995	1890	1750	140	7.5	1.1	589	577	1.6	12
1996	1900	1760	140	7.4	.5	589	577	1.6	12
1997	1910	1770	140	7.4	.5	589	577	1.6	12
1998	1930	1790	140	7.3	1.0	589	577	1.6	12
1999	1940	1800	140	7.3	.5	589	577	1.6	12
2000	1970	1830	140	7.2	1.5	589	577	1.6	12
2001	1970	1820	150	7.7	.0	570	558	1.6	12
2002	1980	1830	150	7.6	.5	570	558	1.6	12
2003	2000	1850	150	7.6	1.0	570	558	1.6	12
2004	2020	1870	150	7.5	1.0	570	558	1.6	12
2005	2040	1890	150	7.4	1.0	570	558	1.6	12
2006	2060	1900	160	7.8	1.0	570	558	1.6	12
2007	2070	1910	160	7.8	.5	570	558	1.6	12
2008	2090	1930	160	7.7	1.0	570	558	1.6	12
2009	2110	1950	160	7.6	1.0	570	558	1.6	12
2010	2130	1970	160	7.6	.9	570	558	1.6	12
2011	2140	1980	160	7.5	.5	570	558	1.6	6
2012	1870	1710	160	8.6	-12.6	280	279	1.6	1
2013	1600	1440	160	10.0	-14.4	0	0	1.0	0
2014	1620	1460	160	9.9	1.3	0	0	1.0	0
2015	1630	1460	170	10.5	.6	0	0	1.0	0
2016	1650	1480	170	10.4	1.2	0	0	1.0	0

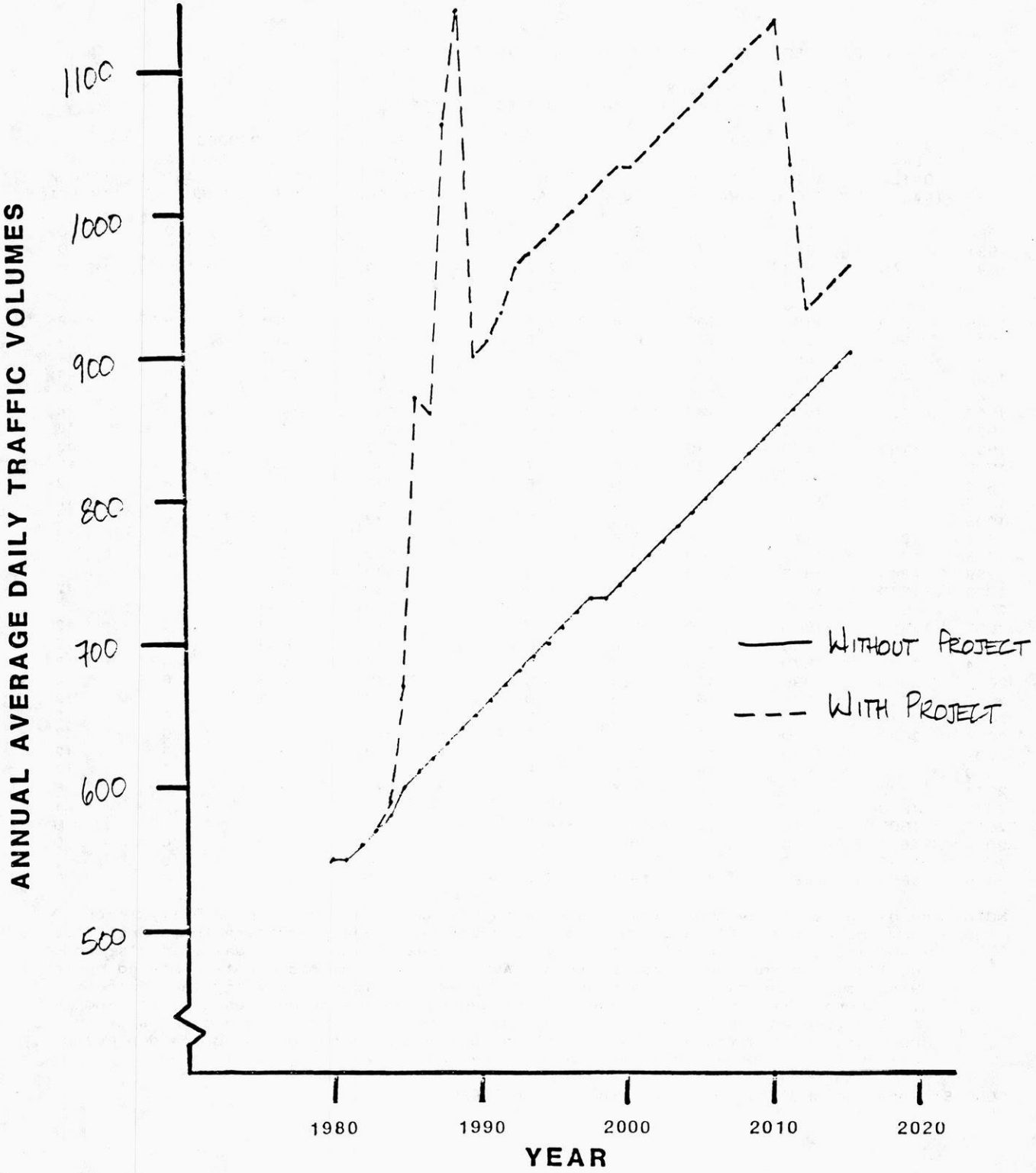
NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-16

TRAFFIC FORECAST FOR SH 55

BETWEEN PROJECT ACCESS RD. AND LANGLADE CO. 'K'



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-16

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR SH 55
PROJECT ACCESS RD.- LANGLADE CO. 'K'

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	550	500	50	9.1	.0	0	0	1.0	0
1981	550	500	50	9.1	.0	0	0	1.0	0
1982	560	510	50	9.0	1.8	0	0	1.0	0
1983	570	520	50	8.8	1.8	0	0	1.0	0
1984	580	530	50	8.7	1.8	0	0	1.0	0
1985	600	540	60	10.0	3.4	0	0	1.0	0
1986	610	550	60	9.9	1.7	0	0	1.0	0
1987	620	560	60	9.7	1.6	0	0	1.0	0
1988	630	570	60	9.6	1.6	0	0	1.0	0
1989	640	580	60	9.4	1.6	0	0	1.0	0
1990	650	590	60	9.3	1.6	0	0	1.0	0
1991	660	600	60	9.1	1.5	0	0	1.0	0
1992	670	600	70	10.5	1.5	0	0	1.0	0
1993	680	610	70	10.3	1.5	0	0	1.0	0
1994	690	620	70	10.2	1.5	0	0	1.0	0
1995	700	630	70	10.0	1.4	0	0	1.0	0
1996	710	640	70	9.9	1.4	0	0	1.0	0
1997	720	650	70	9.8	1.4	0	0	1.0	0
1998	730	660	70	9.6	1.4	0	0	1.0	0
1999	730	660	70	9.6	.0	0	0	1.0	0
2000	740	670	70	9.5	1.4	0	0	1.0	0
2001	750	670	80	10.7	1.4	0	0	1.0	0
2002	760	680	80	10.6	1.3	0	0	1.0	0
2003	770	690	80	10.4	1.3	0	0	1.0	0
2004	780	700	80	10.3	1.3	0	0	1.0	0
2005	790	710	80	10.2	1.3	0	0	1.0	0
2006	800	720	80	10.0	1.3	0	0	1.0	0
2007	810	730	80	9.9	1.3	0	0	1.0	0
2008	820	740	80	9.8	1.2	0	0	1.0	0
2009	830	750	80	9.7	1.2	0	0	1.0	0
2010	840	760	80	9.6	1.2	0	0	1.0	0
2011	850	760	90	10.6	1.2	0	0	1.0	0
2012	860	770	90	10.5	1.2	0	0	1.0	0
2013	870	780	90	10.4	1.2	0	0	1.0	0
2014	880	790	90	10.3	1.1	0	0	1.0	0
2015	890	800	90	10.2	1.1	0	0	1.0	0
2016	900	810	90	10.0	1.1	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-16

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR SH 55
PROJECT ACCESS RD.- LANGLADE CO. 'K'

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	550	500	50	9.1	.0	0	0	1.0	0
1981	550	500	50	9.1	.0	0	0	1.0	0
1982	560	510	50	9.0	1.8	0	0	1.0	0
1983	570	520	50	8.8	1.8	0	0	1.0	0
1984	590	540	50	8.5	3.5	0	0	1.0	0
1985	670	610	60	9.0	13.6	59	51	1.6	8
1986	870	790	80	9.2	29.9	222	198	1.6	24
1987	860	780	80	9.4	-1.1	201	177	1.6	24
1988	1060	970	90	8.5	23.3	364	340	1.6	24
1989	1140	1050	90	7.9	7.5	420	396	1.6	24
1990	900	820	80	8.9	-21.1	199	181	1.6	18
1991	910	830	80	8.8	1.1	203	191	1.6	12
1992	930	850	80	8.7	2.2	209	197	1.6	12
1993	960	880	80	8.4	3.2	233	221	1.6	12
1994	970	890	80	8.3	1.0	233	221	1.6	12
1995	980	890	90	9.2	1.0	233	221	1.6	12
1996	990	900	90	9.1	1.0	233	221	1.6	12
1997	1000	910	90	9.0	1.0	233	221	1.6	12
1998	1010	920	90	9.0	1.0	233	221	1.6	12
1999	1020	930	90	8.9	1.0	233	221	1.6	12
2000	1030	940	90	8.8	1.0	233	221	1.6	12
2001	1030	940	90	8.8	.0	225	213	1.6	12
2002	1040	950	90	8.7	1.0	225	213	1.6	12
2003	1050	960	90	8.6	1.0	225	213	1.6	12
2004	1060	970	90	8.5	1.0	225	213	1.6	12
2005	1070	970	100	9.4	.9	225	213	1.6	12
2006	1080	980	100	9.3	.9	225	213	1.6	12
2007	1090	990	100	9.2	.9	225	213	1.6	12
2008	1100	1000	100	9.1	.9	225	213	1.6	12
2009	1110	1010	100	9.1	.9	225	213	1.6	12
2010	1120	1020	100	9.0	.9	225	213	1.6	12
2011	1130	1030	100	8.9	.9	225	213	1.6	6
2012	1030	930	100	9.8	-8.8	107	106	1.6	1
2013	930	830	100	10.8	-9.7	0	0	1.0	0
2014	940	840	100	10.7	1.1	0	0	1.0	0
2015	950	850	100	10.6	1.1	0	0	1.0	0
2016	960	860	100	10.5	1.1	0	0	1.0	0

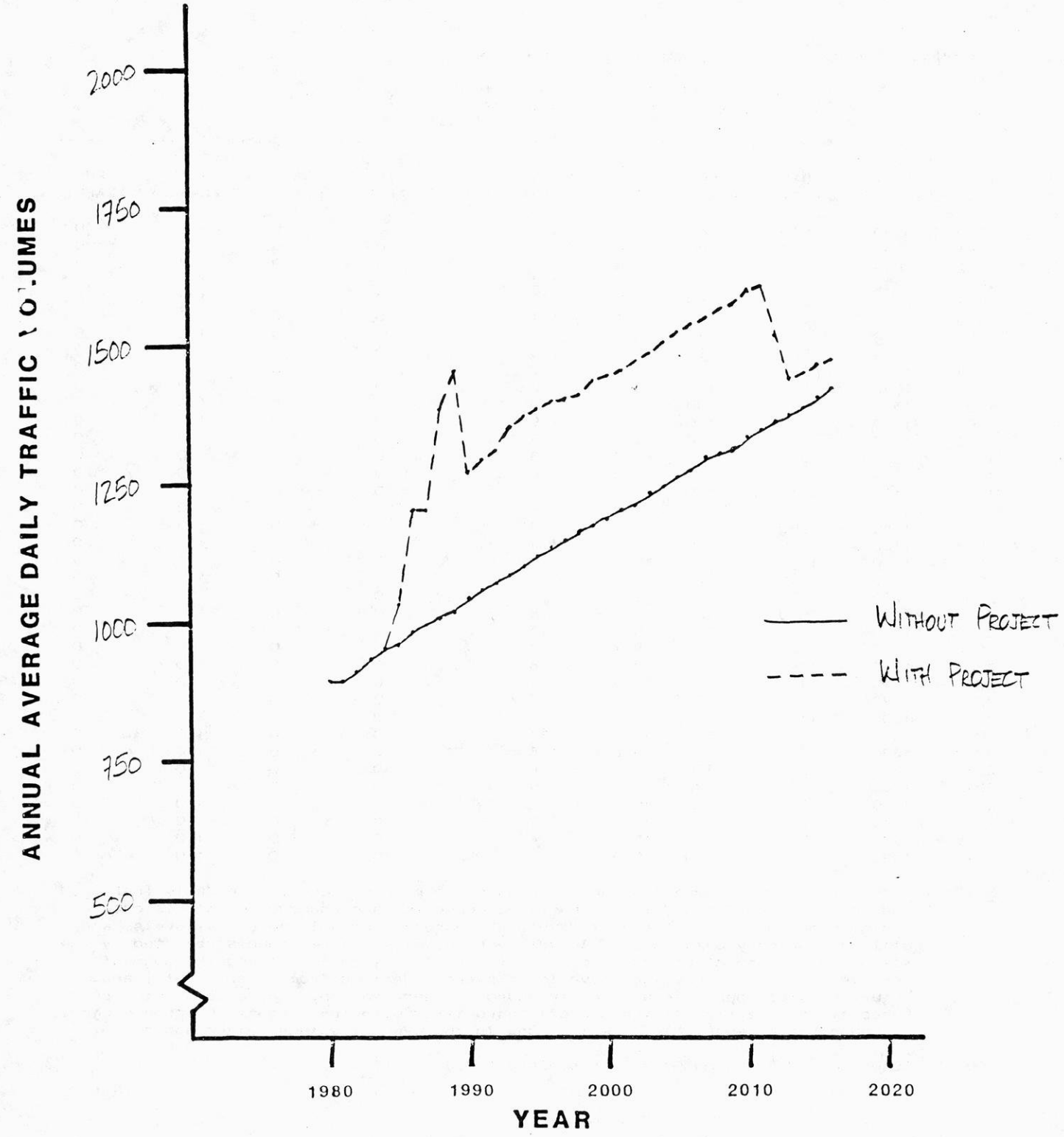
NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-17

TRAFFIC FORECAST FOR SH 55

BETWEEN LANGLADE CO. 'K' AND LANGLADE CO. 'T'



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-17

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR SH 55
LANGLADE CO. 'K' - LANGLADE CO. 'T'

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	890	810	80	9.0	.0	0	0	1.0	0
1981	890	810	80	9.0	.0	0	0	1.0	0
1982	910	830	80	8.8	2.2	0	0	1.0	0
1983	930	840	90	9.7	2.2	0	0	1.0	0
1984	950	860	90	9.5	2.2	0	0	1.0	0
1985	960	870	90	9.4	1.1	0	0	1.0	0
1986	980	890	90	9.2	2.1	0	0	1.0	0
1987	990	900	90	9.1	1.0	0	0	1.0	0
1988	1010	910	100	10.0	2.0	0	0	1.0	0
1989	1020	920	100	9.9	1.0	0	0	1.0	0
1990	1040	940	100	9.7	2.0	0	0	1.0	0
1991	1060	960	100	9.5	1.9	0	0	1.0	0
1992	1070	970	100	9.4	.9	0	0	1.0	0
1993	1080	980	100	9.3	.9	0	0	1.0	0
1994	1100	990	110	10.0	1.9	0	0	1.0	0
1995	1120	1010	110	9.9	1.8	0	0	1.0	0
1996	1130	1020	110	9.8	.9	0	0	1.0	0
1997	1140	1030	110	9.7	.9	0	0	1.0	0
1998	1160	1040	120	10.4	1.8	0	0	1.0	0
1999	1170	1050	120	10.3	.9	0	0	1.0	0
2000	1180	1060	120	10.2	.9	0	0	1.0	0
2001	1200	1080	120	10.0	1.7	0	0	1.0	0
2002	1210	1090	120	10.0	.8	0	0	1.0	0
2003	1230	1110	120	9.8	1.7	0	0	1.0	0
2004	1240	1120	120	9.7	.8	0	0	1.0	0
2005	1260	1140	120	9.6	1.6	0	0	1.0	0
2006	1270	1140	130	10.3	.8	0	0	1.0	0
2007	1290	1160	130	10.1	1.6	0	0	1.0	0
2008	1300	1170	130	10.0	.8	0	0	1.0	0
2009	1310	1180	130	10.0	.8	0	0	1.0	0
2010	1330	1200	130	9.8	1.5	0	0	1.0	0
2011	1340	1210	130	9.8	.8	0	0	1.0	0
2012	1360	1230	130	9.6	1.5	0	0	1.0	0
2013	1370	1230	140	10.3	.7	0	0	1.0	0
2014	1380	1240	140	10.2	.7	0	0	1.0	0
2015	1400	1260	140	10.0	1.4	0	0	1.0	0
2016	1420	1280	140	9.9	1.4	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-17

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR SH 55
LANGLADE CO. 'K' - LANGLADE CO. 'T'

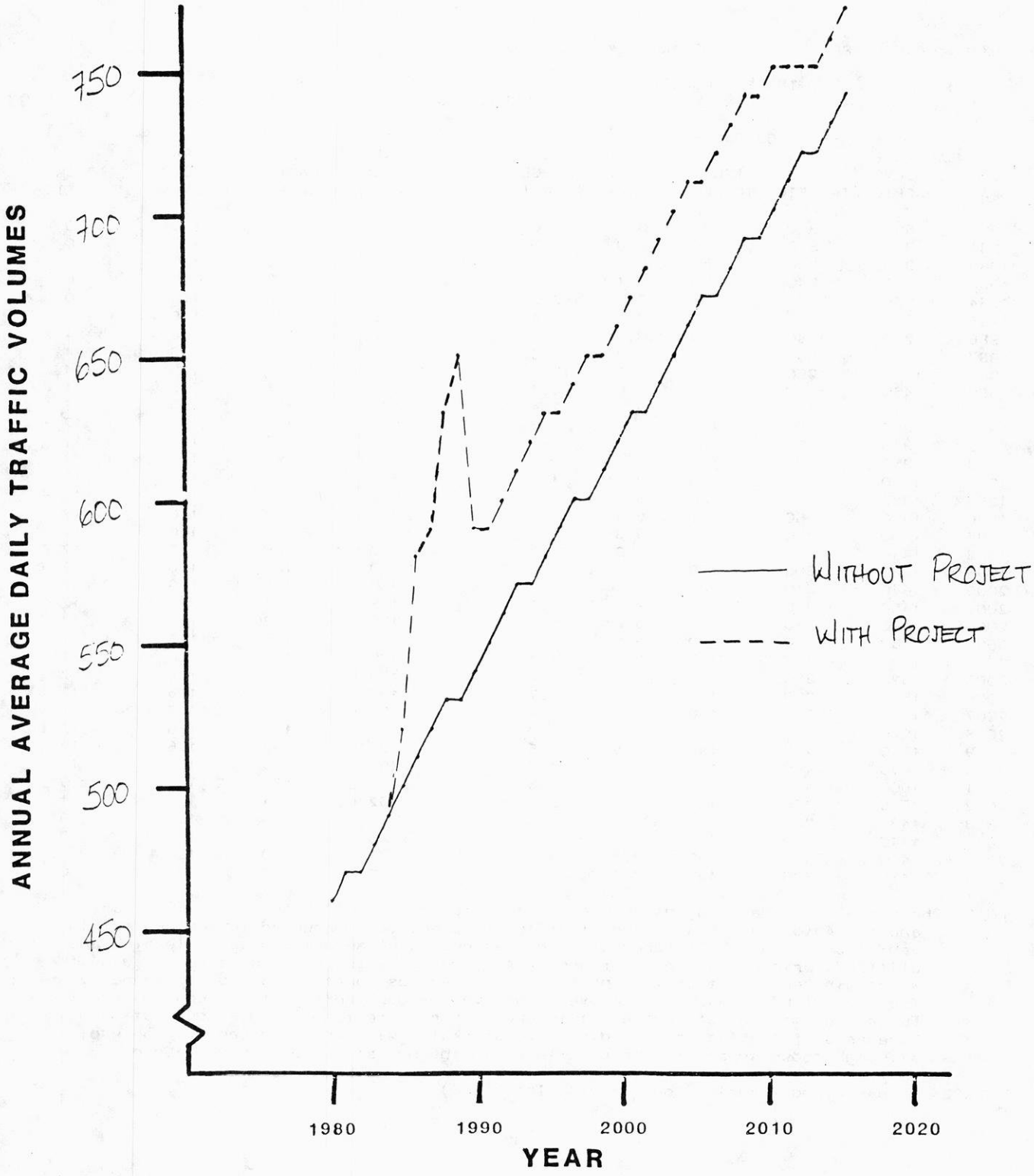
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	890	810	80	9.0	.0	0	0	1.0	0
1981	890	810	80	9.0	.0	0	0	1.0	0
1982	910	830	80	8.8	2.2	0	0	1.0	0
1983	930	840	90	9.7	2.2	0	0	1.0	0
1984	950	860	90	9.5	2.2	0	0	1.0	0
1985	1030	930	100	9.8	8.4	48	40	1.6	8
1986	1200	1080	120	10.0	16.5	162	138	1.6	24
1987	1200	1080	120	10.0	.0	156	132	1.6	24
1988	1380	1260	120	8.7	15.0	275	251	1.6	24
1989	1450	1320	130	9.0	5.1	322	298	1.6	24
1990	1270	1150	120	9.5	-12.4	173	155	1.6	18
1991	1290	1170	120	9.4	1.6	175	163	1.6	12
1992	1310	1190	120	9.2	1.6	180	168	1.6	12
1993	1350	1230	120	8.9	3.1	200	188	1.6	12
1994	1370	1240	130	9.5	1.5	200	188	1.6	12
1995	1380	1250	130	9.5	.7	200	188	1.6	12
1996	1390	1260	130	9.4	.7	200	188	1.6	12
1997	1400	1270	130	9.3	.7	200	188	1.6	12
1998	1410	1280	130	9.3	.7	200	188	1.6	12
1999	1430	1300	130	9.1	1.4	200	188	1.6	12
2000	1440	1310	130	9.1	.7	200	188	1.6	12
2001	1450	1310	140	9.7	.7	195	183	1.6	12
2002	1470	1330	140	9.6	1.4	195	183	1.6	12
2003	1480	1340	140	9.5	.7	195	183	1.6	12
2004	1500	1360	140	9.4	1.4	195	183	1.6	12
2005	1520	1380	140	9.3	1.3	195	183	1.6	12
2006	1530	1390	140	9.2	.7	195	183	1.6	12
2007	1540	1390	150	9.8	.7	195	183	1.6	12
2008	1560	1420	140	9.0	1.3	195	183	1.6	12
2009	1570	1420	150	9.6	.6	195	183	1.6	12
2010	1590	1440	150	9.5	1.3	195	183	1.6	12
2011	1600	1450	150	9.4	.6	195	183	1.6	6
2012	1510	1360	150	10.0	-5.6	92	91	1.6	1
2013	1430	1280	150	10.5	-5.3	0	0	1.0	0
2014	1440	1290	150	10.5	.7	0	0	1.0	0
2015	1460	1310	150	10.3	1.4	0	0	1.0	0
2016	1470	1320	150	10.3	.7	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-18

TRAFFIC FORECAST FOR SH 55
BETWEEN LANGLADE CO. 'T' AND LANGLADE



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-18

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR SH 55
LANGLADE CO. 'T' - LANGLADE

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	460	420	40	8.7	.0	0	0	1.0	0
1981	470	430	40	8.6	2.2	0	0	1.0	0
1982	470	430	40	8.6	.0	0	0	1.0	0
1983	480	440	40	8.4	2.1	0	0	1.0	0
1984	490	440	50	10.3	2.1	0	0	1.0	0
1985	500	450	50	10.0	2.0	0	0	1.0	0
1986	510	460	50	9.9	2.0	0	0	1.0	0
1987	520	470	50	9.7	2.0	0	0	1.0	0
1988	530	480	50	9.5	1.9	0	0	1.0	0
1989	530	480	50	9.5	.0	0	0	1.0	0
1990	540	490	50	9.3	1.9	0	0	1.0	0
1991	550	500	50	9.1	1.9	0	0	1.0	0
1992	560	510	50	9.0	1.8	0	0	1.0	0
1993	570	510	60	10.6	1.8	0	0	1.0	0
1994	570	510	60	10.6	.0	0	0	1.0	0
1995	580	520	60	10.4	1.8	0	0	1.0	0
1996	590	530	60	10.2	1.7	0	0	1.0	0
1997	600	540	60	10.0	1.7	0	0	1.0	0
1998	600	540	60	10.0	.0	0	0	1.0	0
1999	610	550	60	9.9	1.7	0	0	1.0	0
2000	620	560	60	9.7	1.6	0	0	1.0	0
2001	630	570	60	9.6	1.6	0	0	1.0	0
2002	630	570	60	9.6	.0	0	0	1.0	0
2003	640	580	60	9.4	1.6	0	0	1.0	0
2004	650	580	70	10.8	1.6	0	0	1.0	0
2005	660	590	70	10.7	1.5	0	0	1.0	0
2006	670	600	70	10.5	1.5	0	0	1.0	0
2007	670	600	70	10.5	.0	0	0	1.0	0
2008	680	610	70	10.3	1.5	0	0	1.0	0
2009	690	620	70	10.2	1.5	0	0	1.0	0
2010	690	620	70	10.2	.0	0	0	1.0	0
2011	700	630	70	10.0	1.4	0	0	1.0	0
2012	710	640	70	9.9	1.4	0	0	1.0	0
2013	720	650	70	9.8	1.4	0	0	1.0	0
2014	720	650	70	9.8	.0	0	0	1.0	0
2015	730	650	80	11.0	1.4	0	0	1.0	0
2016	740	660	80	10.9	1.4	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-18

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR SH 55
LANGLADE CO. 'T' - LANGLADE

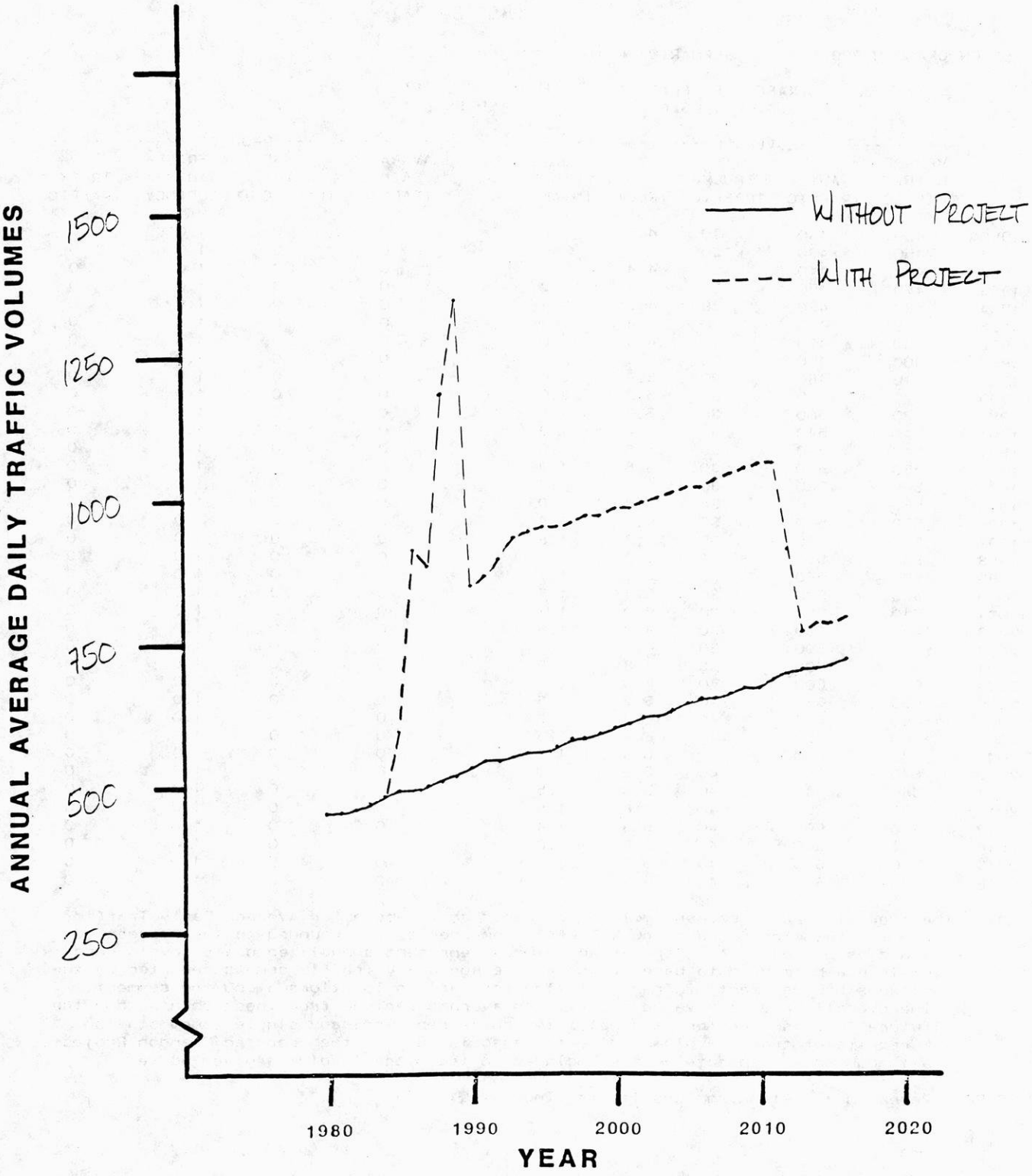
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	460	420	40	8.7	.0	0	0	1.0	0
1981	470	430	40	8.6	2.2	0	0	1.0	0
1982	470	430	40	8.6	.0	0	0	1.0	0
1983	480	440	40	8.4	2.1	0	0	1.0	0
1984	490	440	50	10.3	2.1	0	0	1.0	0
1985	520	470	50	9.7	6.1	8	8	1.6	0
1986	580	530	50	8.7	11.5	42	42	1.6	0
1987	590	540	50	8.5	1.7	42	42	1.6	0
1988	630	580	50	8.0	6.8	58	58	1.6	0
1989	650	600	50	7.7	3.2	63	63	1.6	0
1990	590	530	60	10.2	-9.2	12	12	1.6	0
1991	590	530	60	10.2	.0	13	13	1.6	0
1992	600	540	60	10.0	1.7	13	13	1.6	0
1993	610	550	60	9.9	1.7	15	15	1.6	0
1994	620	560	60	9.7	1.6	15	15	1.6	0
1995	630	570	60	9.6	1.6	15	15	1.6	0
1996	630	570	60	9.6	.0	15	15	1.6	0
1997	640	580	60	9.4	1.6	15	15	1.6	0
1998	650	590	60	9.3	1.6	15	15	1.6	0
1999	650	590	60	9.3	.0	15	15	1.6	0
2000	660	590	70	10.7	1.5	15	15	1.6	0
2001	670	600	70	10.5	1.5	15	15	1.6	0
2002	680	610	70	10.3	1.5	15	15	1.6	0
2003	690	620	70	10.2	1.5	15	15	1.6	0
2004	700	630	70	10.0	1.4	15	15	1.6	0
2005	710	640	70	9.9	1.4	15	15	1.6	0
2006	710	640	70	9.9	.0	15	15	1.6	0
2007	720	650	70	9.8	1.4	15	15	1.6	0
2008	730	660	70	9.6	1.4	15	15	1.6	0
2009	740	670	70	9.5	1.4	15	15	1.6	0
2010	740	670	70	9.5	.0	15	15	1.6	0
2011	750	680	70	9.4	1.4	15	15	1.6	0
2012	750	670	80	10.7	.0	7	7	1.6	0
2013	750	670	80	10.7	.0	0	0	1.0	0
2014	750	670	80	10.7	.0	0	0	1.0	0
2015	760	680	80	10.6	1.3	0	0	1.0	0
2016	770	690	80	10.4	1.3	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-19

TRAFFIC FORECAST FOR FOREST CO. 'S'
BETWEEN US 8 AND SH 55



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-19

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR FOREST CO. 'S'
US 8 - SH 55

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	450	430	20	4.5	.0	0	0	1.0	0
1981	450	430	20	4.5	.0	0	0	1.0	0
1982	460	440	20	4.4	2.2	0	0	1.0	0
1983	470	450	20	4.3	2.2	0	0	1.0	0
1984	480	460	20	4.2	2.1	0	0	1.0	0
1985	490	470	20	4.1	2.1	0	0	1.0	0
1986	490	470	20	4.1	.0	0	0	1.0	0
1987	500	470	30	6.1	2.0	0	0	1.0	0
1988	510	480	30	5.9	2.0	0	0	1.0	0
1989	520	490	30	5.8	2.0	0	0	1.0	0
1990	530	500	30	5.7	1.9	0	0	1.0	0
1991	540	510	30	5.6	1.9	0	0	1.0	0
1992	540	510	30	5.6	.0	0	0	1.0	0
1993	550	520	30	5.5	1.9	0	0	1.0	0
1994	560	530	30	5.4	1.8	0	0	1.0	0
1995	560	530	30	5.4	.0	0	0	1.0	0
1996	570	540	30	5.3	1.8	0	0	1.0	0
1997	580	550	30	5.2	1.8	0	0	1.0	0
1998	580	550	30	5.2	.0	0	0	1.0	0
1999	590	560	30	5.1	1.7	0	0	1.0	0
2000	600	570	30	5.1	1.7	0	0	1.0	0
2001	610	580	30	5.0	1.7	0	0	1.0	0
2002	620	590	30	4.9	1.6	0	0	1.0	0
2003	620	590	30	4.9	.0	0	0	1.0	0
2004	630	600	30	4.8	1.6	0	0	1.0	0
2005	640	600	40	6.3	1.6	0	0	1.0	0
2006	650	610	40	6.2	1.6	0	0	1.0	0
2007	650	610	40	6.2	.0	0	0	1.0	0
2008	660	620	40	6.1	1.5	0	0	1.0	0
2009	670	630	40	6.0	1.5	0	0	1.0	0
2010	670	630	40	6.0	.0	0	0	1.0	0
2011	680	640	40	5.9	1.5	0	0	1.0	0
2012	690	650	40	5.8	1.5	0	0	1.0	0
2013	700	660	40	5.8	1.4	0	0	1.0	0
2014	700	660	40	5.8	.0	0	0	1.0	0
2015	710	670	40	5.7	1.4	0	0	1.0	0
2016	720	680	40	5.6	1.4	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-19

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR FOREST CO. 'S'
US 8 - SH 55

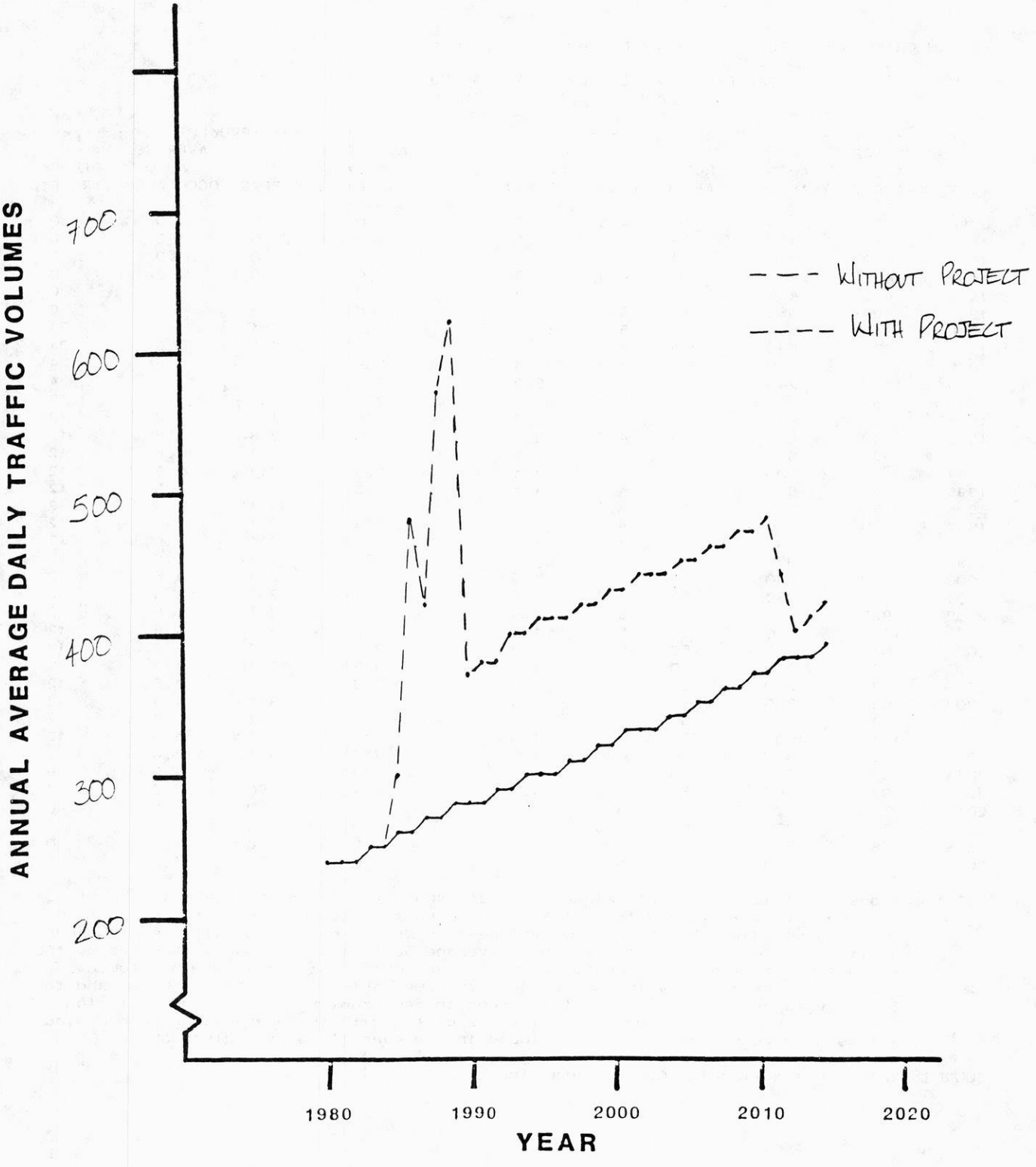
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	450	430	20	4.5	.0	0	0	1.0	0
1981	450	430	20	4.5	.0	0	0	1.0	0
1982	460	440	20	4.4	2.2	0	0	1.0	0
1983	470	450	20	4.3	2.2	0	0	1.0	0
1984	480	460	20	4.2	2.1	0	0	1.0	0
1985	590	560	30	5.1	22.9	86	78	1.6	8
1986	910	860	50	5.5	54.2	365	341	1.6	24
1987	880	830	50	5.7	-3.3	331	307	1.6	24
1988	1180	1130	50	4.3	34.1	589	565	1.6	24
1989	1290	1240	50	3.9	9.3	676	652	1.6	24
1990	850	800	50	5.9	-34.1	271	253	1.6	18
1991	870	830	40	4.6	2.4	279	267	1.6	12
1992	890	850	40	4.5	2.3	290	278	1.6	12
1993	930	890	40	4.4	4.5	323	311	1.6	12
1994	940	900	40	4.3	1.1	323	311	1.6	12
1995	950	910	40	4.3	1.1	323	311	1.6	12
1996	950	910	40	4.3	.0	323	311	1.6	12
1997	960	920	40	4.2	1.1	323	311	1.6	12
1998	970	930	40	4.2	1.0	323	311	1.6	12
1999	970	930	40	4.2	.0	323	311	1.6	12
2000	980	930	50	5.2	1.0	323	311	1.6	12
2001	980	930	50	5.2	.0	313	301	1.6	12
2002	990	940	50	5.1	1.0	313	301	1.6	12
2003	1000	950	50	5.1	1.0	313	301	1.6	12
2004	1010	960	50	5.0	1.0	313	301	1.6	12
2005	1020	970	50	5.0	1.0	313	301	1.6	12
2006	1020	970	50	5.0	.0	313	301	1.6	12
2007	1030	980	50	4.9	1.0	313	301	1.6	12
2008	1040	990	50	4.9	1.0	313	301	1.6	12
2009	1050	1000	50	4.8	1.0	313	301	1.6	12
2010	1060	1010	50	4.8	1.0	313	301	1.6	12
2011	1060	1010	50	4.8	.0	313	301	1.6	6
2012	910	860	50	5.5	-14.2	151	150	1.6	1
2013	770	720	50	6.5	-15.4	0	0	1.0	0
2014	780	730	50	6.5	1.3	0	0	1.0	0
2015	780	730	50	6.5	.0	0	0	1.0	0
2016	790	740	50	6.4	1.3	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-20

TRAFFIC FORECAST FOR ONEIDA/FOREST CO. 'B' BETWEEN US 45 AND SH 55



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-20

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR ONEIDA/FOREST CO. 'B'
US 45 - SH 55

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	240	230	10	4.2	.0	0	0	1.0	0
1981	240	230	10	4.2	.0	0	0	1.0	0
1982	240	230	10	4.2	.0	0	0	1.0	0
1983	250	240	10	4.1	4.2	0	0	1.0	0
1984	250	240	10	4.1	.0	0	0	1.0	0
1985	260	250	10	3.9	4.0	0	0	1.0	0
1986	260	250	10	3.9	.0	0	0	1.0	0
1987	270	260	10	3.8	3.8	0	0	1.0	0
1988	270	260	10	3.8	.0	0	0	1.0	0
1989	280	270	10	3.6	3.7	0	0	1.0	0
1990	280	270	10	3.6	.0	0	0	1.0	0
1991	280	260	20	7.2	.0	0	0	1.0	0
1992	290	270	20	6.9	3.6	0	0	1.0	0
1993	290	270	20	6.9	.0	0	0	1.0	0
1994	300	280	20	6.7	3.4	0	0	1.0	0
1995	300	280	20	6.7	.0	0	0	1.0	0
1996	300	280	20	6.7	.0	0	0	1.0	0
1997	310	290	20	6.5	3.3	0	0	1.0	0
1998	310	290	20	6.5	.0	0	0	1.0	0
1999	320	300	20	6.3	3.2	0	0	1.0	0
2000	320	300	20	6.3	.0	0	0	1.0	0
2001	330	310	20	6.1	3.1	0	0	1.0	0
2002	330	310	20	6.1	.0	0	0	1.0	0
2003	330	310	20	6.1	.0	0	0	1.0	0
2004	340	320	20	5.9	3.0	0	0	1.0	0
2005	340	320	20	5.9	.0	0	0	1.0	0
2006	350	330	20	5.8	2.9	0	0	1.0	0
2007	350	330	20	5.8	.0	0	0	1.0	0
2008	360	340	20	5.6	2.9	0	0	1.0	0
2009	360	340	20	5.6	.0	0	0	1.0	0
2010	360	340	20	5.6	.0	0	0	1.0	0
2011	370	350	20	5.5	2.8	0	0	1.0	0
2012	370	350	20	5.5	.0	0	0	1.0	0
2013	380	360	20	5.3	2.7	0	0	1.0	0
2014	380	360	20	5.3	.0	0	0	1.0	0
2015	380	360	20	5.3	.0	0	0	1.0	0
2016	390	370	20	5.2	2.6	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-20

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR ONEIDA/FOREST CO.'B'
US 45 - SH 55

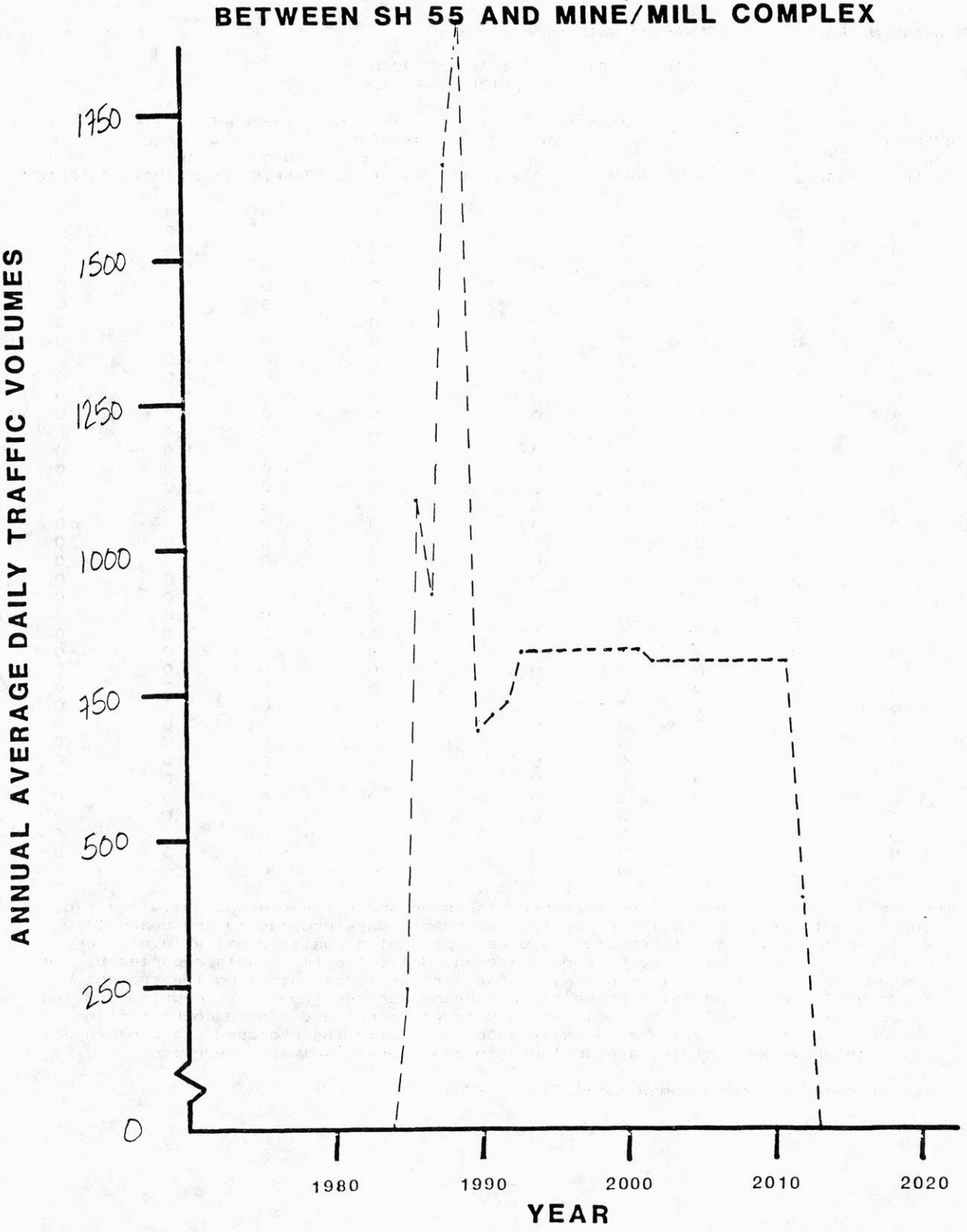
	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	240	230	10	4.2	.0	0	0	1.0	0
1981	240	230	10	4.2	.0	0	0	1.0	0
1982	240	230	10	4.2	.0	0	0	1.0	0
1983	250	240	10	4.1	4.2	0	0	1.0	0
1984	250	240	10	4.1	.0	0	0	1.0	0
1985	300	290	10	3.4	20.0	30	30	1.6	0
1986	480	470	10	2.1	60.0	190	190	1.6	0
1987	420	410	10	2.4	-12.5	135	135	1.6	0
1988	570	560	10	1.8	35.7	261	261	1.6	0
1989	620	600	20	3.3	8.8	296	296	1.6	0
1990	370	350	20	5.5	-40.3	65	65	1.6	0
1991	380	360	20	5.3	2.7	67	67	1.6	0
1992	380	360	20	5.3	.0	70	70	1.6	0
1993	400	380	20	5.1	5.3	78	78	1.6	0
1994	400	380	20	5.1	.0	78	78	1.6	0
1995	410	390	20	4.9	2.5	78	78	1.6	0
1996	410	390	20	4.9	.0	78	78	1.6	0
1997	410	390	20	4.9	.0	78	78	1.6	0
1998	420	400	20	4.8	2.4	78	78	1.6	0
1999	420	400	20	4.8	.0	78	78	1.6	0
2000	430	410	20	4.7	2.4	78	78	1.6	0
2001	430	410	20	4.7	.0	76	76	1.6	0
2002	440	420	20	4.6	2.3	76	76	1.6	0
2003	440	420	20	4.6	.0	76	76	1.6	0
2004	440	420	20	4.6	.0	76	76	1.6	0
2005	450	430	20	4.5	2.3	76	76	1.6	0
2006	450	430	20	4.5	.0	76	76	1.6	0
2007	460	440	20	4.4	2.2	76	76	1.6	0
2008	460	440	20	4.4	.0	76	76	1.6	0
2009	470	450	20	4.3	2.2	76	76	1.6	0
2010	470	450	20	4.3	.0	76	76	1.6	0
2011	480	460	20	4.2	2.1	76	76	1.6	0
2012	440	420	20	4.6	-8.3	38	38	1.6	0
2013	400	380	20	5.1	-9.1	0	0	1.0	0
2014	410	390	20	4.9	2.5	0	0	1.0	0
2015	410	390	20	4.9	.0	0	0	1.0	0
2016	420	400	20	4.8	2.4	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

FIGURE B-21

TRAFFIC FORECAST FOR PROJECT ACCESS ROAD BETWEEN SH 55 AND MINE/MILL COMPLEX



SOURCE: RESEARCH AND PLANNING CONSULTANTS, INC. (RPC)

TABLE B-21

EXXON CRANDON PROJECT SCENARIO: Without-Project

TRAFFIC FORECAST FOR PROJECT ACCESS ROAD
SH 55 -MINE/MILL COMPLEX

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	0	0	0	.0	.0	0	0	1.0	0
1981	0	0	0	.0	.0	0	0	1.0	0
1982	0	0	0	.0	.0	0	0	1.0	0
1983	0	0	0	.0	.0	0	0	1.0	0
1984	0	0	0	.0	.0	0	0	1.0	0
1985	0	0	0	.0	.0	0	0	1.0	0
1986	0	0	0	.0	.0	0	0	1.0	0
1987	0	0	0	.0	.0	0	0	1.0	0
1988	0	0	0	.0	.0	0	0	1.0	0
1989	0	0	0	.0	.0	0	0	1.0	0
1990	0	0	0	.0	.0	0	0	1.0	0
1991	0	0	0	.0	.0	0	0	1.0	0
1992	0	0	0	.0	.0	0	0	1.0	0
1993	0	0	0	.0	.0	0	0	1.0	0
1994	0	0	0	.0	.0	0	0	1.0	0
1995	0	0	0	.0	.0	0	0	1.0	0
1996	0	0	0	.0	.0	0	0	1.0	0
1997	0	0	0	.0	.0	0	0	1.0	0
1998	0	0	0	.0	.0	0	0	1.0	0
1999	0	0	0	.0	.0	0	0	1.0	0
2000	0	0	0	.0	.0	0	0	1.0	0
2001	0	0	0	.0	.0	0	0	1.0	0
2002	0	0	0	.0	.0	0	0	1.0	0
2003	0	0	0	.0	.0	0	0	1.0	0
2004	0	0	0	.0	.0	0	0	1.0	0
2005	0	0	0	.0	.0	0	0	1.0	0
2006	0	0	0	.0	.0	0	0	1.0	0
2007	0	0	0	.0	.0	0	0	1.0	0
2008	0	0	0	.0	.0	0	0	1.0	0
2009	0	0	0	.0	.0	0	0	1.0	0
2010	0	0	0	.0	.0	0	0	1.0	0
2011	0	0	0	.0	.0	0	0	1.0	0
2012	0	0	0	.0	.0	0	0	1.0	0
2013	0	0	0	.0	.0	0	0	1.0	0
2014	0	0	0	.0	.0	0	0	1.0	0
2015	0	0	0	.0	.0	0	0	1.0	0
2016	0	0	0	.0	.0	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-21

EXXON CRANDON PROJECT SCENARIO: Most-Likely Impact

TRAFFIC FORECAST FOR PROJECT ACCESS ROAD
SH 55 -MINE/MILL COMPLEX

	OVERALL					PROJECT			
YEAR	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	TRUCK TRAFFIC	% TRUCK	% CHANGE IN ADT	AVERAGE DAILY TRAFFIC	AUTO TRAFFIC	AVERAGE AUTO OCCUPANCY	TRUCK TRAFFIC
1980	0	0	0	.0	.0	0	0	1.0	0
1981	0	0	0	.0	.0	0	0	1.0	0
1982	0	0	0	.0	.0	0	0	1.0	0
1983	0	0	0	.0	.0	0	0	1.0	0
1984	0	0	0	.0	.0	0	0	1.0	0
1985	240	220	20	8.4	.0	236	220	1.6	16
1986	1080	1030	50	4.7	350.0	1076	1028	1.6	48
1987	920	870	50	5.5	-14.8	919	871	1.6	48
1988	1660	1610	50	3.1	80.4	1660	1612	1.6	48
1989	1900	1850	50	2.7	14.5	1899	1851	1.6	48
1990	680	640	40	5.9	-64.2	683	647	1.6	36
1991	710	690	20	2.9	4.4	711	687	1.6	24
1992	730	710	20	2.8	2.8	735	711	1.6	24
1993	820	800	20	2.5	12.3	822	798	1.6	24
1994	820	800	20	2.5	.0	822	798	1.6	24
1995	820	800	20	2.5	.0	822	798	1.6	24
1996	820	800	20	2.5	.0	822	798	1.6	24
1997	820	800	20	2.5	.0	822	798	1.6	24
1998	820	800	20	2.5	.0	822	798	1.6	24
1999	820	800	20	2.5	.0	822	798	1.6	24
2000	820	800	20	2.5	.0	822	798	1.6	24
2001	800	780	20	2.6	-2.4	796	772	1.6	24
2002	800	780	20	2.6	.0	796	772	1.6	24
2003	800	780	20	2.6	.0	796	772	1.6	24
2004	800	780	20	2.6	.0	796	772	1.6	24
2005	800	780	20	2.6	.0	796	772	1.6	24
2006	800	780	20	2.6	.0	796	772	1.6	24
2007	800	780	20	2.6	.0	796	772	1.6	24
2008	800	780	20	2.6	.0	796	772	1.6	24
2009	800	780	20	2.6	.0	796	772	1.6	24
2010	800	780	20	2.6	.0	796	772	1.6	24
2011	800	780	20	2.6	.0	796	772	1.6	13
2012	390	390	0	.0	-51.3	389	386	1.6	3
2013	0	0	0	.0	-100.0	0	0	1.0	0
2014	0	0	0	.0	.0	0	0	1.0	0
2015	0	0	0	.0	.0	0	0	1.0	0
2016	0	0	0	.0	.0	0	0	1.0	0

NOTE: The overall roadway segment volume forecasts shown above for Average Daily Traffic, and the Auto Traffic and Truck Traffic components, are rounded to the nearest 10 vehicles per day. All forecasted volumes represent annualized daily levels, and utilize a primary data base of Annual Average Daily Traffic counts reported by the Wisconsin Department of Transportation for various locations along the segment. The overall base year value above is an average derived from these counts, and the future volumes therefore are not intended to represent any single count station. Forecasts of traffic volumes directly associated with the proposed Crandon Project, although shown separately, are included in the overall volumes given above.

SOURCE: Research and Planning Consultants, Inc. (RPC)

TABLE B-22

FORECAST OF PASSENGER ENPLANEMENTS FOR
RHINELANDER/ONEIDA COUNTY AIRPORT

	WITHOUT PROJECT		MINIMUM IMPACT				MOST LIKELY IMPACT				MAXIMUM IMPACT			
YEAR	VOLUME	% CHANGE	VOLUME	% CHANGE	DIFF vs. w/o PROJ	% DIFF	VOLUME	% CHANGE	DIFF vs. w/o PROJ	% DIFF	VOLUME	% CHANGE	DIFF vs. w/o PROJ	% DIFF
1980	26430	.0	26430	.0	0	.0	26430	.0	0	.0	26430	.0	0	.0
1981	20651	-21.9	20651	-21.9	0	.0	20651	-21.9	0	.0	20651	-21.9	0	.0
1982	23728	14.9	23728	14.9	0	.0	23728	14.9	0	.0	23728	14.9	0	.0
1983	26951	13.6	26951	13.6	0	.0	26951	13.6	0	.0	26951	13.6	0	.0
1984	30955	14.9	30955	14.9	0	.0	30955	14.9	0	.0	30955	14.9	0	.0
1985	34509	11.5	34876	12.7	367	1.1	34918	12.8	409	1.2	34955	12.9	446	1.3
1986	35555	3.0	36353	4.2	798	2.2	36447	4.4	892	2.5	36520	4.5	966	2.7
1987	35540	-.0	36378	.1	839	2.4	36481	.1	941	2.6	36556	.1	1016	2.9
1988	35651	.3	37007	1.7	1356	3.8	37181	1.9	1530	4.3	37320	2.1	1669	4.7
1989	35896	.7	37481	1.3	1585	4.4	37687	1.4	1792	5.0	37855	1.4	1960	5.5
1990	36245	1.0	37268	-.6	1024	2.8	37412	-.7	1167	3.2	37526	-.9	1281	3.5
1991	36370	.3	37327	.2	958	2.6	37456	.1	1086	3.0	37573	.1	1203	3.3
1992	36508	.4	37373	.1	865	2.4	37488	.1	980	2.7	37607	.1	1099	3.0
1993	36706	.5	37649	.7	943	2.6	37776	.8	1070	2.9	37908	.8	1202	3.3
1994	36940	.6	37913	.7	972	2.6	38042	.7	1102	3.0	38178	.7	1237	3.3
1995	37211	.7	38158	.6	947	2.5	38286	.6	1075	2.9	38419	.6	1208	3.2
1996	37556	.9	38467	.8	911	2.4	38590	.8	1033	2.8	38715	.8	1159	3.1
1997	37953	1.1	38851	1.0	897	2.4	38971	1.0	1018	2.7	39093	1.0	1140	3.0
1998	38377	1.1	39267	1.1	891	2.3	39386	1.1	1009	2.6	39506	1.1	1129	2.9
1999	38803	1.1	39689	1.1	886	2.3	39806	1.1	1003	2.6	39926	1.1	1123	2.9
2000	39255	1.2	40205	1.3	949	2.4	40331	1.3	1076	2.7	40460	1.3	1205	3.1
2001	39906	1.7	40849	1.6	942	2.4	40973	1.6	1067	2.7	41099	1.6	1193	3.0
2002	40639	1.8	41596	1.8	957	2.4	41722	1.8	1083	2.7	41849	1.8	1210	3.0
2003	41311	1.7	42214	1.5	903	2.2	42334	1.5	1024	2.5	42454	1.4	1144	2.8
2004	41914	1.5	42809	1.4	895	2.1	42929	1.4	1015	2.4	43047	1.4	1133	2.7
2005	42483	1.4	43370	1.3	888	2.1	43488	1.3	1005	2.4	43605	1.3	1122	2.6
2006	43074	1.4	43964	1.4	890	2.1	44082	1.4	1008	2.3	44199	1.4	1125	2.6
2007	43644	1.3	44538	1.3	894	2.0	44656	1.3	1012	2.3	44774	1.3	1129	2.6
2008	44202	1.3	45099	1.3	896	2.0	45218	1.3	1016	2.3	45336	1.3	1134	2.6
2009	44785	1.3	45686	1.3	901	2.0	45805	1.3	1020	2.3	45924	1.3	1139	2.5
2010	45380	1.3	46285	1.3	906	2.0	46405	1.3	1026	2.3	46525	1.3	1145	2.5
2011	45980	1.3	46872	1.3	892	1.9	46989	1.3	1009	2.2	47110	1.3	1130	2.5
2012	46549	1.2	47098	.5	549	1.2	47172	.4	623	1.3	47248	.3	699	1.5
2013	47105	1.2	47310	.4	204	.4	47340	.4	235	.5	47371	.3	266	.6
2014	47666	1.2	47787	1.0	121	.3	47803	1.0	138	.3	47815	.9	149	.3
2015	48221	1.2	48290	1.1	69	.1	48298	1.0	77	.2	48304	1.0	83	.2
2016	48779	1.2	48846	1.2	68	.1	48854	1.2	75	.2	48861	1.2	83	.2

NOTE: Figures shown above for 1980 and 1981 are actual commercial revenue passenger enplanements as reported by the U.S. Department of Transportation, Federal Aviation Administration.

SOURCE: Research and Planning Consultants, Inc. (RPC)

APPENDIX C

PROPERTY TAX AND STATE EQUALIZATION AID METHODOLOGY

APPENDIX C

PROPERTY TAX AND STATE EQUALIZATION AID METHODOLOGY

Property Taxes

The property tax levied by local governments in Wisconsin is a "residual" tax. It is the difference between the expenditures (costs) and non-tax revenues (income) that local officials anticipate will be needed to balance their next year's budget. Stated simply, next year's anticipated operating costs less next year's anticipated operating non-tax revenues equals the local property tax levy. Thus, two important variables needed in a property tax impact study are: (1) anticipated costs, and (2) anticipated non-tax revenues.

Since the property tax is an ad valorem tax (that is, based on the value of property), another important variable is the taxable value of property within a taxing jurisdiction. Every taxable parcel of property in Wisconsin is located within at least four types of local property-taxing jurisdictions -- a county, a municipality, a school district and a vocational school district. (A parcel may also be part of one or more "special" districts -- such as a sewer district.) The parcel owner is liable for the same percentage of a jurisdiction's tax levy as the percentage the parcel's value is of the total property value in the jurisdiction: percent of value = percent of tax. For example, if a parcel's value is equal to 5 percent of the total property value in the municipality, 2 percent of the school district total value and 1

percent of the county total value, then the parcel's owner must pay 5 percent of the total municipal tax, 2 percent of the total school tax, and 1 percent of the total county tax.

To simplify the procedure for determining each owner's tax liability, the local clerk converts percentages into a single tax rate for each jurisdiction:

$$\frac{\text{JURISDICTION'S TAX LEVY}}{\text{JURISDICTION'S TAXABLE VALUE}} = \text{JURISDICTION'S TAX RATE}$$

A jurisdiction's tax rate multiplied by the parcel's value equals the parcel owner's tax liability to that jurisdiction: rate x value = tax.

The gross local tax rate on a parcel is determined by aggregating the tax rates of all applicable jurisdictions--municipal, county, school, and others if required. The term "gross" is used because the total property tax owed by individual parcel owners is partially paid by the state through tax credits.

The three variables -- costs, non-tax revenues, and property values -- are the essential ingredients of a Wisconsin property tax analysis. The property values actually used to calculate local tax rates and tax liabilities are values determined by local municipal assessors. Assessors in different municipalities value property at different ratios of its true market value. Property worth one million dollars in a municipality with a 20 percent assessment ratio would be valued as $200,000; in a municipality with an 85 percent assessment ratio the same property would be valued at $850,000. These different assessment levels are legal,

and equitable, if all property within the same municipality is assessed at the same ratio of full value. While this use of different assessment ratios is legal, it produces values and tax rates which are non-comparable from one municipality to another. Because of this, the full (100 percent) market value of property, as determined annually for each municipality by the Wisconsin Department of Revenue, will be used exclusively in this analysis. (For purposes of equity and uniformity, these full values actually are used to apportion school and county taxes among different municipalities located within those jurisdictions. The municipal assessor's values are then used to apportion county, school, and municipal taxes among taxpayers within the same municipality.)

Equalization Aids

An important revenue source that offsets local property taxes is the "family" of state equalization aids that exists in Wisconsin. These equalizing aids consist of "aidable revenue" payments to municipalities and counties and general aids to school districts. The equalizing aids are primarily affected by a local government's spending, revenues, property values within the jurisdiction and population or students, relative to all other jurisdictions of the same type.

Since the property tax is a residual tax and since equalization aids are part of the "non-tax revenue" (not property tax revenue) of a jurisdiction which reduces the residual tax, any changes in the level of state aid will influence the property tax

levy, and the tax rate. Other things being equal, as aid increases, the need for property taxes decreases, and as non-tax revenue is reduced, the need for the property tax is increased.

Other revenue sources have exactly the same impact on the property tax as do the equalization aids. Equalization aids, however, are specifically designed to respond to fiscal disparities and, therefore, to socioeconomic changes which affect local fiscal conditions. The state long has recognized the fiscal disparities among different local level jurisdictions, and has been distributing much of its aid according to relative need. Such aid is an attempt to moderate, or "equalize," the fiscal differences among the different local jurisdictions. State transfer payments to local governments, distributed according to need, so dominate Wisconsin's fiscal policy towards its localities that the U.S. Advisory Commission on Intergovernmental Relations has depicted Wisconsin as one of three states which "have gone the farthest in their attempt to gauge local fiscal equity." (The State of State-Local Revenue Sharing, December, 1980, p. 17.)

Beside equalization aid payments to schools, municipalities and counties, two other major state aid programs -- while not strictly equalizing aids -- serve to lower the "effective" property tax mill rates of Wisconsin local governments. These are (1) state aid for highways, and (2) state property tax credit payments. State highway aids are distributed according to relative need (as measured by net cost per mile of highway and a state/local responsibility factor) and directly reduce the levy

needed by local governments. State property tax credits are determined by complex formulas and are applied to the tax bills of individual taxpayers, thus lowering the amount of dollars collected from local taxpayers but leaving the levy unaffected (i.e., the state pays a portion of local property taxes).

Impact on Property Tax Rates

Fiscal impacts on local governments from the Crandon Project are estimated by comparing the tax rate that is simulated to exist without-project to the tax rate that is simulated to exist under each of the three with-project scenarios. Tax rates are presented (see "Forecast of Future Conditions Data Summary," EMC, 1983c) for each affected municipality, including the municipal tax rate, the school tax rate, the county tax rate, and the tax rate equivalent for the tax credit/transportation aids reduction. The following section describes the method used to derive tax rates after the RPC model calculates the scenario forecasts.

In determination of the tax rate for each year (1985 to 2015), estimates for local government spending, non-tax revenues, property values (with- and without-project), and population or students were obtained from the model projections (see Chapter 3, Demographics Analysis). Additional information on 1982 aid payments, tax credits, and transportation aid payments was obtained from the Wisconsin Departments of Revenue, Transportation, and Public Instruction. Aid formulas in effect in 1982 were used (1985 to 2015) and all dollar amounts were held constant to 1982 levels.

Procedures and Assumptions

Tax rates for each year were estimated using the model (RPC, Inc.) projected changes in spending, non-tax revenues, property values, and population or student enrollments in comparison to actual figures for each variable in 1981 -- the latest year actual data is available. Table C-1 shows the actual budget for the Town of Caswell in 1981 and illustrates the procedure for deriving the 1990 tax rate under the with-project Scenario 2.[1/] Table C-2 presents the similar information for Forest County and Table C-3 the data for the Laona School District. The procedures illustrated in Tables C-1 through C-3 were used for all comparable taxing jurisdictions.

Municipal Tax Rates

The first column of Table C-1 simulates how aid estimates affected the 1981 tax rate for the Town of Caswell to fund its 1982 budget.[2/] Line XVI ($11,186) is the amount the municipality expected to spend in 1982, less all non-property tax revenues except state equalization aids. State equalization aids are determined by the steps shown in lines I through XV, where the prior years' "local purpose revenues" (a proxy for municipal spending less non-property tax revenues), is related to the 1981 total value less manufacturing property value, and to the 1981

1/ The year 1990 is used to illustrate the procedures used for each year.

2/ It is assumed that the tax levy is reduced by the exact amount of aid projected by the State.

TABLE C-1. Example of Procedures Used in Deriving Tax Rates for the Town of Caswell: 1990 Tax Rate for 1991 Budget Under With-Project Scenario 2 Conditions.

	STEPS FOR DETERMINING AID		1982 ACTUAL BUDGET	PROJECTION ADJUSTMENTS	1991 SIMULATED BUDGET	
I	LOCAL PURPOSE REVENUE	(1978)	3,199	+ (40,000-38,000) - (91-86)233.56	4,031	(1987)
II	LOCAL PURPOSE REVENUE	(1979)	16,251	+ (41,000-38,000) - (94-86)233.56	17,383	(1988)
III	LOCAL PURPOSE REVENUE	(1980)	16,382	+ (42,000-38,000) - (96-86)233.56	18,046	(1989)
IV	LOCAL PURPOSE REVENUE-TOTAL		35,832		39,460	
V	AIDABLE REVENUES (IV + 3)		11,944		13,153	
VI	CURRENT YEAR FULL VALUE	(1981)	2,564,800		2,748,309	(1990)
VII	VALUE OF MANUFACTURING PROPERTY	(1981)	27,800		44,396	(1990)
VIII	AIDABLE VALUE (VI - VII)		2,537,000		2,703,913	
IX	CURRENT YEAR POPULATION	(1981)	86		93	(1990)
X	STANDARDIZED VALUE PER CAPITA		36,600		36,600	
XI	AIDABLE VALUE PER CAPITA (VIII + IX)		29,500		29,074	
XII	EQUALIZATION QUOTIENT (XI + X)		.8060		.7944	
XIII	EQUALIZATION INDEX (1.0 - XII)*		.1940		.2056	
XIV	EQUALIZATION AID, UNADJUSTED (V x XIII)		2,317		2,705	
XV	EQUALIZATION AID, PRORATED (XIV x .9997)		2,316		2,704	
	STEPS FOR DETERMINING TAX LEVY AND RATE					
XVI	NET MUNICIPAL COST	(1982)	11,186	+ (41,000-38,000) - (93-86)233.56	12,551	(1991)
XVII	EQUALIZATION AID (XV)		2,316		2,704	
XVIII	PROPERTY TAX LEVY (XVI - XVII)		8,870		9,847	
XIX	CURRENT YEAR FULL VALUE	(1981)	2,564,800		2,748,309	(1990)
XX	TAX RATE FOR UPCOMING BUDGET		.00346		.00358	

*If the difference is negative, line XIII equals 0.

population. The $36,600 figure shown on line X represents a state-determined value per capita to which individual municipalities are compared. Municipalities with total property value (less manufacturing value) per capita greater than $36,600 do not receive state equalization aids. Municipalities with aidable value per capita less than $36,600 and with local purpose revenues in prior years do receive state equalization aids. The .9997 shown on line XV is also a state-determined number that is used to "allocate" the total available funds to eligible municipalities.

In the Town of Caswell, the average local purpose revenue for the three years prior to 1981 was $11,944 (line V). Total property value less manufacturing value produces an aidable value per capita in 1981 of $29,500 (line XI) -- or 80.6 percent of the statewide standardized value per capita. These conditions produced a state equalization aid payment to the Town of Caswell in 1981 of $2,316 (line XV).

The 1981 property tax levy (line XVIII) is determined by subtracting the 1981 state equalization aids from expected 1982 net municipal costs. For the Town of Caswell, the 1981 levy for municipal purposes equaled $8,870. Dividing this amount by the amount of taxable property in the Town of Caswell in 1981 (line XIX) produces the actual tax mill rate for the 1982 budget (line XX) of .00346 -- or $3.46 for every $1,000 of property valuation.

Tax mill rates for future years were derived by using RPC model projections for municipal spending, property values, and population (see Chapters 2, 3 and 9). The second column (1991

Simulated Budget) of Table C-1 illustrates how the simulated 1990 property tax mill rate for the Town of Caswell was derived.

Projections for local purpose revenues (LPR) are not available. To estimate LPRs for individual future years, increases in net municipal spending are directly added to corresponding LPR data for 1982. Local purpose revenues represent local spending that was funded by the property tax or by revenues that offset the property tax. A per capita non-property tax revenue multiplier calculated from the forecast data was multiplied by projected population changes to derive nonproperty tax revenues and the change in net costs.

For example, to derive equalizing aids for the Town of Caswell in 1990, LPRs for 1987, 1988, and 1989 are needed. Municipal spending in the Town of Caswell was projected by the models to be $40,000 in 1987 (line I) -- a $2,000 increase over the $38,000 for 1982. If the LPR in the Town of Caswell for 1978 was actually $3,199, it would be $5,199 ($3,199 + 2,000) in 1987 using the projected spending increase and not adjusting for offsetting revenue increases. A similar approach is used to derive the gross LPR's for 1988 and 1989 where the models project municipal spending to be $41,000 (line II) and $42,000 (line III), respectively.

Revenue multipliers were derived by averaging per capita miscellaneous local non-property revenues, miscellaneous intergovernmental revenues, and enterprise revenues for the years 1979 through 1981 and adding the state-determined $30 per capita

aidable revenue payment. The revenue multiplier (shown on lines I-III and XVI) for the Town of Caswell is estimated at $233.56. The multiplier suggests that for every additional person residing in the Town of Caswell in a particular year, total revenues from all sources except property tax and equalization aid will increase by $233.56.

The projected population in the Town of Caswell is 91 in 1987, an increase from its 1982 level of 86 (line I). Therefore, the $233.56 revenue multiplier for the Town of Caswell suggests that the LPR will decrease by $1,168 (5 x $233.56) in comparison to its level in 1978. Thus, the LPR in 1987 is forecast to be $2,000 higher than in 1978 from increased municipal spending, and $1,168 lower because of increased non-property tax revenues -- producing an estimated LPR for 1987 of $4,031 ($3,199 + 2,000 - 1,168). The same process was used for estimating the LPR in other years.

The determination of municipal equalizing aids in future years also requires estimates of total property value (line VI) and manufacturing value (line VII) for each year. For the Town of Lincoln, 90 percent of the property valuation expected from the Project is added to the projected estimates from the models for both total and manufacturing value. The remaining 10 percent of the Project valuation is added to the Town of Nashville.

The remaining procedures for deriving municipal tax rates for future years follows directly those used in calculating the actual rate for 1982, the only exception being net municipal cost (line

XVI), where once again direct estimates are not available. The approach used is similar to that for the LPR calculations, except that spending and population for the next subsequent year (1991 in the case of the example) are incorporated in the calculations. For example, for the Town of Caswell under Scenario 2, net municipal costs (line XVI) are estimated to be $12,551 for 1991 and will be diminished by $2,704 (lines XV and XVII) in equalizing aids, producing a levy of $9,847. This levy requires a gross municipal 1990 tax mill rate of .003583 (line XX) when spread over the $2,748,309 (line XIX) tax base that is projected to be available in 1990.

County Tax Rates

Table C-2 shows the procedures used for calculating a county's (i.e., Forest County) tax rate. The first column contains the "actual" budget for Forest County for 1982, and the second column shows the numbers used for deriving the 1990 tax rate under with-project Scenario 2 conditions. In general, the procedures used in deriving county tax rates are identical to those used for municipal tax rates. The exceptions to this general rule are: (1) average local purpose revenues -- i.e., "aidable revenues" -- are limited to 70 percent of their actual value (line VI); (2) manufacturing value is not deducted from total value in determining aidable value per capita; (3) the value increment of underlying tax incremental financing districts is deducted from total value in determining aidable value per capita;

TABLE C-2. Example of Procedures Used in Deriving Tax Rates for Forest County: 1990 Tax Rate for 1991 Budget Under With-Project Scenario 2 Conditions.

	STEPS FOR DETERMING AID		1982 ACTUAL BUDGET	PROJECTION ADJUSTMENTS	1991 SIMULATED BUDGET	
I	LOCAL PURPOSE REVENUE	(1978)	490,771	+ (4,737,000-4,358,000) - (9083-8391)130.28	779,617	(1987)
II	LOCAL PURPOSE REVENUE	(1979)	566,737	+ (4,998,000-4,358,000) - (9560-8391)130.28	2,054,440	(1988)
III	LOCAL PURPOSE REVENUE	(1980)	632,028	+ (5,088,000-4,358,000) - (9745-8391)130.28	1,185,629	(1989)
IV	LOCAL PURPOSE REVENUE-TOTAL		1,689,536		3,019,686	
V	AIDABLE REVENUES, UNADJUSTED (IV + 3)		563,179		1,006,562	
VI	AIDABLE REVENUES, MAXIMUM (V x .7 Limit)		394,225		704,593	
VII	CURRENT YEAR FULL VALUE	(1981)	235,487,800	+ (283,066,752-258,090,496) + 350,000,000	610,464,056	(1990)
VIII	CURRENT YEAR VALUE OF TID INCREMENTS		0		0	
IX	AIDABLE VALUE (VII x VIII)		235,487,800		610,464,056	
X	CURRENT YEAR POPULATION	(1981)	9,247	+ (9,279 - 8,376)	10,150	(1990)
XI	STANDARDIZED VALUE PER CAPITA		36,600		36,600	
XII	AIDABLE VALUE PER CAPITA (IX + X)		25,466		60,144	
XIII	EQUALIZATION QUOTIENT (XII + XI)		.69579		1.64329	
XIV	EQUALIZATION INDEX (1.0 - XIII)*		.30421		0	
XV	EQUALIZATION AID, UNADJUSTED (VI x XIV)		119,927		0	
XVI	EQUALIZATION AID, PRORATED (XV x .9997)		119,891		0	
	STEPS FOR DETERMINING TAX LEVY AND RATE					
XVII	NET COUNTY COST	(1982)	732,700	+ (4,843,000-4,358,000) - (9271-8391)130.28	1,103,054	(1991)
XVIII	EQUALIZATION AID		119,891		0	
XIX	PROPERTY TAX LEVY (XVII-XVIII)		612,809		1,103,054	
XX	CURRENT YEAR FULL VALUE	(1981)	235,487,800		610,464,056	(1990)
XXI	TAX RATE FOR UPCOMING BUDGET (XIX ÷ XX)		.00260		.00181	

*If this sum is negative, line XIV equals 0.

and (4) the data from model full value and population forecasts had to be adjusted upward to reflect "total" county conditions.[3/]

For example, the model forecasts Forest County spending to be $4,737,000 in 1987, in comparison to the estimate of $4,358,000 in 1982 (line I), thus having a $379,000 increase in estimated local purpose revenues required for the 1987 budget. This is decreased by the amount of non-property tax revenues that are estimated, which is equal to the projected change in population times the county non-property tax revenue multiplier. As shown on line I, the model forecasts Forest County population to increase by 692 (9,083 -8,391) between 1990 and 1982 in scenario two and estimates of non-property tax revenues in the county increase by $130.28 per person (the multiplier).

The model has excluded the full value and population of towns that are not expected to be affected by the Project from county totals. Since county equalization aids are determined by relative value per capita (among other things), the model forecasts had to be increased to approximate "whole" counties. Threfore, the forecasted increase (or decrease) in value and population was added to the 1981 actual budgets. For example, the model forecasts Forest County taxable full value to be $283,066,752 in 1990 and $258,090,496 in 1981 (line VII) -- an increase of $24,976,256. This amount, and the expected value of the Project ($350,000,000

3/ The data for Forest, Langlade and Oneida Counties had been adjusted downward to exclude the influence of towns that are assumed to be unaffected by the Project. Therefore, the data was adjusted upward to approximate conditions for "whole" counties for their 1981 actual budgets.

in scenario two) for Forest County, is added to actual county full value in 1981 to arrive at an estimate of 1990 full value for the "whole" county.[4/] A similar procedure is used for county population estimates (line X), where the model forecasts 1990 and 1981 population to equal 9,279 and 8,376 respectively. Implicitly, this approach is assuming that the increase in county property values and population will occur only in the towns included for the analysis -- remaining towns will be unchanged.

Dividing total value by projected 1990 population (line X) produces an aidable value per capita (line XII) in excess of the state-determined standardized value per capita of $36,600. Thus, Forest County is projected to receive no equalizing aid in 1990 under with-project Scenario 2 conditions, as shown on line XVI. Nevertheless, the 1990 tax rate for Forest County (line XXI) is projected to decrease in comparison to its 1981 level. Forest County net costs for 1991 are determined by adding the difference between 1991 projected expenditures ($4,843,000) and 1982 expenditures to actual net county costs for 1982, and subtracting the increase in non-property tax revenues that would result from a 880 (9271-8391) increase in population between 1991 and 1982 and a per capita non-property tax revenue multiplier of $130.28. Although Forest County is projected to receive no equalization aids in 1990 in scenario two and although net county costs are projected to increase, the county tax mill rate decreases to approximately $1.81 per thousand because of the addition of the Project valuation to the county's property tax base.

4/ Project value is added only to Forest County.

School District Tax Rates

Tax rate derivation procedures for school districts are quite similar to those used for municipalities and counties. Table C-3 shows the determination of the 1981-1982 tax rate for the Laona School District (LSD) in the first column and the estimating procedure for the 1990-1991 simulated budget for scenario two in the second column.

As with forecasts for municipalities and counties, projected net shared costs (line XX) data are unavailable. Estimates for each year are determined by adding the projected increase in expenditures from 1981 levels and deducting the estimated increase in non-property tax revenues -- which is determined by applying a non-property tax revenue multiplier to projected population change. For example, the RPC model projects the Laona School District's spending to be $1,205,000 (line XX) by 1990, which is a decrease of $64,000 from the $1,269,000 (line XX) for 1981. The LSD enrollments are projected to be 416 students in 1990 (line XX) in scenario two, a decrease of 43 students from the estimate of 440 students in 1981. Using a non-property tax revenue multiplier -- derived in similar fashion to the revenue multipliers for municipalities and counties -- of $212.30 for the Laona School District, the projected change in non-property tax revenues would be a decrease of $9,129 (-43 x $212.30). The projected decrease in school district spending coupled with the projected decrease in non-property tax revenues would provide an estimate of net shared cost for the school district (line XX) in 1990 of $1,101,478 [$1,156,349 + (-64,000) - (-9,129)].

TABLE C-3. Example of Procedures Used in Deriving Tax Rates for the Laona School District: 1990 Tax Rate for 1990-1991 Budget Under With-Project Scenario 2 Conditions.

	STEPS FOR DETERMINING PRIMARY AID		1981-1982 ACTUAL BUDGET	PROJECTION ADJUSTMENTS	1990-1991 SIMULATED BUDGET	
I	NET SHARED COST		991,329	the lesser of either (1) line XX, or (2) 2,253 x the number of pupils	937,248	
II	PRIOR YEAR FULL VALUE	(1980)	41,035,429		50,969,216	(1989)
III	NUMBER OF PUPILS		440		416	
IV	COST PER PUPIL (I + III)		2,253		2,253	
V	GUARANTEED VALUE PER PUPIL		231,000		231,000	
VI	ACTUAL VALUE PER PUPIL (II + III)		93,262		122,522	
VII	NET GUARANTEED VALUE PER PUPIL (V - VI)		137,738		108,478	
VIII	RATE FOR AID (IV - V)		.009753		.009753	
IX	STATE AID PER PUPIL (VII x VIII)		1,343		1,058	
X	TOTAL PRIMARY AID (III x IX)*		590,920		440,133	
	STEPS FOR DETERMINING SECONDARY AID					
XI	NET SHARED COST		165,020	line XX - line I	164,230	
XII	COST PER PUPIL (XI + III)		375		395	
XIII	GUARANTEED VALUE PER PUPIL		135,200		135,200	
XIV	ACTUAL VALUE PER PUPIL (VI)		93,262		122,522	
XV	NET GUARANTEED VALUE PER PUPIL (XIII - XIV)		41,938		12,678	

TABLE C-3. (Continued)

STEPS FOR DETERMING SECONDARY AID		1981-1982 ACTUAL BUDGET	PROJECTION ADJUSTMENTS	1990-1991 SIMULATED BUDGET	
XVI	RATE FOR AID (XII ÷ XIII)	.002773		.002920	
XVII	STATE AID PER PUPIL (XV x XVI)	116		37	
XVIII	TOTAL SECONDARY AID (III x XVII)**	51,040		15,400	
XIX	TOTAL EQUALIZATION AID (X + XVIII)***	641,960		455,533	
STEPS FOR DETERMINING TAX LEVY AND RATE					
XX	NET SHARED COST TOTAL	1,156,349	+ (1,205,000-1,269,000) - (416-459)212.30	1,101,478	
XXI	OTHER COST OR BALANCE CHANGE	108,795		108,795	
XXII	TOTAL COST OR BALANCE CHANGE (XX + XXI)	1,265,144		1,210,273	
XXIII	TOTAL EQUALIZATION AID (XIX)	641,960		455,533	
XXIV	PROPERTY TAX LEVY (XXII-XXIII)	623,184		754,740	
XXV	CURRENT YEAR FULL VALUE (1981)	43,431,122		51,573,152	(1990)
XXVI	TAX RATE FOR UPCOMING BUDGET (XXIV ÷ XXV)	.014348		.014634	

NOTES

*If negative, total primary aid equals 0.

**Total secondary aids may be negative and thus lessen total equalization aids when added to total primary aids.

***If negative, total equalization aid equals 0.

Primary net shared costs (line I) are determined from the lesser of either (1) estimated total net shared cost (line XX), or (2) $2,253 times the number of students in a particular year.[5/] In the case of the Laona School District, the latter constraint -- maximum primary spending --determines primary shared costs since line XX exceeds $937,248 ($2,253 x 416).

Per pupil value (lines VI and XIV) is determined by dividing the forecast for the school district's prior year full value (line II) by the forecast of current year enrollment (line III).[6/] For example, the model projects the Laona School District's full value to be $50,969,216 (line II) in 1989 in the with-project Scenario 2. Divided by the forecast of 416 students in 1990, the actual value per pupil for the school district in 1990 would be $122,522 (line VI).

School districts with value per pupil in excess of the state-determined guaranteed value per pupil of $231,000 receive no state aid. School districts with value per pupil below $231,000 may receive state aid in accordance with the procedures shown in lines I through XIX. Secondary aids are determined by counting the remainder of total net shared costs (line XX) that have not been treated as primary shared costs (line I) -- if any -- as secondary shared costs (line XI). Procedures for estimating secondary aids are identical to those used in estimating primary aids with the

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5/ $2,253 is the maximum amount of shared spending per pupil allowed by the state. Shared spending above this amount per pupil is considered secondary net shared cost (line XI).

6/ Under with-project scenarios, 100 percent of Project property valuation is added to the full value of the Crandon School District only.

exception of the use of a lower state-determined guaranteed value per pupil of $135,200. It is possible for estimated secondary aids to be negative. When this occurs, they are subtracted from the primary aids that a school district is projected to receive. This "offsetting" can occur until total equalization aid for a school district (line XIX) reaches zero.

The current year levy for a school district is calculated by adding the 1981 level of non-shared cost (line XXI) to the estimate of total shared cost (line XX) and subtracting total equalizing aid (line XIX).[7/] The tax rate is then estimated by dividing this amount by the forecast of current year full value (line XXV).

For all three formulas, the same calculations were completed for all scenarios, including the without-project scenario.

Tax Credits and Transportation Aids

Municipalities and counties receive general highway aids from the state based on relative net cost per mile of highway and a state/local responsibility factor. This aid is non-tax revenue and thus lowers the levy needed by each municipality or county. Municipalities also receive a "property tax credit" payment from the state which is to be applied against the total property tax bill of individual taxpayers. While the property tax credit does not affect the levy of local governments, its use serves to lower the "effective" property tax rate paid by individual taxpayers.

7/ For purposes of this analysis, non-shared cost has been assumed to remain at its 1981 level for all school districts.

Transportation aids and property tax credits for 1982 were secured from the Wisconsin Departments of Transportation and Revenue. This combined amount was then divided by the forecast of full value for each municipality or county for each year to arrive at an estimate of a "tax rate equivalent" by which the gross tax rate for a municipality was reduced to reflect the "effective tax rate" to individual taxpayers.[8/]

For example, the Town of Caswell received $4,659 in 1981 to decrease total tax collections (town, school, county) in that year and $6,577 in state transportation aids. Forest County also received $210,370 in 1981 as transportation aids. Assuming these amounts remain at their 1981 levels and dividing by the projected full value for each jurisdiction produces a 1990 "tax rate equivalent" for the Town of Caswell of:

	1981 Actual	1990 Projected Full Value	Tax Rate Equivalent
State tax credit	4,659	2,748,309	.001695
Transportation aids: Caswell	6,577	2,748,309	.002393
Transportation aids: Forest County	210,370	633,066,752	.000332
Total tax rate equivalent of tax credits and transportation aids			.004421

8/ The estimate is for the Towns of Lincoln, Nashville and Forest County. Project values were added to forecast values in determining the tax rate equivalents for the Towns of Nashville, Lincoln and Forest County.

Thus, the actual or "effective" rate projected to be paid by the Town of Caswell taxpayers would be $4.42 per thousand less than the "gross" rate, as a result of state tax credits and transportation aids.

Comparison of Total Tax Rates

The total effective tax rate for each municipality has been estimated for the without-project and the three with-project scenarios for the period 1985 to 2015. The total effective tax rate for a municipality consists of the municipal tax rate, plus the tax rate for the county and any school districts, less the tax rate equivalent for transportation aids and property tax credits.[9/] For example, the forecast 1990 total effective property tax mill rate for the Town of Caswell in with-project Scenario 2 is:

Gross tax mill rate:

Town of Caswell:	.003583
Laona School District:	.014634
Forest County:	.001807
Less: Transportation aids/ tax credits	.004421
Total effective tax rate:	.015604

In some cases, municipalities are served by two school districts and thus have two different total effective tax rates.

Although the fiscal analysis simulates annual total effective property tax mill rates for the affected taxing jurisdictions,

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9/ The Town of Lake Tomahawk is served by a school district that is projected to be unaffected by the Project. The total effective tax rate for the Town of Lake Tomahawk does not include a school district tax rate.

such estimates are not a prediction of what tax rates will actually be over time. The only legitimate use of the estimates presented here is in the comparison of the three with-project scenarios to each other and to without-project conditions. For example, the effective tax rate in the Town of Caswell for 1990 is projected to be .016014 for without-project conditions. Comparing this to the .015604 estimated for 1990 in scenario two would suggest that any effects associated with the Project would "cause" the effective tax mill rate for the Town of Caswell taxpayers to be $0.41 per $1,000 lower than it would have been without the Project. Comparisons such as this constitute the descriptive analysis presented in Chapter 9, Fiscal Analysis. The rates presented are a product of equalization aid formulas in existence in 1982 and forecasts provided by the model simulations. Changes in either of these would affect the derived total effective tax rates.

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