THE THIRD YEAR OF THE SATSOP CONSTRUCTION PROJECT

AND

SOCIOECONOMIC CHANGE IN GRAYS HARBOR COUNTY

THE GRAYS HARBOR REGIONAL PLANNING COMMISSION

APRIL 1981

THIRD YEAR OF THE SATSOP CONSTRUCTION PROJECT AND SOCIOECONOMIC CHANGE IN GRAYS HARBOR COUNTY:

A Report to the
Grays Harbor Regional
Planning Commission

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EXECUTIVE SUMMARY AND CONCLUSIONS

This discussion summarizes the third comprehensive analysis by the Grays Harbor Regional Planning Commission staff of the impact of the construction of the Satsop Nuclear Power Plant on the socioeconomic character of its host county, Grays Harbor. Each analysis is prepared annually covering the entire construction period. This analysis adds a third year--June 1979 to July 1980--to the earlier work. The methodology employed in the earlier analysis has been extended and improved in this third effort.

This executive summary has been prepared to both summarize the full report and to present a brief overview of change occurring since the start of the Project. As such, it is published both by itself and within the full report. Selected graphics and tables from the full report are added to this summary when published separately. For explanations of the full methodology used, please refer to the text of the full report.

Construction began of the Satsop Project, consisting of twin nuclear reactors, on April 8, 1977. In July of 1980, the end of the period covered in this analysis, the Project employed 3,143 persons. It will be constructed over a ten-year period and involve an estimated 20,091 man years. The peak of the construction activity will occur in 1983 when approximately 6,400 workers will be employed.

Grays Harbor, the host county, had a 1980 population of 66,314. The reactors are being built in the eastern part of the County near several small cities; Elma (2,720 population), McCleary (1,419), and Montesano (3,247). The total population of the eastern part of the County is about 16,939. The general Aberdeen/Hoquiam area has a population of over 30,000.

During the third year, the Construction Project's impact on Grays Harbor County continued to increase. The predominate difference between the third year of construction and its predecessing years (other than its steadily increasing magnitude) is that while the growth pressure exerted by the Project on the County during the first two years added to an otherwise increasing regional economic base, the regional economy was declining in the last year covered by this report. The Satsop Project during this year then assisted in reducing problems with a faltering economy rather than adding to an underlying growth as in previous years. Consequently, while just over 60% of the growth experienced by the County during the first two years of the Project could be attributed to the Project, virtually all of the growth during the third year could be related to the influence of the Project. Indeed, some areas of the County may have lost population if it were not for the Project.

This change in the role of the Project on the host economy tended to also change the character in which the Project impacted the affected communities. The Satsop Project tended to serve as a "buffer" for economic problems which manifested themselves during this last year.

While unemployment in the County rose to 16.5% (430 more unemployed) and employment decreased by 6.4% (a loss of 1,950 jobs) during this third year, the Satsop Project employed 936 County residents as construction workers as of July 1980. An additional 1,198 jobs can be attributed to the secondary impact of the Project. However, while this buffering effect of the Project is

significant, most of the actual employment benefit of the Project went to other counties where the remaining 2,207 workers reside and commute to the Project.

The County's general economic downturn is related to significant problems confronting several aspects of the County's economic base. The most significant of these is the effect of the poor condition of the U. S. and Japanese housing markets which has substantially curtailed production in the County's lumber and wood products industry which accounted for 21.5% of the area's wage and salary employment in 1979. These conditions are due to cycles in these markets and, consequently, tend to be temporary. While current conditions are poor, the general level of economic activity is, nonetheless, above long-term trending of these cycles. The "boost" above long-term trends occurred since the start of the Satsop Project and is probably related. So, in addition to buffering current problems, the Project tends to continue its general influence of raising regional growth levels.

The same problems which confront the housing industry nationwide also confront the housing industry in the County. Consequently, new housing starts are depressed which in turn may be depressing current growth.

The 936 County residents employed on the Project may be placed into three categories:

1. People who were residents of the County prior to the start of the Project. As such, these employees do not in themselves exert a new growth influence in the area (referred to as "prior residents").

2. People who moved to the area to work on the Project and have formed a new household (referred to as "in-migrants"). These workers constitute a strong new growth pressure in the County.

3. Workers who reside in the area only on a temporary basis (referred to as "transients").

Of the 936 Satsop workers who were County residents in July of 1980, 278 (30%) were residents of the area prior to the start of the Project, and 658 (70%) were new residents of the County. Of these new residents, 219 could be classed as "transients" and 439 as "in-migrating" households. While the total number of new residents increased from 420 to 658 (57%) over the last year, the number of prior residents actually decreased during the year by 10 workers (288 to 278).

The distribution of these workers was focused on the Elma-McCleary area in East County where 240 of the in-migrant households were located and 93 of the worker households were prior residents. The remaining in-migrants were distributed as follows: 67 in the Montesano area; 22 in the Oakville area; 91 in the Aberdeen/Hoquiam area; and 19 in the beach areas of the County. The remaining prior residents were found as follows: 53 in the Montesano area; 3 in the Oakville area; 122 in the Aberdeen/Hoquiam area; and 7 in the beach areas of the County. One hundred twenty-six (126) of the transients resided in the Elma/McCleary area (mostly in RV parks) and 64 transients resided in Aberdeen/Hoquiam (mostly in motels and other rooming accommodations); 25 in the Montesano area; and 4 elsewhere.

Not only does the Satsop Project exert this direct influence of in-migrating workers on the County's growth, it also exerts considerable indirect pressure. It is estimated in this analysis that for each Satsop worker there is another 1.28 jobs created indirectly by the Project in trade, service, and other sectors of the economy: a total of 1,198 jobs since the start of the Project. The direct and indirect effect of these factors led to the creation of 1,251 new households in the County. This represented 41.7% of total new households in the County since the start of the Project. Since 38.5% of total new households are needed just to accommodate the decline in average household size (or in other words to maintain the existing population), the Satsop Project accounts for most of the net new growth in the County (67.8%). Again, the total growth attributable to the Project focused in the Elma-McCleary area where 45.2% of it occurred. The Satsop Project could account for all of the net new growth that occurred in Aberdeen-Hoquiam, almost all in the Elma-McCleary area (93%), four-fifths of the eastern part of the County, and only 28% of the growth that occurred in the beach area of the County.

While the added economic and population stimulus of the Project clearly boosted the economy of the eastern portion of the County during the first two years of construction, economic conditions in the area were slackening during the third year of construction. This situation, however, was clearly less severe in this area than in the Aberdeen/Hoquiam area.

Similar to the economic picture, and probably related to it, the third year of construction saw a drop in land development activity from the first two years. In spite of this, however, land development and related activities were still well above pre-Project levels. As in the case of previous years, the focus of actual land use change in East County was in Elma, although some shift in related activity (such as housing starts) could be detected back to the Montesano area (where development activity was focused in East County prior to the start of the Project). The beach area, relatively unaffected by the direct influence of the Project, continued to lead in new building starts.

Considerable efforts continue to measure the effect of the Project and its induced change on the various aspects of the County's social system. However, measurement of this aspect of the impact of the Project is most difficult due to the inadequacy of the available tools. The most measureable part of this aspect is how the Project influences crime and police activity. These rates continue to rise in the County in general, and they continue to be well above the national averages. This problem is particularly characteristic of the Elma area where a definite Project relationship can be established. In Elma, 67% of all aggravated assault arrests are Project related, 25% of the DWI arrests, 17% of the larceny, and 17% of other assault arrests. Eighteen percent (18%) of total Elma and McCleary arrests could be related to the Project.

Due to the time needed to analyze the complex data involved in this comprehensive analysis, this report is being published in April of 1981. During the time that this report was being prepared, the Project has grown significantly to a work force of over 4,000. Preliminary indications seem to point to a continuation of the influences that the Project exerts on the County, probably in porportion to the growth in labor force. While the Project has grown, the general economy continues to worsen with rising unemployment as the lumber market continues to fall. This would continue the trends assessed in this report.

The conclusions presented in this summary, and in the full report, represent the sole views of the staff of the Grays Harbor Regional Planning Commission. These opinions are intended to give a potential interpretation of the data and do not represent the position of the Commission, its members, or the Washington Public Power Supply System.

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INTRODUCTION

On April 8, 1977 construction began on a twin nuclear generating facility southwest of the City of Elma in Grays Harbor County, Washington. This project is planned to be constructed over a ten year period involving an estimated 20,091 man years of craft labor and an expenditure of approximately 7.5 billion dollars.[1] The site of the project is adjacent to the Chehalis River in a rural agricultural and forestry community. Four small rural cities are in the immediate vicinity of the project: Elma, population 2,720; Montesano, 3,247; McCleary, 1,419; and Oakville, 537. Approximately another 12,000 people reside in the unincorporated areas surrounding these communities. The Aberdeen-Hoquiam area is the nearest urban center, fifteen miles to the west of the site. This project, officially designated as WNP-3 and WNP-5, is commonly known as "The Satsop Project."

A construction project of this size was expected to have the potential of substantially modifying the socioeconomic character of the host rural communities.[2] As a part of the licensing process of the facility by the State of Washington, the Project operators, the Washington Public Power Supply System, were required to monitor the socioeconomic change within the Project's area of influence. The Power System then contracted with the Grays Harbor Regional Planning Commission to collect and report data and information which might serve as indicators or measures of any socioeconomic change occurring within the area. This Monitoring Project has, during the first three years of the Project, produced thirteen volumes of data and information.[3]

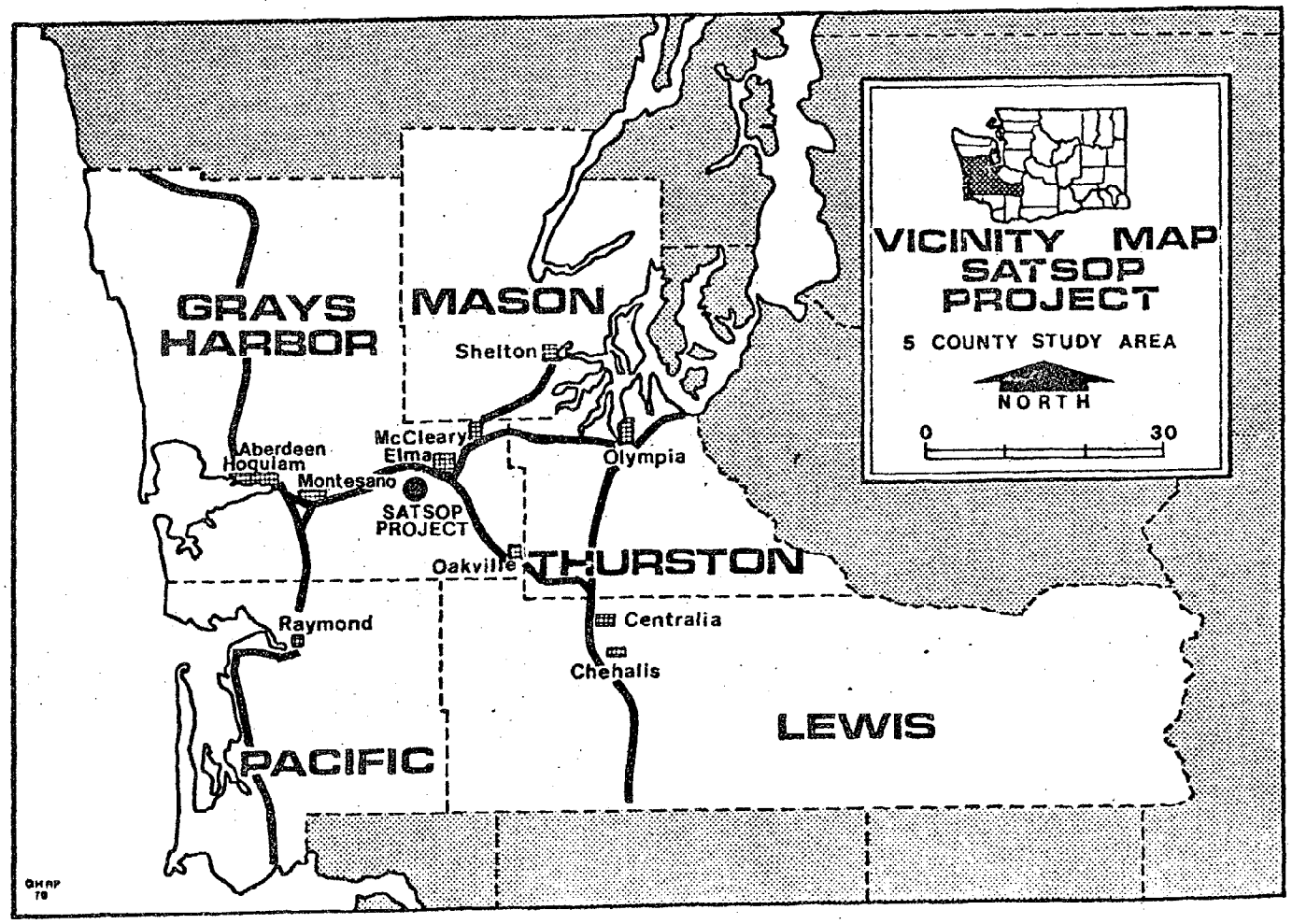
This report presents, in the sole view of the staff of the Grays Harbor Regional Planning Commission, the major socioeconomic changes as identified in this monitoring data occurring over the first three years of the construction Project. This report is produced separate from, and is in no manner to be considered a part of, the Monitoring Project itself. The opinions expressed in this report are intended to give a potential interpretation of the data and do not represent the position of the Commission, its members, or the Power System.

Similar reports were issued covering the first two years of construction, and this report will compare the third year to these earlier reports. This report will also frequently refer to the analysis in these reports, rather than to unnecessarily duplicate that information.

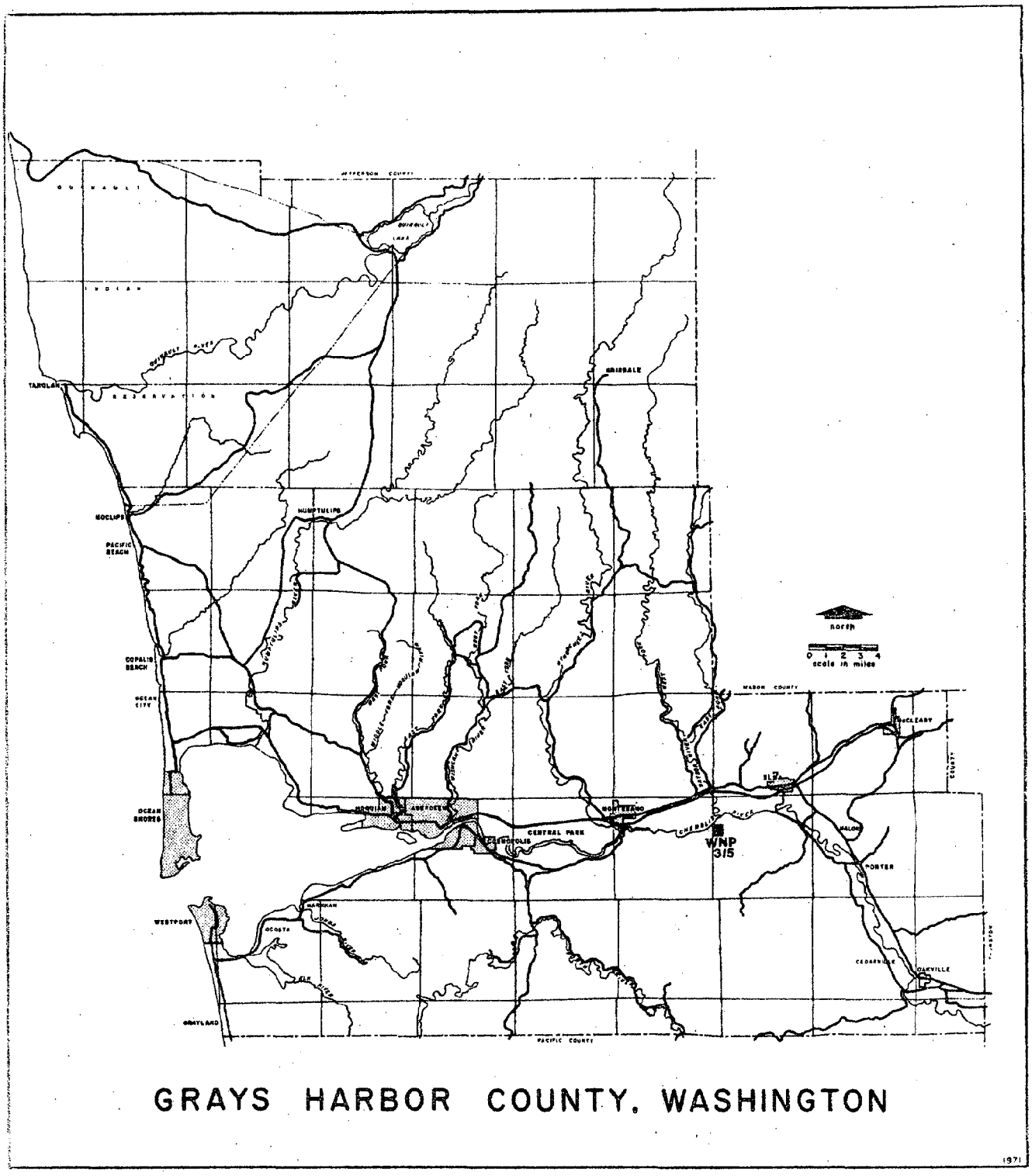
It is expected that this report, followed by other reports by authors of differing perspectives, will contribute to the awareness and knowledge of change which is occurring in this Project area, and thereby provide needed insight into this process of change for the Commission and its constituent local governments. Furthermore, it is hoped that this discussion will contribute to the general body of knowledge relating to the socioeconomic implication of major construction projects.

The construction began on April 8, 1977 under a limited work authorization issued by the Nuclear Regulatory Commission. This authorization was limited to the preparation and excavation of the site. On April 11, 1978 the full construction permit was granted and full construction began. On June 30, 1978, the end of the period covered by the First Year Report, on-site craft construction employment was 442. At the end of June 1979, the period covered by the

MAP 1


VICINITY MAP
SATSOP PROJECT
5 COUNTY STUDY AREA
NORTH
0
30
GRAYS HARBOR
MASON
Shelton
McCleary
Elma
Aberdeen
Hoquiam
Montesano
SATSOP PROJECT
Olympia
Oakville
THURSTON
Raymond
Centralia
Chehalis
LEWIS
PACIFIC

MAP 2


north
0 1 2 3 4
scale in miles
WNP 3\5
GRAYS HARBOR COUNTY, WASHINGTON

second report, on-site craft employment was 1,343. In July 1980, the end of the period covered by this report, on-site craft employment was 1,980. In addition to craft construction workers, project employment also consists of non-manual workers employed by the Engineeering Contractor and WPPSS itself, and managerial or clerical workers employed by other contractors. This type of employment has grown in a more stable manner throughout the construction, gradually growing from 155 in July 1977 to 387 in June 1978, 802 in June 1979, and 1,163 in June 1980.[4] These employment trends are illustrated on Graph 1.

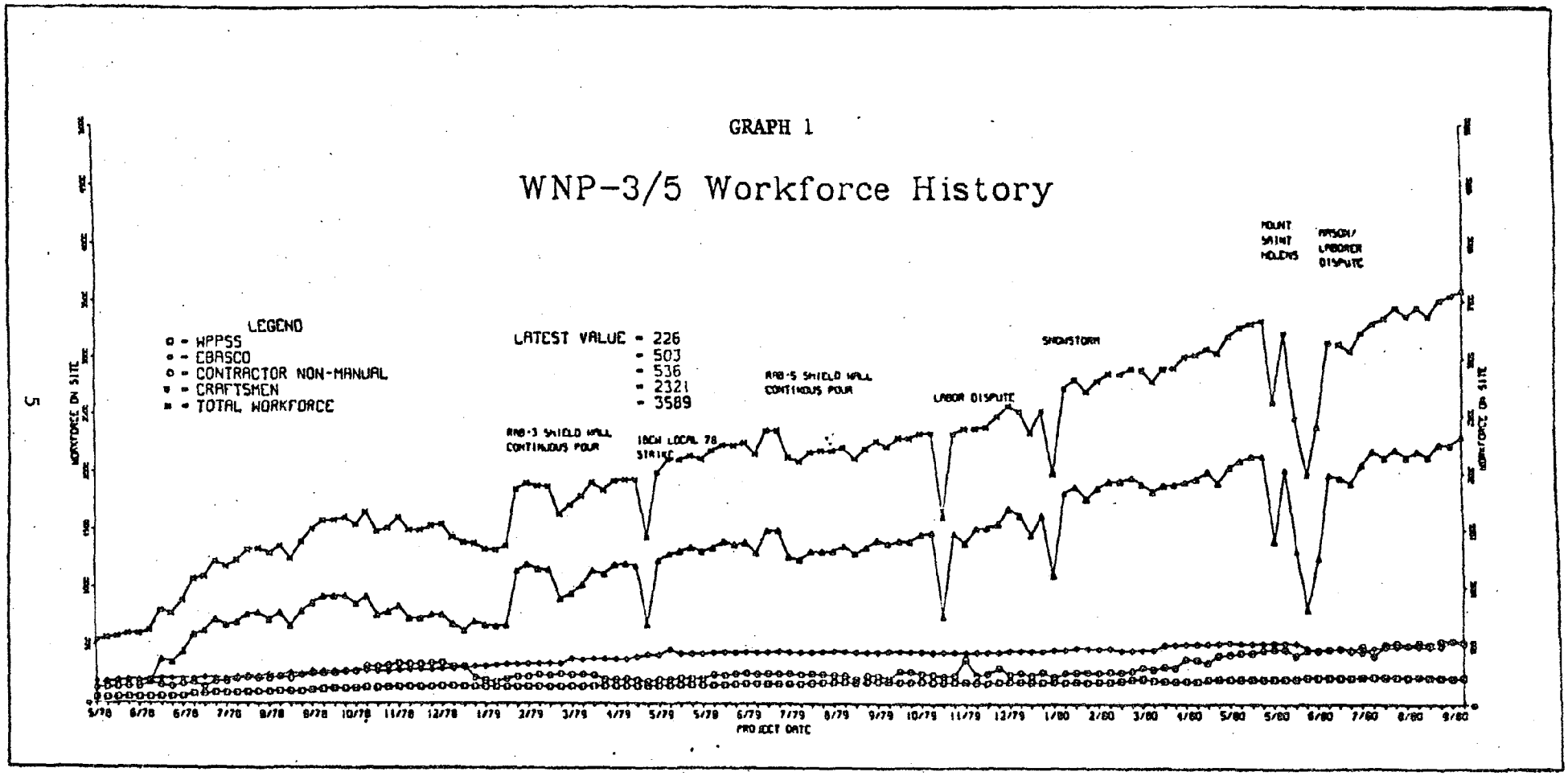
In order to monitor socioeconomic change which might be produced by the Project, a large potential area was established by the Monitoring Project consisting of five counties. These counties were monitored at a very general level. Two of these counties, Grays Harbor and Thurston, were monitored in greater detail, and particular subareas (called Primary Study Areas) were examined very closely in each of these counties. Since this report is prepared by the staff of the Grays Harbor Regional Planning Commission primarily for the use of the Commission and its members, it concerns itself with only change occurring in Grays Harbor County. Grays Harbor County has been divided into two areas: a Primary Study Area and the remainder of the County. The Primary Study Area includes the cities of Elma, Montesano, McCleary, and Oakville, and their unincorporated surroundings. The term also may include the unincorporated area of Central Park, but due to difficulties in obtaining information which separates this area from the Aberdeen area, Central Park is sometimes not included in the "Primary Study Area." Map 3 identifies the Primary Study Area. For comparison purposes, Aberdeen, Hoquiam, and Cosmopolis are termed the "Urban Area" within this report, and the "Beaches" refer to the cities of Westport and Ocean Shores, and unincorporated areas adjacent to the Ocean. The Primary Study Area is also referred to as East County.

As previously noted the purpose of this report is to first identify, describe, and assess socioeconomic change in the study area and the County during the past few years in general and during the last three years in particular. This is first done without necessarily inferring a particular cause for the change, since the fact of change is important information in and of itself to the Commission and its members. This reporting of change is rather straightforward and clear within the limitations of available information.

However, since understanding the cause of change is an essential prerequisite to anticipating further change, this discussion does seek to identify such causes. Such identification can only proceed with peril because socioeconomic change seldom occurs in clear cause-effect relationships, and any effect will have complex roots of causation which tend to defy detection. Since it is expected that the Construction Project will be a major catalytic agent in the study area, this report attempts to relate identified change to this stimulus. As will be noted, this can range from rather clear situations (such as the proliferation of gravel pits) to more of a juxtaposition of occurrence (a rapid rise in taxable sales in Elma) without significant evidence of a clear causal relationship. Consequently, discussions herein which seek to relate change to the project should be critically reviewed and considered by the reader. It is more the underlying desire of the authors to stimulate such critical thought on these complex relationships than to necessarily establish a position regarding the manner by which change is being produced.

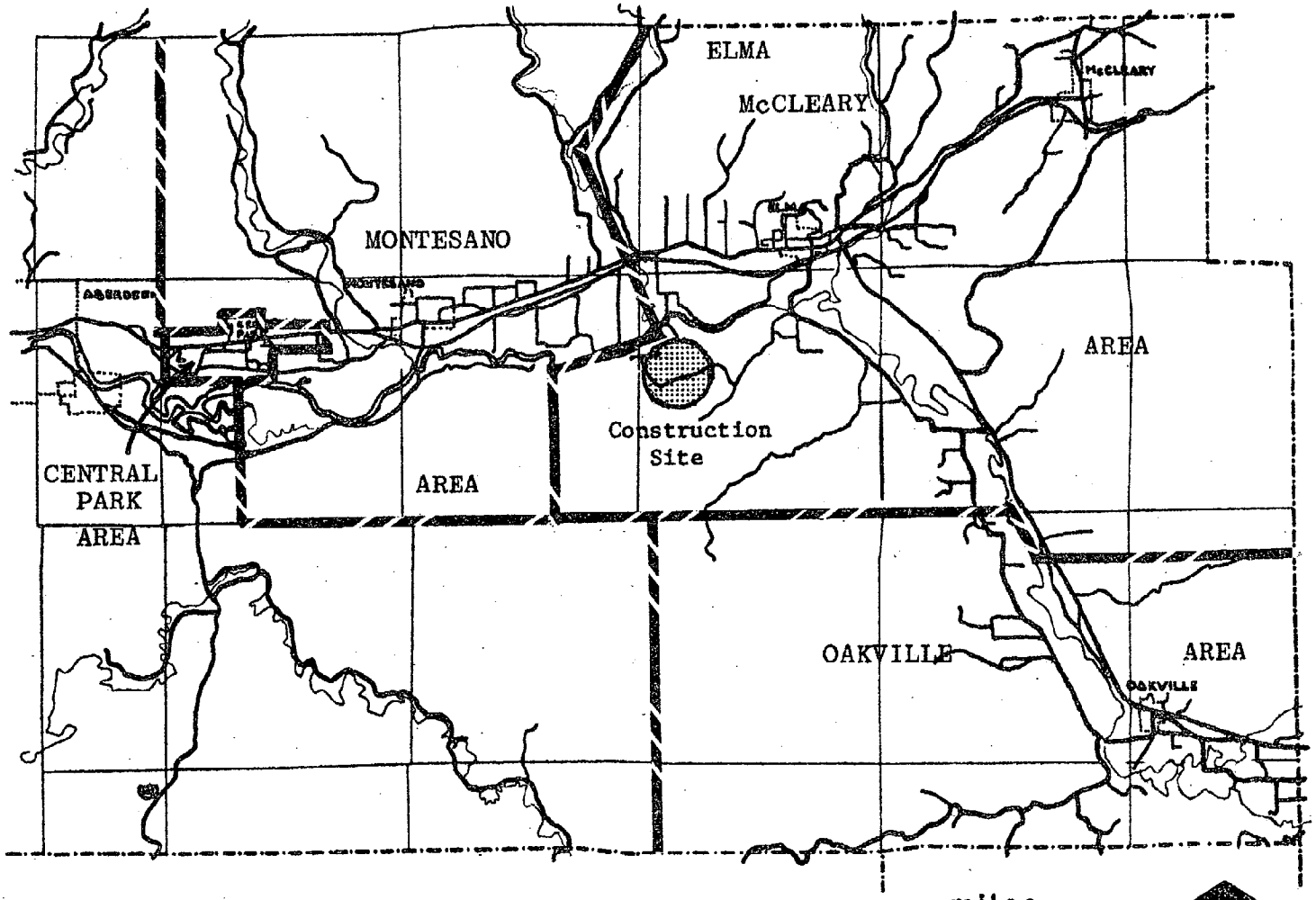
In reviewing any situation of this nature, a useful analogy is possible. It is too tempting to think of the impact of a major construction project as being a rock tossed into a placid pool where the ripples of impact can be

GRAPH 1



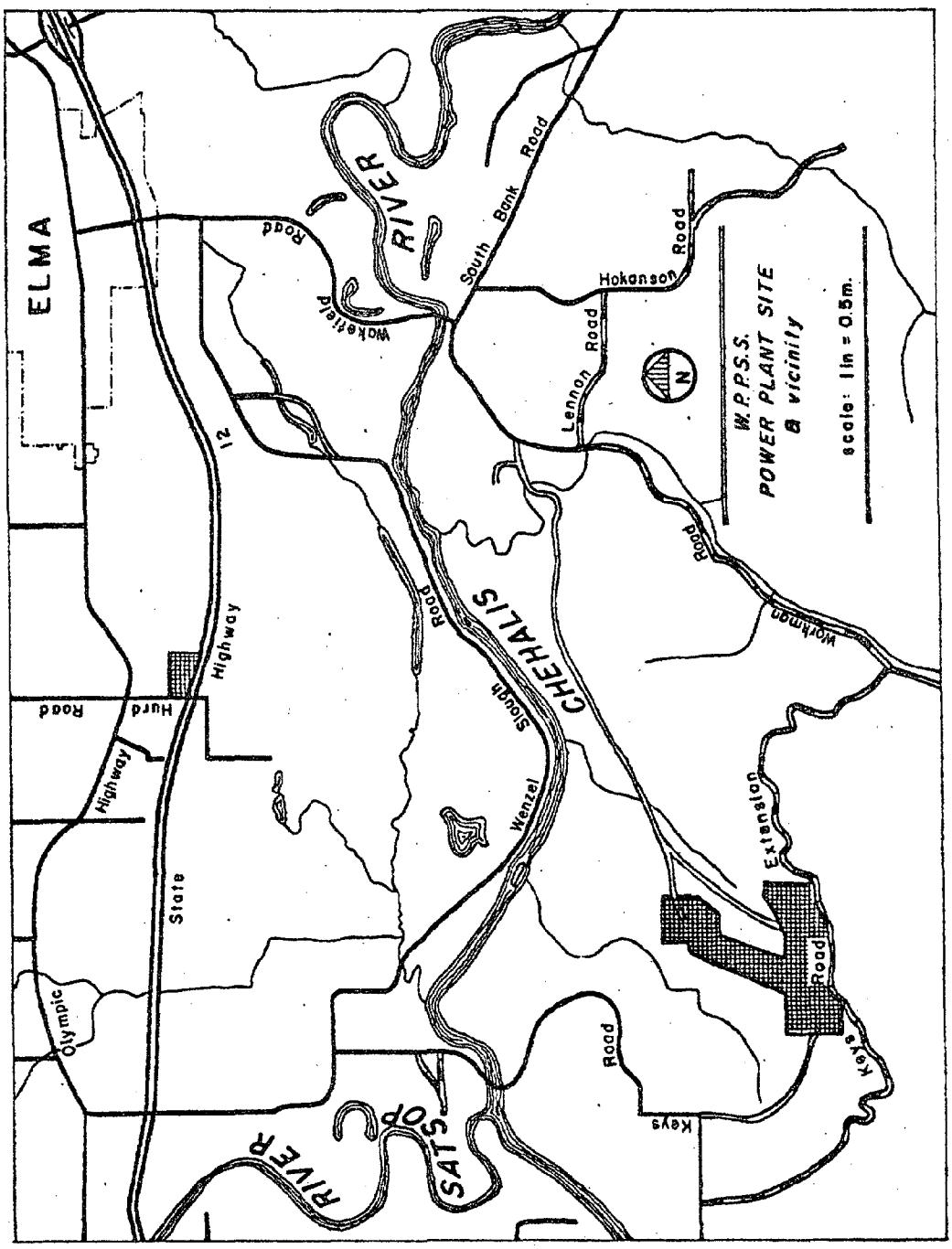
SOURCE: WNP-3/5 Socioeconomic Summary, October 1980, WPPSS.

MAP 3



PRIMARY STUDY AREA, EAST GRAYS HARBOR CO.

MAP 4


ELMA
RIVER
CHEHALIS
South Bank Road
Hokanson Road
Lennon Road
W.P.P.S.
POWER PLANT SITE
& vicinity
scale: 1 in = 0.5m.
N
Wakefield Road
12
Highway
Hurd Road
Highway
State
Olympic
Road
Wenzel
South
Road
Extension
Road
Keys
Road
Keys
RIVER
SATSOP

easily and comfortably counted and measured. The nature of socioeconomic systems, unfortunately, is not so accommodating. A better analogy is a rock tossed into a babbling brook with its own established currents of change. The influence of the rock is an additional influence which will bend and turn those currents but is not the sole "cause."[5]

This report and its conclusionare limited by the nature of available information. Four key problems are present. First, important pieces of information are not reported until some time after the event occurs. Some cases (such as income information) can be as long as several years. This delay naturally prevents the use of such information in a report like this. This is particularly an acute problem in this report due to the delays associated with the publication of the 1980 Census data. That Census will produce a large volume of information which will make better analysis possible. Second, many important pieces of information (most significantly employment data) are not available on a subcounty level, and, consequently, county level discussion (where more influences would operate to make analysis of cause more difficult) must suffice. Third, some information is not generated for many areas (reliable population data for subcounty unincorporated areas), and related to this are time or cost limitations for the Commission to generate information (such as Assessor data). In these cases this analysis has used available information as an indicator of the general. Fourth, the complexity of some data literally defies interpretations. This is often true for data relating to this Construction Project itself even for something so apparently clear as employment levels. Needless to say, these general limitations impose hazardous conditions for many conclusions in this report. More importantly, data limitations also often make meaningful comments about many potential concerns impossible (a key example is the absense of discussion on recreation). Consequently, this discussion limits itself to those concerns which are possible to discuss meaningfully within the parameters and limitations of the monitoring information. In some cases where data were not previously available, this report will address and even modify conclusions regarding the earlier reports based on this new data.

This report is a continuation of an attempt to understand the relationship between the Construction Project and the socioeconomic character of the host region. It is hoped that this effort will lead to further discussion, analysis, and debate which is necessary for a full understanding of the issues which may be raised.

INTRODUCTION
NOTES

1. Total man-hours including both manual and non-manual estimated by the Grays Harbor Regional Planning Commission on the basis of Washington Public Power Supply System craft manpower projections. The official designation of this project is WNP-3 and WNP-5.

2. The planning of the Project included several discussions of potential socioeconomic implications of the Project. This included publications by the Power System such as:

   - Community Development Services Inc., An Analysis of Socioeconomic Impacts of WNP-3 and WNP-5, Washington Public Power Supply System, September 17, 1975.

- Westinghouse Electric Corporation, Socioeconomic Effects of Construction and Operations of WNP-3 and WNP-5 and Alternatives to Alleviate Adverse Effects, Washington Public Power Supply System, December, 1974.
- Washington Public Power Supply System, Environmental Reports.

The monitoring requirement in the Site Certification Agreement with the State of Washington grew out of a consideration of these reports, other available literature, and testimony by the Regional Planning Commission.

3. Thirteen monitoring reports have been published and are on file with the Power System, the Regional Planning Commission, and the Energy Facility Site Evaluation Council. Frequent references shall be made to these reports in this study:

- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 1, Report No. 2, July 1, 1977 to September 30, 1977, Washington Public Power Supply System, October, 1977.
- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 1, Report No. 3, October 1, 1977 to December 31, 1977, Washington Public Power Supply System, January 1978.
- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 2, Report No. 1, January 1, 1978 to March 31, 1978, Washington Public Power Supply System, April 1978.
- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 2, Report No. 2, April 1, 1978 to June 30, 1978, Washington Public Power Supply System, July 1978.
- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 2, Report No. 3, July 1, 1978 to September 30, 1978, Washington Public Power Supply System, October 1978.
- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 2, Report No. 4, October 1, 1978 to December 31, 1978, Washington Public Power Supply System, January, 1979.
- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 3, Report No. 1, January 1, 1979 to March 31, 1979, Washington Public Power Supply System, April, 1979.
- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 3, Report No. 2, April 1, 1979 to June 30, 1979, Washington Public Power Supply System, July 1979.
- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 3, Report No. 3, July 1, 1979 to September 30, 1979, Washington Public Power Supply System, October 1979.
- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 3, Report No. 4, October 1, 1979 to December 31, 1979, Washington Public Power Supply System, January, 1980.
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- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 4, Report No. 3, July 1, 1980 to September 30, 1980, Washington Public Power Supply System, October 1980.

Also, this study utilizes information that will be reported in:

- Grays Harbor Regional Planning Commission, Quarterly Socioeconomic Report of WNP 3/5, Volume 4, Report No. 4, October 1, 1980 to December 31, 1980, Washington Public Power Supply System, January, 1981.

4. Tables in Monitoring Reports under Tables number GH-T.32.15.

5. This analogy was originally suggested by Carl Van Hoff, staff of the Supply System.

CHAPTER 1

REGIONAL GROWTH PATTERNS

1. REGIONAL GROWTH PATTERNS

1.1 Introduction: One of the major concerns regarding any large construction project is how such a project affects growth patterns in the host region. Indeed, this effect is often the primary concern of most socioeconomic studies relating to such projects since growth resulting from such a project will affect virtually every aspect of the socioeconomic character of an area. For this reason the Monitoring Project has collected substantial information regarding growth patterns in the County. Of this data two are particularly important: U.S. and State census data and estimates, and electrical service connections.[1] While each of these sources of information have significant limitations, they do provide very useful insights into the pattern of growth occurring within the region. This information then can be compared to data relating to the migration patterns of construction workers, employment data for the rest of the economy, and other information to assess the relationship between growth in the region and the Construction Project and other factors which influence growth patterns.

This analysis of growth and its causes first seeks in this Chapter to portray regional and subregional growth (primarily in households) which has been occurring before and during the Construction Project. Then, in the following chapter, potential causes of growth, notably general regional economic growth, are examined to explore what influences are operating in the area besides just the Satsop Project. Finally, from specific information from the Project, an attempt is made to account for the amount of growth that is occurring in the area due to the Satsop Project. This attempt includes a measure of the secondary or induced effects of the Project on regional growth.

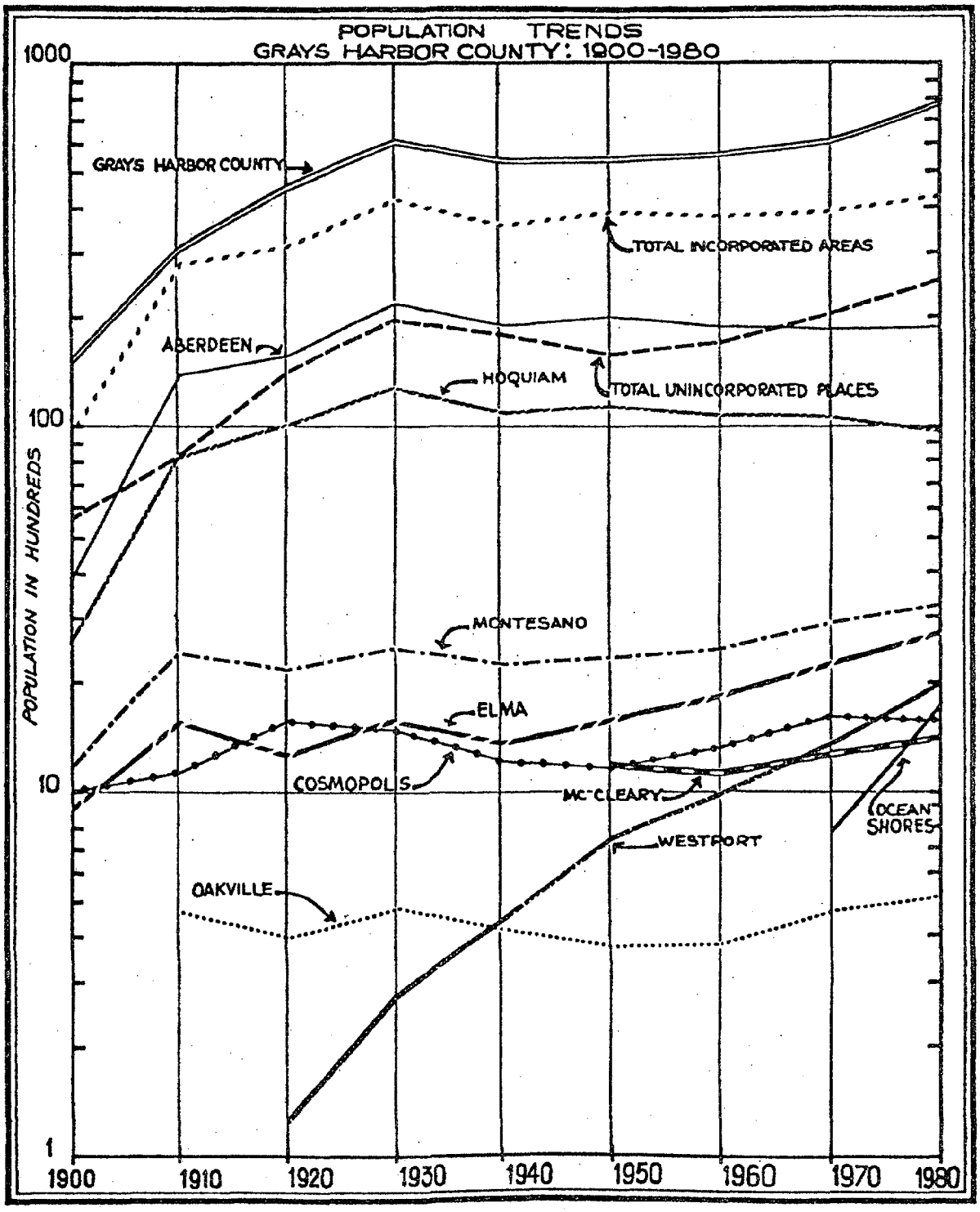
1.2 Overall County Growth: The population of Grays Harbor County is noted for its long term stability. It reached a peak population of nearly sixty thousand people during its lumbering heyday of 1930, a population level which was not reached again until 1971. After several decades of population decline and low growth, the population grew between 1960 and 1970 by 9.3% (0.9% annually). This growth continued through the 1970's with an 11.4% increase between 1970 and 1980 (1.1% annually). However, if state population estimates are correct, much of this growth in the 1970's occurred late in the decade (Table 1.2).

TABLE 1.1
RESIDENT POPULATION

	1930	1940	1950	1960	1970	1980
State	1,563,396	1,736,191	2,378,963	2,853,214	3,413,244	4,113,331
Grays Harbor County	59,982	53,166	53,644	54,465	59,553	66,314
Grays Harbor County as Percent of State	3.84%	3.06%	2.25%	1.91%	1.74%	1.61%

SOURCE: U.S. Bureau of the Census.
1980 figures are preliminary.

GRAPH I.1


POPULATION TRENDS
GRAYS HARBOR COUNTY: 1900-1980
1000
100
10
1
POPULATION IN HUNDREDS
GRAYS HARBOR COUNTY
TOTAL INCORPORATED AREAS
ABERDEEN
HOQUIAM
TOTAL UNINCORPORATED PLACES
MONTESANO
ELMA
COSMOPOLIS
McCLEARY
OCEAN SHORES
WESTPORT
OAKVILLE
1900
1910
1920
1930
1940
1950
1960
1970
1980

While the actual decennial census data for the end of each decade may be viewed as highly accurate, the intercensusal data are estimates and, thus might be less reliable. Another limitation of relying solely on population data for an analysis of growth is that the intercensusal estimates are made only for the County as a whole and each incorporated city and, consequently, information is not reliable for unincorporated areas. Fortunately, far more accurate information regarding growth is available in the form of residential electrical service connections. While this information is reliable in terms of what it measures, residential electrical services, it is severely limited in its use to determine the population trends. Its major limitations is that the ratio between population and number of households is dropping due to a variety of factors. Consequently, power hookups should beexpected to increase faster than population. However, if this distinction between households and population is kept in mind, power hookups can be used as a very important information source regarding growth in the area.

TABLE 1.2
POPULATION AND RESIDENTIAL ELECTRICAL SERVICES BY
GRAYS HARBOR PUBLIC UTILITY DISTRICT

Year	Population Estimates April	Residential Electrical Services Connections April
1970	59,553	22,919
1971	60,000	23,305
1972	60,000	23,797
1973	60,100	24,274
1974	60,100	24,983
1975	60,200	25,342
1976	60,500	25,760
1977	61,400	26,428
1978	62,300	27,562
1979	63,700	28,677
1980	66,314	29,463

SOURCE: Table GH-T.32.16.4, 3/78 as updated and Office of Financial Management.

Table 1.3 compares the growth of population by official estimates to the actual utility hookups for the same period. As illustrated in this table, the population estimates for the early part of the decade seem conservative. Growth in electrical services seemed to spurt between 1971 and 1974, slow between 1974 and 1976, then resurge again since 1977 with a significant degree of growth occurring from 1977-1980. This pattern of higher growth early in this decade followed by a slowdown (and possible decline in population) in the middle and a resurgence of growth recently should be particularly noted because it will be a recurrent theme when this report addresses land use and development. Growth during the last year has accelerated from the first year of construction.

1.3 East County Growth: It was hoped that the 1980 Census of Population would supply detailed information regarding population change in East County since 1970. However, the Bureau of Census changed some boundaries in the County Census Divisions (CCD) which will make direct comparison between censuses very

TABLE 1.3
POPULATION TRENDS AND ELECTRICAL SERVICE TRENDS

Year	Percent Change in Population April to April (Estimates)	Percent Change in Residential Electrical Customers April to April
1970-71	0.8	1.7
1971-72	0	2.1
1972-73	0.2	2.0
1973-74	0	2.9
1974-75	0.2	1.4
1975-76	0.5	1.6
1976-77	1.5	2.6
1977-78	1.5	4.3
1978-79	2.2	4.1
1979-80	4.1	2.7

SOURCE: Office of Financial Management and previous table.

difficult. Due to this change, extensive adjustments based on detailed information will be required for accurate comparisons. This can be undertaken only after all detailed Census data is reported. Such details will not be available until next year, at the earliest. In the interim only a crude comparison is possible to gain general insight, and more detailed analysis in this report will depend primarily on the methods developed in previous years as based upon electrical connection data. This electrical information does have the additional advantage of providing highly detailed information for every year, not just U.S. Census years.

All CCD's have been adjusted by the Bureau of the Census. The degree of this adjustment varies from rendering any comparison in some areas between Censuses impossible to relatively minor adjustments involving few if any people. In the study area, two major problems are present. First, the Central Park area is no longer a separate CCD but is incorporated into the Aberdeen-Hoquiam area. Consequently, population data for this area are no longer readily available. A Census Division south of Montesano has been substantially revised making comparison with earlier data impossible. This is particularly awkward since the new boundary includes some property on the Project site. Fortunately, even though this CCD incorporates some of the Project, it actually includes very few people generally considered "East County" since it lies in the largely uninhabited area to the southwest of the project. While the remaining CCD's have all been adjusted and consequently prevent accurate comparison, they, nonetheless, represent the same general areas of the County, and the bulk of their population is unaffected by the boundary changes. If Central Park and South Montesano areas are excluded, the remainder of the CCD's in the study area have basically the same overall boundary. The population of these five CCD's together increased by 26.6% during the last decade (an annual average increase of 2.4%). Table 1.4 presents the available population data for these CCD's. Table 1.5 compares growth trends in the cities of East County.

TABLE 1.4
1970-1980 POPULATION OF STUDY AREA

	1970	1980	Annual Rate of Increase
Central Park*	3,164	N/A	N/A
Montesano Area (Wynoochee CCD)**	5,231	6,253	1.8
Elma Area (Elma and Malone/ Porter CCD)	5,034	6,523	2.6
McCleary Area (McCleary CCD)	1,891	2,818	4.1
Oakville Area (Oakville CCD)	1,220	1,345	1.0
Total Excluding Central Park	13,376	16,939	2.4
Grays Harbor County	59,553	66,314	1.1

*Revision in CCD boundaries included the Central Park area in Aberdeen-Hoquiam CCD, and consequently the 1970 figure has no 1980 counterpart.

**Previous reports included a CCD for the South Montesano area. Substantial revision in CCD boundaries makes the 1980 CCD totally uncomparable to 1970 data.

TABLE 1.5
POPULATION GROWTH OF EAST COUNTY CITIES

	1970	1980	Percent Change	Annual Growth Rate
Montesano	2,847	3,247	14.0	1.3
Elma	2,227	2,720	22.1	2.0
McCleary	1,265	1,419	12.2	1.2
Oakville	460	537	16.7	1.6
TOTAL	6,799	7,923	16.5	1.6
East County Unincorporated	6,577	9,016	37.1	3.2

As noted on this table, the City of Elma is the fastest growing of the four cities, averaging an annual growth rate of 2% for the decade with the other cities slightly exceeding a growth of 1% per year.

Comparison of Table 1.4 with 1.5 indicates that most of the East County population growth occurred outside the cities where the growth rate was over two times faster than the incorporated areas. This difference was particularly dramatic in the McCleary area.

Table 1.6 examines East County growth trends in greater detail from another perspective. It presents the change and growth in various areas of East County

TABLE 1.6
GROWTH OF RESIDENTIAL POWER CONNECTIONS
1974-1980

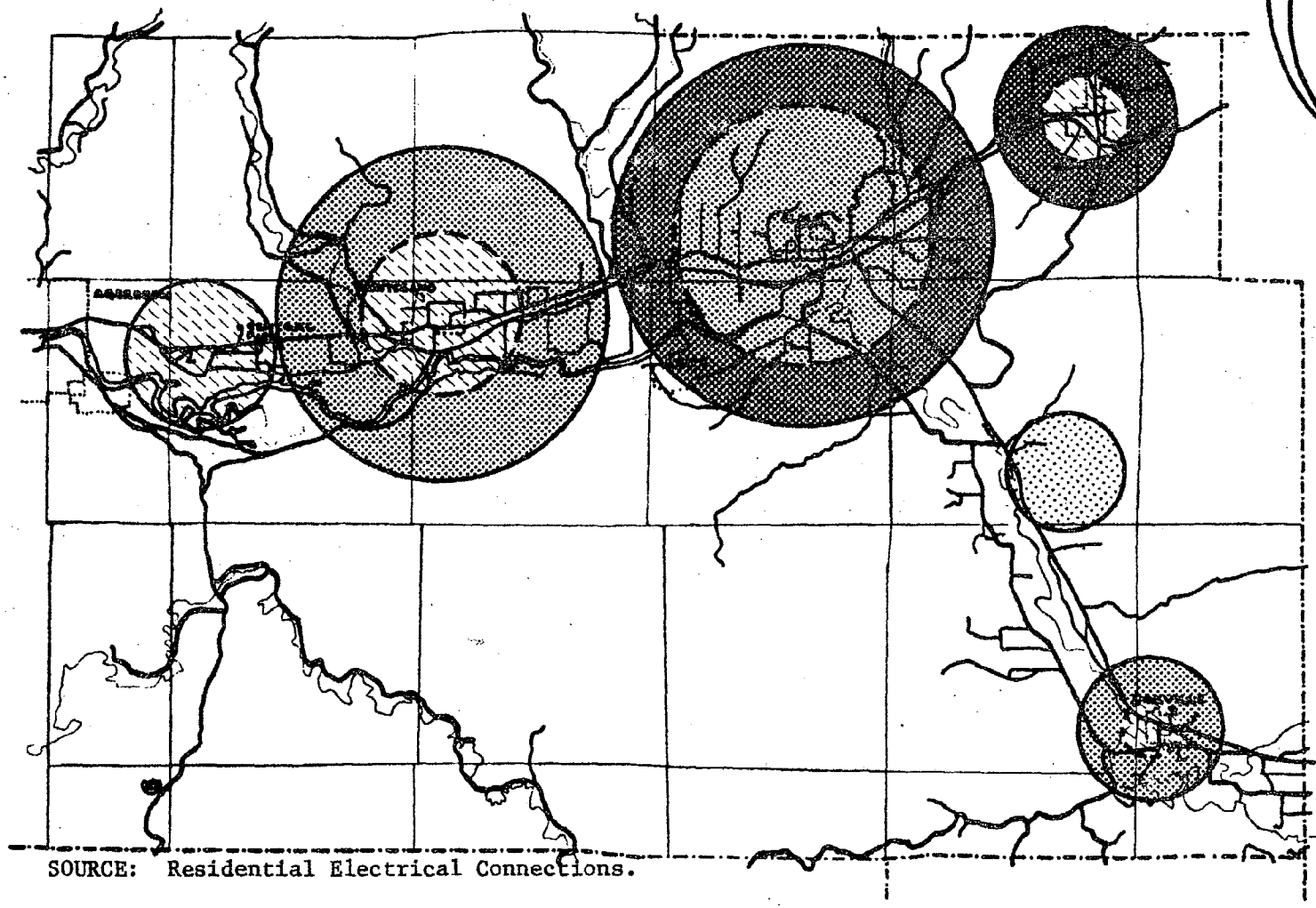
	Before Construction		During Construction			
	Total New Connections 1974-1977	Annual Rate of Growth (%) 1974-1977	Total New Connections 1977-1979	Annual Rate of Growth (%) 1977-1979	Total New Connections 1979-1980	Annual Rate of Growth (%) 1979-1980
Central Park*	38	1.1	60	2.6	16	1.4
Montesano Area Total*	116	1.9	338	7.2	96	3.7
Montesano City	32	1.0	73	3.4	27	2.4
Rural*	84	2.5	265	10.5	69	4.7
Elma-McCleary Area Total	237	2.7	583	9.1	164	4.5
Elma City	130	5.0	243	11.9	15	1.2
McCleary City Area	6	0.3	16	1.3	14	2.3
Rural (includes Satsop Area)	101	2.4	324	10.3	135	7.4
Oakville Area Total	47	3.2	56	5.3	25	4.4
Oakville City	8	1.3	3	0.7	6	2.8
Rural	39	4.6	53	8.3	19	5.3
Total East County	438	2.2	1,037	7.2	301	3.8
Total East County Cities	176	2.2	335	5.7	62	2.0
Total East County Rural	262	2.2	702	8.2	239	5.0
Urban Area	447	1.1	523	2.0	55	0.4
Remainder of County**	615	3.5	709	5.5	373	5.3
County Total	1,500	2.0	2,269	4.3	729	2.6

SOURCE: Table GH-T.32.16.20 and 22, 10/79 and GH-T.16.27, 10/80.

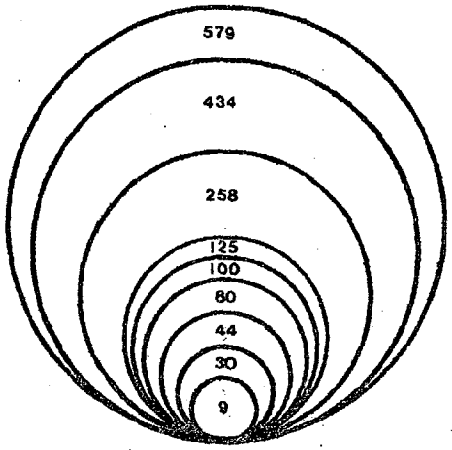
Figures are computed on basis of averages for first half of the year as reported on the referenced tables. *Adjustments made for a route change in Central Park and Montesano rural area in the fall of 1977. **This includes all remaining areas of the County with the majority of this population being concentrated on the north and south beach areas.

MAP 1.1

EAST COUNTY GROWTH PATTERNS
1977-1980



LEGEND



TOTAL AREA GROWTH RATES

CITY GROWTH RATES

% CHANGE
1977-1980

0-10%

10-20%

20-30%

30%+

SOURCE: Residential Electrical Connections.

in residential electrical connections. This electrical service information has some advantages over population data in that it is available bi-monthly and is very detailed. However, it has some disadvantages in that it does not directly measure population growth (it measures households instead) and is available in this detail only since 1974. As indicated on Table 1.6, East County growth increased substantially since the start of the Construction Project. While this growth was particularly rapid during the first two years of construction, it has slacked somewhat during the last year. As in the case of population growth, this growth exceeds the County as a whole and was particularly strong in the unincorporated areas of the County.

The most dramatic change in East County growth patterns during the last year occurred in the City of Elma where the annual growth rate of electrical connections declined from 11.9% per year to 1.2%. This rate of growth was even far below the annual growth rates which were typical of the preconstruction period.

As compared to East County, the urban area of the County grew at even a slower rate during the last year than any of the prior periods. Also, the remainder of the County (consisting mainly of the beach areas) continues its steady growth in new electrical connections. While this rate continues, preliminary data from the U.S. Census for 1980 indicates that many of these new connections may be second and vacation homes or trailers and not permanent residents.[2]

Comparison of Tables 1.4, 1.5, and 1.6 indicates that growth was not uniform during the entire decade; 1974 to 1977 has slower rates of growth than later in the decade.

1.4 Conclusion: After a period of moderate population growth during the late 1960's and probably the early 1970's, population growth again slacked to a slow pace. After a very low growth rate during 1974 and 1975, population growth spurted forward reaching a peak rate of growth during the construction period. This recent growth is occurring most rapidly in the Elma-Montesano area, but over a longer trend the beach communities tend to have a stronger growth rate. The urban area of the county tends to be slowest growing, both over the long and short term.

CHAPTER 1
NOTES

1. The reliability and accessibility of this information is particularly good since there are only two electrical utilities in the County: Grays Harbor Public Utility District Number 1 and McCleary Light and Power. Both are public agencies, both are members of the Regional Planning Commission, and both are participants in the Project. All electrical utility information used in this report was generously supplied by these utilities to the Monitoring Program.

2. There generally was a high discrepancy in the beach areas between recorded utility connections and occupied housing units, while these counts were much more consistent in other part of the county. Correspondence between the Grays Harbor Regional Planning Commission and the Bureau of Census

has lead to the conclusion that many of the recorded "residential connections" serve unoccupied trailer spaces and other situations where a "housing unit" by Census definition does not exist.

CHAPTER 2

GENERAL CAUSES OF GROWTH

2. GENERAL CAUSES OF GROWTH

2.1 Introduction: Although growth has slowed during the third year of construction, it is clear that substantial growth in new households has been occurring in the county since the start of the Construction Project. A substantial part of this growth is focused on East County and appears to be related to that Project. Quantifying the relationship between this growth and the Project is a difficult task due to complex interrelationships between population growth, household formation, economic change, and other factors which influence population growth and how it is manifested. The previous reports analyzed these influences in detail and noted several general influences on the growth of households in the county. These influences were:

1. The declining average household size;[1]
2. General economic growth in the county;[2]
3. The Satsop Project itself.

All of these influences continue to operate within the county.

2.2 Declining Household Size and Growth: Growth in the number of households is not necessarily the same as growth in population. Population studies have, in fact, demonstrated that households are generally increasing at a much faster rate than the rate of population growth. This is generally attributed to several important factors including:[3]

1. A declining birth rate and hence smaller families;
2. High (and increasing) divorce and separation rates, e.g. a divorce generally creates two households in place of one; and,
3. Changing family structures with young adults and senior citizens forming own households instead of living with other family members.

The effects of these factors tend to vary from place to place. Past reports have utilized a generally recognized rate of decline of average household size of 1.4% per year.[4] This factor can now be evaluated on the basis of 1980 U.S. Census data as compared on Table 2.1. Remarkably, the 1.4% factor was correct and this report will continue to use this factor to attribute the effect of the declining household size to population growth. Table 2.2 attributes the amount of County growth that is due to new households formed by population growth by year.

TABLE 2.1
AVERAGE ANNUAL DECLINE IN RATIO OF POPULATION
PER RESIDENTIAL ELECTRICAL SERVICE, 1970-1980

YEAR	POPULATION	SERVICES	RATIO
1970	59,553	22,919	2.5984
1980	66,356	29,463	2.2522
Percent Change	11.4%	28.6%	-13.3%
Average Annual Percent Change	1.1%	2.5%	-1.4%

TABLE 2.2
HOUSEHOLD SIZE AND HOUSEHOLD GROWTH
IN GRAYS HARBOR

	Actual P.U.D. Electrical Services	Projected Average Household Size*	Connections Needed To Maintain Household Size	Net New Households Since 1970	Annual Increment From 1970
1970	22,919	2.5984	22,919	-	-
1971	23,305	2.5615	23,249	56	56
1972	23,797	2.5251	23,584	213	157
1973	24,274	2.4892	23,925	349	136
1974	24,983	2.4538	24,270	713	364
1975	25,342	2.4190	24,619	723	10
1976	25,760	2.3846	24,974	786	63
1977	26,428	2.3507	25,334	1,094	308
1978	27,562	2.3173	25,699	1,863	769
1979	28,677	2.2843	26,071	2,606	743
1980	29,463	2.2519	26,446	3,017	411
Percent Of Net New Households				13.16%	
Percent Population Growth				11.4%**	

*1970 ratio of population to electrical connections reduced by 1.4% per year.
**13.16% reduced by -13.3% for effect of declining household size in new households.

In East County the declining household size accounts for a portion of the increase in number of households as measured by electrical connections. Table 2.2 portrays the growth which is occurring in the study area beyond that which can be attributed to the decrease in average household size. As noted in the previous report, this computation of declining household size is based on the national average trend which might be assumed to be an expression of the overall tendency. However, the actual rate of decrease is highly subject to local conditions which can vary substantially from place to place and time to time. These conditions may include availability of dwellings, social conditions, divorce rates, employment opportunities (especially for the young), etc.[5]

Table 2.3 indicates that the increase in the number of households in East County between 1974 and the beginning of the Satsop Project had not been significantly greater than that needed to accommodate the effect of the declining household size. The major exception to this was the City of Elma and the rural area of Oakville. After the start of the Construction Project, the increase in households was much greater than that which can be attributed to the decline in household size. The pace of growth, however, slacked during the last year in all of the study area.

2.3 Economic Change and Growth: A major stimulus to any growth, either in terms of total population or households, can be an increase in employment opportunities. The previous reports illustrated the overall relationship in the county between growth in employment, households, and population. This discussion will update that analysis.

TABLE 2.3
GROWTH IN RESIDENTIAL ELECTRICAL CONNECTIONS ABOVE
GROWTH ATTRIBUTABLE TO DECLINING HOUSEHOLD SIZE

	Before Construction		During Construction			
Area	Total Net New Households Not Attributable To Declining Household Size 1974-1977	Annual Growth Not Due To Declining Household Size 1974-1977	Total Net New Households Not Attributable To Declining Household Size 1977-1979	Annual Growth Not Due To Declining Household Size 1977-1979	Total Net New Households Not Attributable To Declining Household Size 1979-1980	Annual Growth Not Due To Declining Household Size 1979-1980
Central Park	-9	0	28	1.2%	-	-
Montesano Area Total	24	0.4%	271	5.8%	59	2.2%
Montesano City	-12	-0.4%	42	1.9%	11	1.0%
Rural	36	1.1%	229	9.2%	48	3.3%
Elma-McCleary Area Total	115	1.3%	492	7.8%	113	3.1%
Elma City	94	3.6%	214	10.5%	-2	-0.2%
McCleary City	-20	-1.1%	-2	-0.2%	6	0.9%
Rural	41	1.0%	280	9.0%	109	6.0%
Oakville Area Total	27	1.9%	41	3.9%	17	3.0%
Oakville City	-	0	-3	-0.7%	3	1.4%
Rural	27	3.2%	44	6.9%	14	3.8%
Total Study Area	157	0.8%	832	5.8%	189	2.4%
Aberdeen-Hoquiam Urban Area	-82	0.2%	159	0.6%	-132	-1.0%
Beach-Other Areas	369	2.1%	524	4.1%	273	3.9%
County Total	444	0.6%	1,515	2.9%	330	1.2%

SOURCE: Analysis of Tables GH-T.32.16.20 and 22, 10/79 and GH-T.16.27, 10/80. Because of rounding figures might not tally.

Table 2.4 describes the change in employment which has occurred since 1975 in the regional economy. While this table indicates a dramatic growth in employment, this recent economic experience is somewhat misleading since 1975, as will be shown on Graph 2.1, was a very bad year economically, and much of the growth that has recently occurred may be considered a recovery from that year. Unfortunately, however, 1980 (for which detailed data are not yet available) appears to be a very bad year similar to 1975. While 1980 data are not available, it is 1979 employment trends which would influence population growth during the period covered by this report. 1980 employment trends will impact current population levels.

In order to separate the effect of the economic recovery from the intrinsic long-term growth which might be occurring in the region, a regression analysis

TABLE 2.4
ACTUAL LABOR FORCE AND EMPLOYMENT CHANGE
1975-1979 (ANNUAL AVERAGES)

	1975	1977	1979*	Number Change	Percent Change
Labor Force	25,544	27,540	32,020	6,476	25.4
Employment	22,388	24,884	29,250	6,862	30.7
Unemployment	3,156	2,656	2,770	-386	-12.2
Wage and Salary Employment	19,300	22,460	25,860	6,560	34.0
Manufacturing	6,620	8,090	7,960	1,340	20.2
Non-Manufacturing	12,680	14,370	17,900	5,220	41.2
Construction	760	1,200	2,870	2,110	277.6
Transportation, Communications, and Utility	920	1,040	1,120	200	21.7
Trade	3,790	4,400	4,790	1,000	26.4
Finance, Insurance, And Real Estate	500	600	740	240	48.0
Service and Miscellaneous	3,070	3,540	4,000	930	30.3
Government	3,640	3,590	4,160	520	14.3
Workers in Labor Disbute	270	100	260	---	---

SOURCE: Tables under Employment Section of various Monitoring Reports.
*1979 figures are subject to revision by the Department of Employment Security.

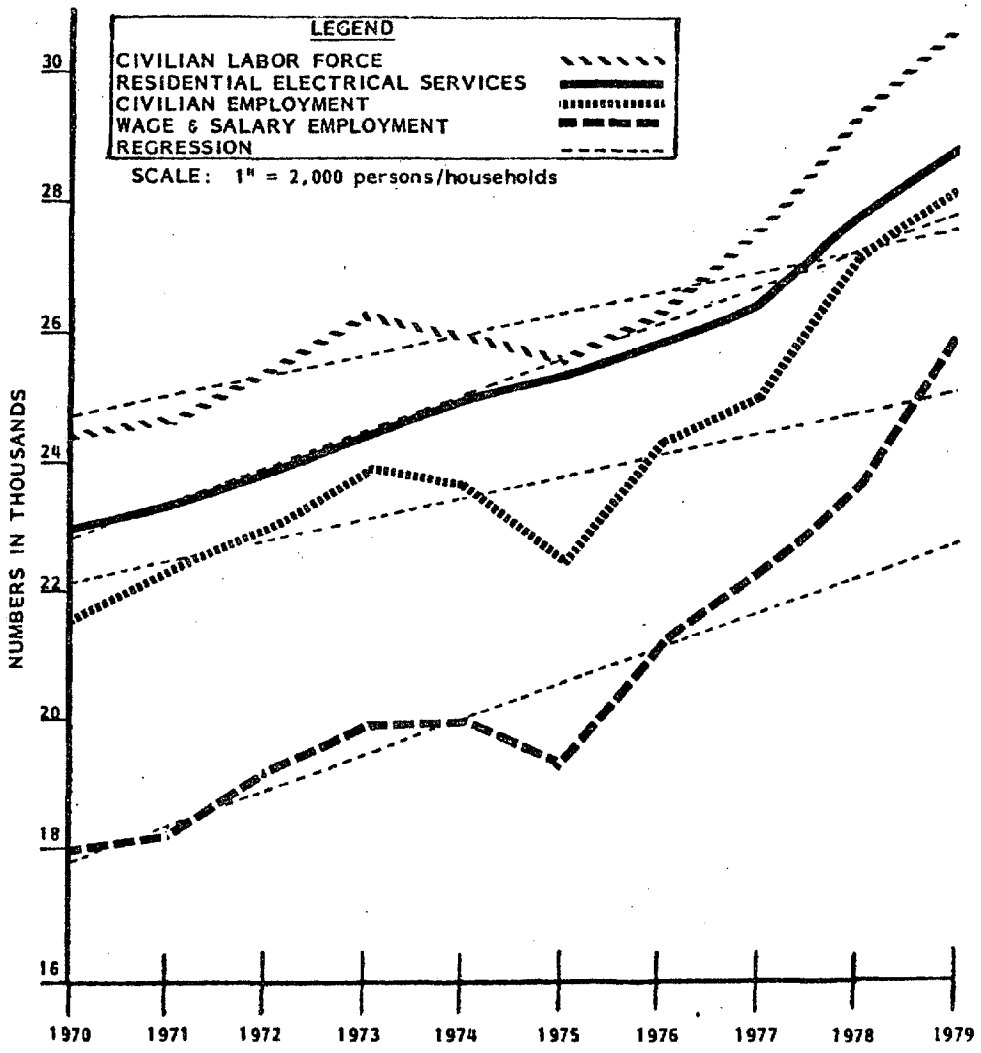
was done on the annual average employment between 1970 and 1977 to establish the basic trends in employment prior to construction. This analysis "averages out" the differences which occur in the economy in any particular year to give a view of the overall trend. The result of this analysis is presented on Graph 2.1. (The regression lines are the straight lines.) A similar analysis was done on the trend in residential electrical connections for comparative purposes.

This graph portrays, in spite of the poor performance in 1975, an overall growth potential occurring in the economy, and a strong relationship is illustrated between household growth and employment. In fact, the slopes of the regression lines (the number added each year) are almost the same for electrical connections as wage and salary employment--about 530 new jobs or connections each year.

This close relationship may seem to downplay the importance of the declining household size as a determinant of household growth as discussed previously. However, both labor force participation and household size are undergoing similar changes. The number of labor force participants per family or per total population is dramatically increasing just as the ratio of households to population is increasing. The prime stimulus of this is the increasing proportion of females who are labor force participants although this is aided by other factors.[6]

As illustrated in Table 2.3, growth in new households in the county has apparently accelerated since the Satsop Project began. In order to examine

GRAPH 2.1
AVERAGE ANNUAL LABOR FORCE AND EMPLOYMENT,
WAGE AND SALARY EMPLOYMENT, AND RESIDENTIAL ELECTRICAL SERVICE
WITH 1977 REGRESSION ANALYSIS



whether there is a relationship between household growth (especially growth above that which is needed to accommodate a declining household size) and employment growth (especially growth above that necessary to recover from the 1975 recession), Table 2.5 was prepared. This table contrasts the actual employment levels of the County in 1976 and 1979 with long-term employment trends as determined by regression analysis. Total employment levels in 1976 were almost even with the long-term trend although manufacturing was ahead and non-manufacturing (especially trade) was lagging. In 1979, the long-term trend in employment levels was significantly exceeded by the actual, though manufacturing lagged. The increase in total employment even accelerated. If this increase continues, then one can expect a continued rise in households.

TABLE 2.5
TREND DEVIATION IN EMPLOYMENT AND LABOR FORCE
1976-1979 ANNUAL AVERAGES

			1976	
	Expected	Actual	Number Deviation	Percent Deviation
Labor Force	26,387	26,249	-138	-0.5
Employment	24,055	24,142	87	0.4
Wage and Salary Employment	21,030	21,210	180	8.6
Manufacturing	7,699	7,880	181	2.4
Non-Manufacturing	13,328	13,330	2	0.0
Trade	4,144	4,060	-84	-2.0
			1979*	
	Expected	Actual	Number Deviation	Percent Deviation
Labor Force	27,272	32,020	4,748	17.4
Employment	25,042	29,250	4,208	16.8
Wage and Salary Employment	22,626	25,860	3,234	14.3
Manufacturing	8,185	7,960	-225	-2.7
Non-Manufacturing	14,435	17,900	3,465	24.0
Trade	4,567	4,790	223	4.9

SOURCE: Tables in various Monitoring Reports under Employment Section.

Expected figures were derived from regression analysis. *1979 figures are subject to revision by the Department of Employment Security.

As employment rises, new entrants to the labor force are needed. New entrants to the labor force can come from three major sources:

1. People may enter the labor force upon the availability of new jobs who generally may not be even seeking work when jobs are not generally available. The largest group of such people are housewives and youth who work periodically. Another group are long-term unemployed people who may be discouraged from looking for work during bad times.
2. Youth may enter the labor force for the first time--for example, after graduation.

3. New in-migrants may be attracted to the area by potential jobs. The more employment grows, the more likely that new migrants will be attracted to the area.[7]

The past significant growth in employment is likely to have drawn heavily upon the first two groups already. Consequently, employment increases during 1980 will, to a great extent, have to rely on in-migration.

In summary, long-term employment growth is occurring along with the gradual increase in households. A recent spurt in employment growth is occurring which reflects the recovery from a recession to a longer term trend of economic growth and a recent increase in manufacturing activity. This recent growth is expected to lead to an acceleration of household growth during the study period. This seems to be reflected in the recent spurt of growth in residential utility connections. As shown on Table 2.3, most of this growth is occurring in the East County area and the beach area with little new growth occurring in the urban area though most of the growth in the key economic sectors is concentrated in the urban area (also see Table 5.5).[8] This suggests that at least a portion of the household growth occurring in East County is due to a suburban effect from Aberdeen-Hoquiam. As previously noted, economic growth has been reversed since the period covered by this analysis, and this situation may not be occurring now. However, the current economic problems may account for some of the slow down in new households indicated on Table 2.3.

2.4 Other General Causes of Growth: There are other causes of household growth than the decline in average household size and employment growth. The most prevalent of these could be an in-migration of retired-age people. Other studies by the Regional Planning Commission have indicated that the potential net effect of this influence on population growth in the East County area is minimal.[9]

In addition to the general growth of employment in Grays Harbor County, there has also been a much higher and consistent growth in employment in Thurston County (Table 2.6). This growth, in turn, has resulted in Thurston County having the highest rate of population growth (61.6% since 1970) of any county over 50,000 population in the State.[10] Since the study area is within commuting range to this growth, it is reasonable to assume that a portion of the growth in households in East County is due to this influence.

TABLE 2.6
POPULATION, LABOR FORCE, AND EMPLOYMENT
THURSTON COUNTY

	1971	1973	1975	1977	1979
Population	78,700	81,300	85,900	101,000	111,100
Labor Force	35,330	38,220	40,235	44,090	52,640
Employment	32,750	35,350	37,242	40,880	48,950
Unemployment	2,580	2,870	2,993	3,210	3,690
% Unemployed	7.3%	7.5%	7.4%	7.3%	7.0%

SOURCE: Washington State Employment Security Department and various Monitoring tables.

A further influence is the influence of housing market and supply. When financing for new units is not available, fewer units are constructed. This tends to constrict housing growth which creates a pent up demand for new housing. When financing becomes available, there then is a tendency for the supply to rapidly catch up with the market creating a relatively fast spurt of growth. Since 1975 was a poor year economically, this factor could be at work in this area (see Sections in Chapter 6 relating to building permit data). However, since this "pent up" demand would only reflect other causes of housing growth, such as declining household size and employment growth, this factor would only affect the timing and not the ultimate number of new households. Indeed, this factor may be contributing to the slackening in growth during the first part of 1980 as shown on Table 2.3 (it does account for much of the current slowdown in building starts).

2.5 Conclusion: Prior to the start of the Construction Project, the principal cause of growth in the number of households in the region was the declining average household size. Since the Project began the growth of new households attributable to new population to the area exceeded this factor. It is also apparent that the growth in population continues to be related to general economic growth in both Grays Harbor County and Thurston Counties.

In the study area the focus of household growth attributable to population growth is clearly in the Elma area. However, the rate of population growth slackened significantly in most other areas of the county during the third year of construction.

CHAPTER 2
NOTES

1. Declining household size is also discussed in detail in the Grays Harbor Regional Planning Commission, Grays Harbor Region Housing Element, June 1979.

2. For greater information regarding regional economic conditions, see Grays Harbor Regional Planning Commission, Grays Harbor Overall Economic Development Program, June 1979.

3. See:
   - Office of Fiscal Management (O.F.M.), State Population Trends 1976, Washington State, 1976.
   - O.F.M., State Population Trends, 1977, Washington State, 1977.
   - O.F.M., State Population Trends, 1979, Washington State, 1979.
   - Office of Community Development, 1978 Housing Report, Washington State, 1978.
   - See also Note 1 and Note 9 of this Chapter.

4. While several factors are reported in the literature cited, O.F.M. 1976 op. cit. was used due to data reported in the First Year Report. A more recent report by O.F.M. in 1979 cited that the national rate is now 1.5% per year.

5. For a verification of the 1.4% rate used to estimate declining household size see Table 10 in the First Year Report.

6. Overall Economic Development Plan, June 1979, op. cit.

7. For an excellent discussion of the relationship between migration and regional economic development see:
   - Hoover, Edgar, An Introduction to Regional Economics, Alfred A. Knopf, New York, 1975.

8. Overall Economic Development Program Report, June 1979, op. cit.

9. - Grays Harbor Regional Planning Commission, Part One, City of Montesano Comprehensive Plan, City of Montesano, November 1977.
   - Grays Harbor Regional Planning Commission, Part One, City of Elma Comprehensive Plan, September 1978.
   - Grays Harbor Regional Planning Commission, City of McCleary Comprehensive Plan, Part One, September 1978.
   - Grays Harbor Regional Planning Commission, City of Oakville Comprehensive Plan, Part One, September 1978.

10. Derived from preliminary 1980 U.S. Census Reports. Only Island and San Juan Counties exceeded Thurston County growth.

CHAPTER 3

INFLUENCE OF SATSOP CONSTRUCTION PROJECT ON GROWTH

3. INFLUENCE OF SATSOP CONSTRUCTION PROJECT ON GROWTH

3.1 Introduction: The foregoing discussion has documented that the number of households in the County is increasing, and recent growth has been focused on East County and the ocean beaches. The discussion has suggested that two major underlying causes of this increase can be found occurring in this area:

1. A decreasing average household size; and,
2. A general growth in employment opportunities in Grays Harbor and Thurston County.

Within the economic growth of Grays Harbor is the Satsop Project. Since population is focused on the area within the immediate vicinity of the Construction Project, the actual relationship of the Project to population growth and its location merits close examination.

The Satsop Project is adding large numbers of new jobs in the economy of the area. This has increased just during the last year from 2,211 to 3,143.[1] The project is currently the largest single employer in the County and is equal to 10.3% of the total County employment. Ordinarily, a new employer of this magnitude would produce a substantial increase in population growth. However, a construction project, by its more temporary nature of employment, may not have as direct a bearing on population growth as many other types of employment may have.

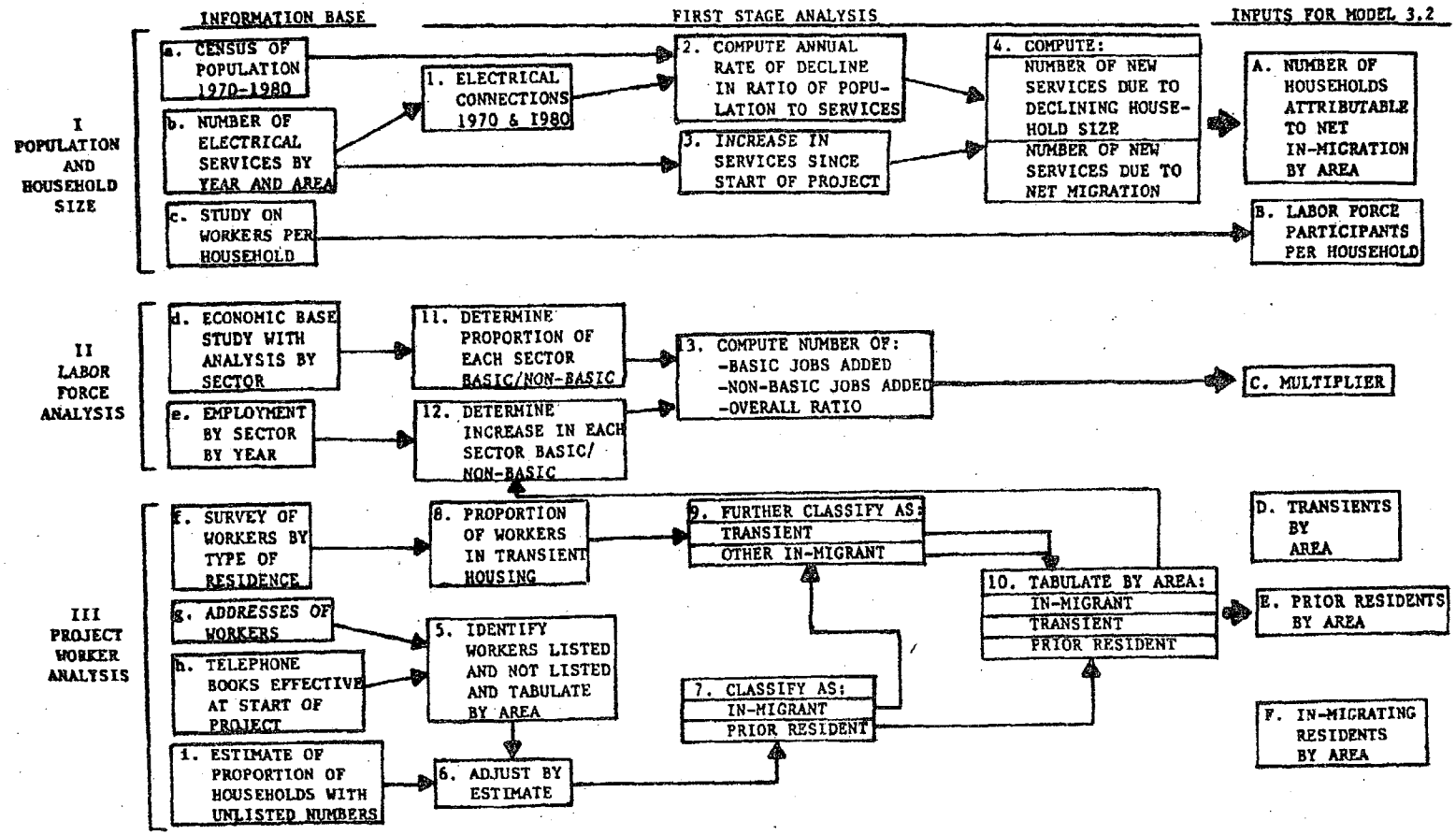
In practical terms, the impact of a major construction project on population growth is largely a question of whether the construction force tends to be people who commute to the area from residences in other areas or of people who migrate to the construction area.[2] Furthermore, for the purposes here, the number of people who migrate to Grays Harbor County rather than to the neighboring counties is the primary concern for estimating the amount of County growth due to this factor. In-migrating workers also fall into at least two categories: (a) very temporary residents who may reside in rooming houses, recreation vehicles, motels, and other temporary accommodations; and (2) new residents who establish households of a more permanent nature.[3] Obviously, the impact of the first group on population growth will be somewhat less significant than the latter, although the first group may create special types of social impacts not necessarily related to household growth (as commuters may likewise produce). These concerns will be addressed in other parts of this report.

In addition to in-migrating workers are, of course, local residents who gain employment on the Project. These residents may impact potential employment and population growth in several possible ways:

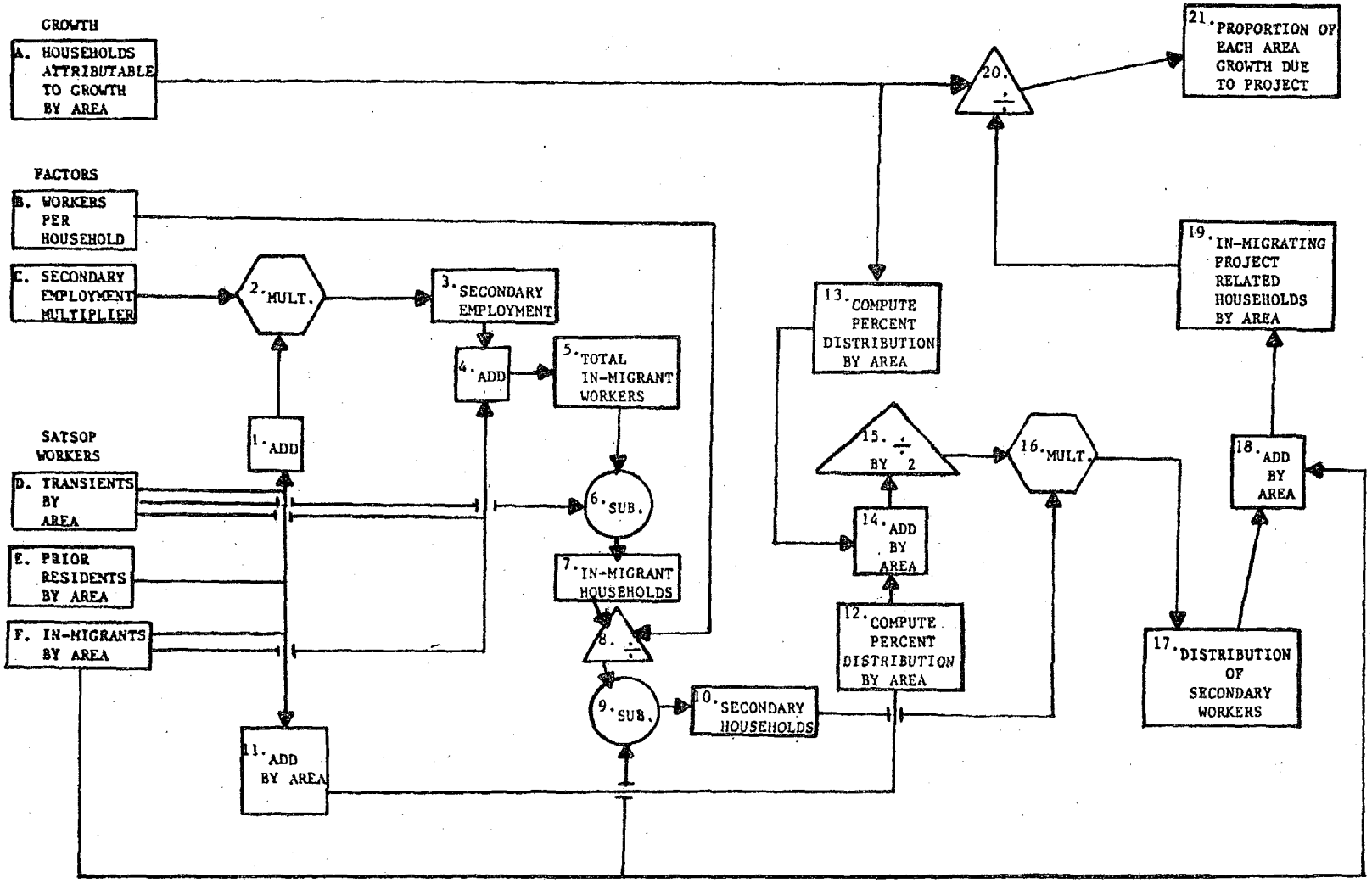
1. The employment on the Project could reduce the propensity of these workers to migrate out of the County;
2. These workers may leave another job in the County which needs to be filled, potentially by a non-migrant; and,
3. These two factors plus possible higher incomes for the resident worker would stimulate a multiplier effect creating new jobs.

The methodology that will be used in this section is graphically displayed on Models 3.1 and 3.2.

MODEL 3.1: INPUT ANALYSIS



MODEL 3.2: IMPACT ANALYSIS



The Monitoring Project has collected substantial data which can be applied to estimating the number of workers who are residents (both prior residents and new migrants) of Grays Harbor County. The two main sources of information now used are:

1. Addresses of people hired at the project;[4] and,
2. A computerized worker survey conducted by WPPSS of persons hired.

This information then can be used to identify in-migrating workers and workers who were residents of the area prior to the start of the Project. To identify in-migrants, the hiring date addresses were compared to telephone books for 1977, with those not listed considered to be in-migrants and those listed counted as prior residents. This method has a tendency to overcount the in-migration factor since people with unlisted numbers would be counted as in-migrants. However, this data can be adjusted according to the general ratio of unlisted and no telephone service to number of listed people.

The WPPSS' worker survey also makes it possible to go one step further and separate those in-migrants who would be very temporary residents as it requested information regarding the type of living quarters where each worker resided. If it were assumed that those residing in motels/hotels, rooming houses, recreation vehicles, and "other" (and not houses, apartments, duplexes or mobile homes) would be only transient, temporary residents, these then can be subtracted to identify more permanent residents of the area. This tends to underestimate transients since many apartment and mobile home renters could also fall into this category.

Table 3.1 applies these computations to the July 1980 total Project employment.[5] As indicated on that table a total of 658 workers have in-migrated to the area with at least 219 of these being transients. The largest concentration of these in-migrants is in the Elma-McCleary area. The urban area attracts a relatively lower percent of these workers.

Separate surveying in the City of Elma indicates that within the general area of Elma-McCleary, the impact of the Project is sharply focused on the City itself. While the 459 workers can account for 12.1% of the households in the area, 26.6% of the households surveyed inside the City itself are Satsop workers.[6]

Table 3.2 compares the results of this analysis with the results of the earlier analysis.[7] As noted, both in-migration of workers and employment of the area residents have increased during the first two years with Project employment almost tripling over this period.

Last year, however, while in-migration continued and even accelerated, the number of prior residents employed on the Project declined in all areas except the urban area. This apparent decline is probably due to a shift in the nature of the Project's construction activities. Early site development activities consisted of trades that were available in the construction sector of the County. As construction activities shifted to other trades such as ironworkers, pipefitters, etc., which were not in good supply locally, the proportion of area residents on the project declined.[8]

TABLE 3.1
RESIDENTIAL PATTERNS OF CONSTRUCTION WORKERS
JULY 1980
(PROJECT EMPLOYMENT 3,143)

	Transient	Other In-Migrant	Total In-Migrant	Prior Resident	Total
Elma-McCleary	126	240	366	93	459
Montesano	25	67	92	53	145
Oakville	0	22	22	3	25
Total Primary Study Area	151	329	480	149	629
Total Urban Area*	64	91	155	122	277
Other Grays Harbor Area	4	19	23	7	30
Total County	219	439	658	278	936

*Includes Central Park

See Model 3.1, Products D, E, and F, for computation methods.

TABLE 3.2
CUMULATIVE CHANGE IN RESIDENT WORKER PATTERNS
JUNE 1978 TO JULY 1980

	In-Migrants			Prior Residents		
	1978	1979[1]	1980[1]	1978	1979[1]	1980[1]
EAST COUNTY	125	292	480	119	176	149
Elma-McCleary	86	219	366	72	110	93
Montesano	32	59	92	41	58	53
Oakville	7	14	22	6	8	3
URBAN AREAS[2]	28	111	155	35	100	122
OTHER AREAS	9	17	23	9	12	7
TOTAL COUNTY	162	420	658	163	288	278

[1]Cumulative for total Project and includes transients.
[2]Includes Central Park.

NOTE: Total Project employment increased from 1,093 in June 1978, to 2,211 in June 1979, to 3,143 in July 1980.

3.2 Secondary Effect During the First Two Years of Project Construction: The "secondary effect" of a project is derived from the economic base theory of how regional economies function. The concept of regional economics observes that the economy of any region must be analyzed as a part of a larger national economy. A region supports itself by producing something it can sell to other areas. This income is then used to buy things the region needs. While in the process of this trading with other areas, there is also usually an exchange of goods and services among local people. (A grocer buys his goods wholesale in other areas and in turn sells them to local people.) The basic character of the economy of a region is determined by this trading relationship with other areas.

In order to buy what it needs or wants, a region must first be able to sell something to earn its income. This thing that is sold must be something with which the region can effectively compete with other areas in selling and, consequently, must relate to the particular or unique qualities of the region. The ability to effectively compete with other areas in a particular goods or service is referred to as the region's "comparative advantage." Since this ability to compete and sell something is what the economy depends upon, such activities are considered "basic" economic activities to the region. Activities which in turn depend on basic activities, or which rely on the region for its market, are considered "non-basic" activities. Since non-basic activities depend upon basic activities, an expansion in basic sectors will generally lead to expansion in non-basic sectors. The degree to which basic activities support non-basic is measured by the relationship or ratio of non-basic activities to basic activities (measured either by employment or money). This ratio is called the "multiplier effect."[9]

Under this concept, employment on the Construction Project can be viewed as basic employment which produces income for the region to support other economic activities. However, since much of this employment consists of commuters or very temporary residents, there is a rapid drain of this income from the County to other counties thus having little affect on Grays Harbor. For this reason, only resident project workers, as identified in the First Year Report, will be considered as basic employment.

The first step in identifying the secondary effect of this resident employment is to establish an understanding of this existing basic, non-basic character on the regional economy. The Grays Harbor Regional Planning Commission has analyzed this character on the basis of the 1970 Census of Population, and the results of that analysis are summarized in the 1979 edition of the Grays Harbor Overall Economic Development Plan. That analysis has estimated that each basic job (primarily in forest products, agriculture, tourism, and seafoods) supports another 1.5 non-basic jobs. (This ratio compares to another analysis of the regional economy based on 1970 Census data which yielded a result of between 1.1 and 1.7.) The Grays Harbor Regional Planning Commission has estimated that the ratio has increased since 1970 to 1978 from 1.5 to 1.85.[10] This analysis considered the basic or non-basic character of each sector of the regional economy and identified the number of jobs in each sector which would be engaged in basic activities and the number that would be engaged in non-basic activities. If the ratio between these jobs is then applied to the change which has occurred in each sector between June 1977 and June 1979, an estimate of total change in basic jobs and non-basic jobs can be included. Table 3.3 makes these computations.

This table observes that for every new basic job another 1.28 non-basic jobs were created. This ratio is lower than the regional multiplier established in the economic base analysis. This is probably due to an increase in basic employment in manufacturing counter to longer-term trends. In such an increase, it generally takes some time before its full effect on trade and service employment is felt. Consequently, this ratio should be viewed as conservative. Table 3.3 also indicates that resident employment on the Project accounts for 45.68% (708 of 1,550) of the growth in basic employment since the start of the Project. Since 708 basic jobs were created during this period, 906 additional non-basic jobs are attributable to the Project.

TABLE 3.3
BASIC AND NON-BASIC ECONOMIC CHANGE IN GRAYS HARBOR
JUNE 1977 TO JUNE 1979

Sector	Change In Employment	% Basic Activities	% Non-Basic Activities	New Basic Jobs	New Non-Basic Jobs
Manufacturing	780	87.5	12.5	682	98
Transportation, Communication, and Utilities	290	6.7	93.3	19	271
Trade	420	18.8	81.2	79	341
Finance, Insurance, and Real Estate	140	8.0	92.0	11	129
Services	390	13.0	87.0	51	339
Government	810	0.0	100.0	0	810
Construction, Excluding Satsop Employment	0	0.0	100.0	0	0
Satsop Workers, Prior Residents	288	100.0	0.0	288	0
Satsop Workers, In-Migrants	420	100.0	0.0	420	0
Total	3,538	0.0	0.0	1,550	1,988
Ratio					1.28

SOURCE: GH-T.32.3.75, 3/79 and GH-T.32.3.126, 7/80.
See also Note 10 and Model 3.1 for computations.

3.2.1 Migration for Secondary Jobs: An increase in secondary employment does not automatically yield that same increase in new households since each new family, on the average, has more than one potential labor force entrant. Based on 1970 Census information and computations made in A Framework for Projecting Employment and Population Changes Accompanying Energy Development by the Argonne National Laboratory, each household in Grays Harbor County has 1.3 labor force participants.[11] This factor then could be applied to the estimated secondary jobs created by the Satsop Project, plus the number of in-migrating workers (excluding transient workers), to derive an estimate of in-migrating households formed in the County due to the Project. These computations yield a total of 925 in-migrating households. Of these workers, 297 have at least one permanent Satsop worker which leaves 628 secondary households.[12]

3.2.2 Distribution of Secondary Workers: Once the number of in-migrating secondary worker households attributable to the Project is determined, the next task necessary to measure the impact of the Project on growth patterns is to distribute these secondary households to various areas of the County. Unlike the construction workers, there is no way to identify in-migrating secondary workers who are attributable to the Project and, hence, to measure residence patterns. However, the residential location of such workers would probably be influenced by two major factors: (1) the location of new households (hence, the opportunity to reside), and (2) the residential location of Satsop construction workers (hence the location of the economic stimulus). If these factors are equally weighed, a distribution can be estimated as can be seen

on Table 3.4. Table 3.5 then combines the in-migrating secondary workers and the construction workers to estimate the amount of new growth in each area attributable to the Satsop Project.

TABLE 3.4
ALLOCATION OF SECONDARY HOUSEHOLDS DURING
FIRST TWO YEARS OF CONSTRUCTION, 1977-1979

	Percent of Net New Households[1]	Percent Resident Project Workers[2]	Average	Secondary Households Formed During 1977-1979[3]
Elma-McCleary Area	32.5	46.5	39.5	248
Montesano Area	17.9	16.5	17.2	108
Oakville Area	2.7	3.1	2.9	18
Primary Impact Area	53.1	66.1	59.6	374
Urban Area (Including Central Park)	12.3	29.8	21.1	132
Other	34.6	4.1	19.4	122
Total	100.0	100.0	100.0	628

[1]Excludes units needed for declining household size; Table 2.3 and Model 3.1.
[2]Includes both in-migrants (including transients) and prior residents; Table 3.2.
[3]See Note 12 and Model 3.2, Step 17.

TABLE 3.5
SATSOP INDUCED GROWTH DURING
THE FIRST TWO YEARS OF CONSTRUCTION
1977-1979

	Net New Households[1] (Table 2.3)	Households Of In-Migrating Construction Workers[2]	New Households Attributable To Secondary Effects (Table 3.4)[3]	Total[4] Due To Satsop Project	% Of Total Net Growth[5]
Elma-McCleary	492	149	248	397	80.7
Montesano	271	47	108	155	57.2
Oakville	41	14	18	32	78.0
East County	804	210	374	584	72.6
Urban	187	75	132	207	110.7
Other	524	12	122	134	25.5
Total	1,515	297	628	925	61.1

[1]See Model 3.1, product A.
[2]Excludes transients; computed from SecondYear Report; Model 3.1, product F.
[3]Secondary jobs plus in-migrants minus transients + by 1.3 = permanent in-migrant workers. (See Note 12 and Model 3.2, Step 17.)
[4]Model 3.2, Step 19.
[5]Model 3.2, Step 21.

3.3 Secondary Effects During Third Year of Project Construction: Since the employment data by sector necessary to analyze basic and non-basic employment growth are not yet available for 1980, it is not possible to make the analysis of secondary impacts for the third year of construction. However, the previous analysis does provide factors which, if applied to estimates of Project worker residence patterns during the second year, will yield an interim estimate of these effects. As identified on Table 3.3, one basic job created 1.28 secondary jobs in the Grays Harbor economy. This factor applied to the estimated residents (228)[13] that were employed during the third year of the project on Table 3.3 would yield a secondary employment estimate (292). As in the case of the first two years of the Project, these 520 new jobs could be filled by 96 "new" transients and an additional 326 in-migrating families of which 142 are in-migrating Satsop workers.[14] Table 3.6 attributes the remaining 184 new secondary households added during the third year of construction to various areas. Table 3.7 then combines them with the estimated distribution of in-migrating WPPSS' workers added during the third year. As noted on Table 3.7, the Satsop Project appears to account for all growth in the County during the third year of construction. In fact, a decline may have occurred without the Project in East County.[15]

TABLE 3.6
ALLOCATION OF SECONDARY HOUSEHOLDS
DURING THIRD YEAR OF CONSTRUCTION
1979-1980

	% Of Net New Households[1]	% Of Resident Project Workers[2]	Average Percent	Secondary Households Formed During 1979-1980
Elma-McCleary	34.2	49.0	41.6	77
Montesano	17.8	15.5	16.6	31
Oakville	5.2	2.7	4.0	7
Primary Area	57.3	67.2	62.2	115
Urban Area	-40.0	29.6	-5.2	-10
Other Areas	82.7	3.2	43.0	79
Total County	100.0	100.0	100.0	184

[1]Excluding new households attributable to declining household size.
[2]Includes prior residents, transients, and in-migrants for full project period. See Model 3.2 to Step 17 for computations.

3.4 Conclusion: By combining the effects of all three years of construction, it is then possible to estimate and compare the impact of the project on County growth patterns. This is done on Table 3.8 and Map 3.1. In reviewing these estimates, it must be noted that the estimated percent of County growth attributable to the project is of net new household growth, not the percent of all new households in this area. In any area, net growth results from the combined effects of factors stimulating in-migration and out-migration. Consequently, while the Satsop Project can account for all the net growth occurring in the urban area during the construction period, it probably is only a part of other factors attracting new households. However, Table 3.8 does indicate that without the Satsop Project there may not have been a net population increase in

TABLE 3.7
SATSOP INDUCED GROWTH DURING
THE THIRD YEAR OF CONSTRUCTION
1979-1980

	Net New Households[1] (Table 2.3)	Households Of In-Migrating Construction Workers[2]	New Households Attributable To Secondary Effects[3]	Total Due To Satsop Project[4]	% Of Total Net Growth[5]
Elma-McCleary	113	91	77	168	148.7
Montesano	59	20	31	51	86.4
Oakville	17	8	7	15	88.2
East County	189	119	115	234	123.4
Urban Area	-132	16	-10	6	0.0
Other Area	273	7	79	86	31.5
Total County	330	142	184	326	98.8

[1]Model 3.1, product A.
[2]Excludes in-migrants. The 1980 permanent resident migrants minus the 1979 permanent in-migrants.
[3]Model 3.2, Step 17.
[4]Model 3.2, Step 19.
[5]Model 3.2, Step 21.

the urban area during this period, and growth in the east part of the County would have been only 18% of what it subsequently has been since 1977. In Elma-McCleary, almost all of the growth in the area is due to the Project.

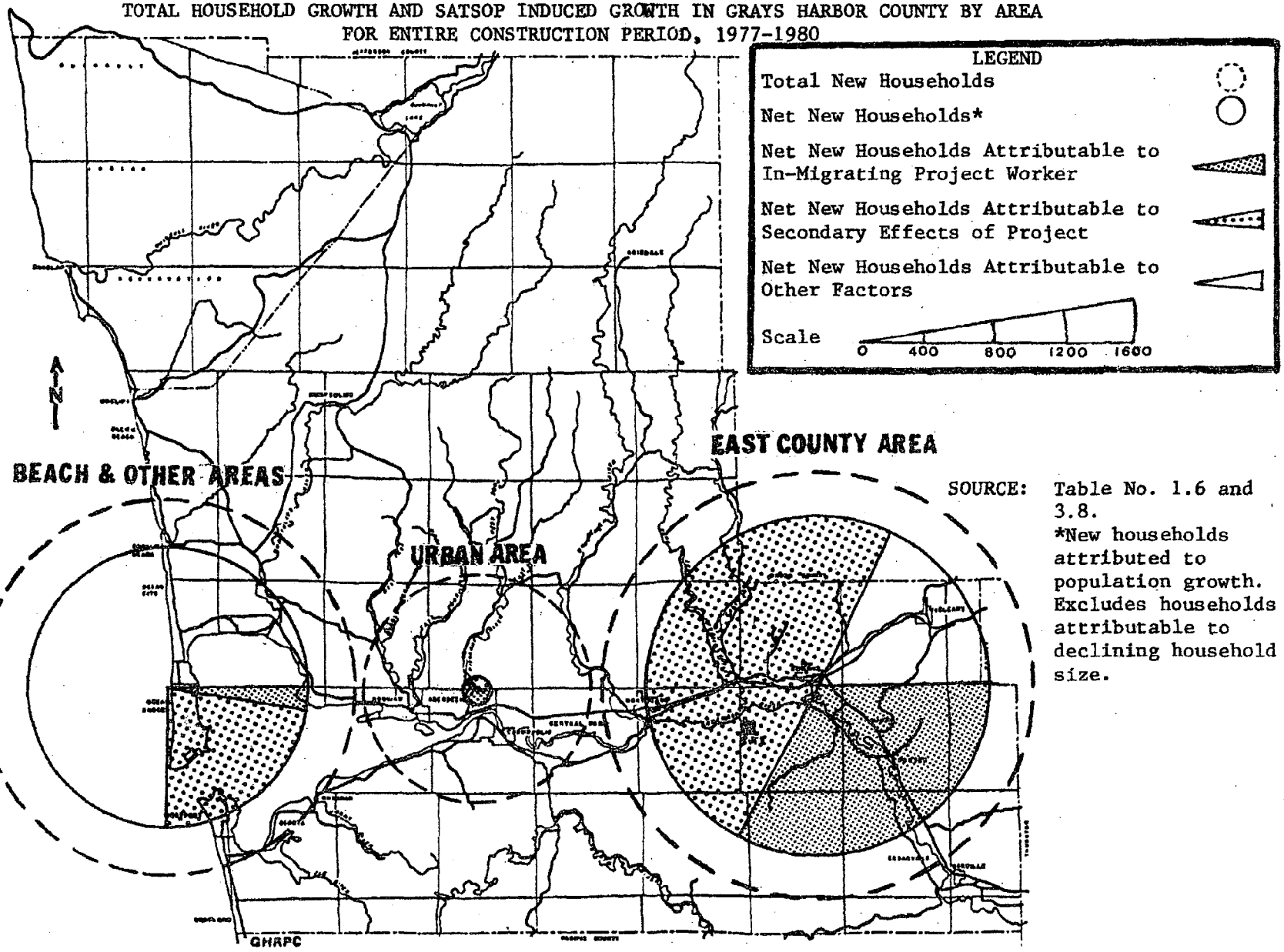
TABLE 3.8
SATSOP INDUCED GROWTH IN GRAYS HARBOR
FOR THE ENTIRE CONSTRUCTION PERIOD
1977-1980

	Net New Households[1]	Household Of In-Migrating Construction Workers (Table 3.1)	New Households Attributable To Secondary Effects	Total Due To Satsop Project	% Of Total Net Growth
Elma-McCleary	605	240	325	565	93.4
Montesano	330	67	139	206	62.4
Oakville	58	22	25	47	81.0
East County	993	329	489	818	82.4
Urban Areas	55	91	122	213	387.3
Other Areas	797	19	201	220	27.6
Total County	1,845	439	812	1,251	67.8

[1]Excludes new households attributable to the declining household size.

MAP 3.1

TOTAL HOUSEHOLD GROWTH AND SATSOP INDUCED GROWTH IN GRAYS HARBOR COUNTY BY AREA FOR ENTIRE CONSTRUCTION PERIOD, 1977-1980



SOURCE: Table No. 1.6 and 3.8.

*New households attributed to population growth. Excludes households attributable to declining household size.

CHAPTER 3
NOTES

1. Monitoring table GH-T.32.15.50, 6/79 and GH-T.32.15.140, 10/80. Past reports used June employment as the year-end total. However, in 1980, June was an atypical figure due to several reasons: the Mt. Saint Helens eruption, labor disputes, and the collapse of a crane. Both July and May totals were greater than June. Consequently, July was used instead for this report. May's peak employment was 3,330.

2. Community Development Service Inc., op. cit. (Introduction, Note 2).

3. Community Development Service Inc., Socioeconomic Impact Study WNP-1 and WNP-4, Volume 4, Final Report, WPPSS, May 1979. Estimates of the proportion of these types of in-migrants will be made in Chapter 4.

4. For detailed descriptions of this data and specific methodology, see numerous tables as prepared by Grays Harbor Regional Planning Commission under the Primary Site-Related Data section of various Monitoring Reports.

5. Area of residence and migratory status is obtained solely from hiring data and not WPPSS' survey data, a departure from past practice. All known hiring information is averaged for this purpose to determine percent distribution of area of residence and migration status. For example, all known hires residing in Elma and who were in the phone book at the start of the project were divided by total hires. The percentage figure then was multiplied by the current project employment of 3,143 to initially estimate the current number of workers who were prior residents of Elma. Next, the figure is adjusted to reflect the number of people who may have resided in Elma prior to the start of the project but might not be listed in the phone book. The adjustment factor used was 13.6% as based upon estimates supplied by Pacific Northwest Bell for their Grays Harbor area listings. A similar process was used for non-migrants.

   Once in-migration estimates were made, WPPSS' survey data for the first half of 1980 were used to identify the proportion which appears to be transients as described in the text. Special "movedate" series of computer runs were used rather than "key migration question" runs (which are generally used by WPPSS' staff) since the movedate series (when the worker moved to current address) are more comparable to the telephone method used by GHRPC staff for migration estimates (see Note 7).

6. A GHRPC survey of the City of Elma was taken in the fall of 1980. The proportion of in-migrating Satsop Project households to total Satsop Project households was 70% in this survey.

7. Estimates for 1979 have been revised from last year's report. Last year's report melded WPPSS' survey results with GHRPC methods described in Note 5. Analysis of WPPSS' methodology and GHRPC methods during the last year, however, has indicated that this data cannot be accurately melded. GHRPC data seeks to measure in-migration according to whether the worker physically resided in the area prior to the start of the project. WPPSS' methods, however, are based on a worker response to a question regarding

whether the worker moved to the area to work on the project. Since such a move can be based on a variety of motivations, these methods measure different issues. GHRPC staff feels that the physical move is what is important, not the motivation. While the two methods yield surprisingly similar results for numbers of in-migrating workers, they are very different for identifying prior residents (with WPPSS' methods yielding much higher numbers than GHRPC methods). While WPPSS' staff continues to use the motivation basis for their estimates, another question on the WPPSS' survey instrument records information similar to the GHRPC method. The survey asks when the worker moved to his residence. This answer, then, can be compared to the start of the project to determine in-migrants. The results of this method are very similar to the GHRPC method for in-migrations and will be used in future reports since it can be generated at far lower costs and is computerized for rapid analysis with other worker information. The reader should note that all 1979 data in this report are based on these revisions, not on the data in the previous reports.

8. This conclusion is based on a thorough review of hiring data by craft which has been reported in various Monitoring Reports.

9. While the concept of secondary impacts and multipliers is almost universally accepted among those responsible for analyzing the impact of projects, it receives extensive criticism from literature relating to regional economics. A particularly strong criticism is voiced by Harry W. Richardson in his text Regional Economics, University of Illinois Press, Urbana, 1979, where he discusses this concept more for its "nostalgia" than for its "potential" (p. 83). A more moderate and useful discussion is found in Edgar Hoover's text, an Introduction to Regional Economics, Alfred Knopf, New York, 1975. In spite of these theoretical objections to this concept, it is still the most used (indeed, the only one used) method of estimating the total effect of a major project. This is probably due to practical limitations and the expense of any other type of analysis. While we are then left with relying on this concept for practical reasons, its crudity, as correctly noted in the theoretical literature, must be kept in mind. It is interesting to note that Richardson's text speaks to the stimulative effect of investment on regional growth and refers to it as the "dynamo of growth" and as being particularly overlooked in regional economic analysis (p. 132). With this in mind, the "investment" aspect of this project far exceeds the employment aspect upon which the analysis in this report rests. In other words, the reliance on employment as the indicator of growth (or secondary effects) is likely to be an understatement from the logic presented by Richardson.

10. Erik J. Stenehjam, and James E. Metzgor, A Framework for Projecting Employment and Population Changes Accompanying Energy Development, Phase II, Argonne National Laboratory, Argonne, Ill., 1976, and Overall Economic Development Plan, op. cit. (Chapter 2, Note 2).

11. Erik J. Stenehjam, op. cit.

12. As noted in the text, 906 secondary jobs are due to the Satsop project. To this can be added the 420 Satsop jobs filled by in-migrants for a total of 1,326 Satsop related jobs to be filled by in-migrants. The Second Year Report found that 29.3% (123) of the in-migrating construction workers were transient. This taken from 1,326 leaves 1,203 jobs.

Since each in-migrant household has 1.3 workers, it takes 925 in-migrating households to fill these jobs. As noted, 420 - 123 (297) of these are in-migrating construction workers excluding transients. Consequently, 925 - 297 (628) yields the number of in-migrating secondary households.

13. From Tables 3.1 and 3.2. In 1980, there were 936 workers on the Project and in 1979, 708 workers which leaves 228 added between 1979 and 1980.

14. Two-hundred nineteen transients in 1980 (Table 3.1) minus 123 transients in 1979 (Note 12) equal 96. This subtracted from 520 jobs yields 424. Four-hundred twenty-four jobs would be filled by 326 in-migrating families. From Note 12, 297 in-migrating families had one Satsop worker in 1979 and Table 3.1 shows 439 in 1980, yielding 142 in-migrants during the year. This, from the 326 total families, yields 184 secondary families.

15. As indicated in Note 6, a hypothetical population decline may also have occurred in Elma itself. While total households in Elma increased by 26.7% between 1977 and 1980, 26.6% of the current households are headed by a Satsop worker.

CHAPTER 4

SOCIAL CHARACTERISTICS OF SATSOP WORKERS

4. SOCIAL CHARACTERISTICS OF SATSOP WORKERS

4.1 Introduction: The analysis of this report to this point has concerned itself with the overall affect of the Project on population growth and the distribution of that affect. The significance of that growth to the area is also related to the social character of that growth. This Chapter will attempt to examine, to the extent that data are available, the social characteristics of the Satsop worker. In so doing, this Chapter will also analyze in greater depth the residential patterns related to Satsop workers.[1]

4.2 Data: Data relating to the social characteristics of Satsop workers are indeed limited. This consisted primarily of information developed from various surveys of Project workers conducted by WPPSS' personnel. The surveys were made by means of providing each person with a form to fill out along with various other routine employment forms. The forms returned were then computerized to yield the results discussed in this Chapter. In this report, one survey period will be used covering the period between April 1980 and June 1980 which involved 1,658 responses.

In order to facilitate discussion of this information, the tables in this chapter have been simplifed. For example, "no responses" have been omitted (however, cases when this category was large enough to substantially alter the tabulations are not presented here). More detailed data regarding all responses presented here are available in the appropriate Monitoring Report or are in the files of the Commission. Data from the worker survey also are compared with data from the U.S. Census of Population and other sources as may be appropriate.

In reviewing this analysis, it must be noted that it is extremely difficult to survey on a reliable basis a highly changing population. The construction labor force is in a constant state of flux with workers continually being hired, laid off, transferred, rehired, etc. Many workers are very temporary and may accept work on the Project only until another position opens nearer to his residence. Other workers may be rehired several times within a short time. Such problems as this make any analysis of worker characteristics hazardous and, consequently, the data discussed here should be used for insight into this dynamic character, rather than a precise measurement of the characteristics of this work force. It should also be noted that the WPPSS' survey technique is continually being refined to reduce some of these problems.

4.3 Age and Family Structure: Table 4.1 compares the age characteristics of the Satsop labor force, as indicated by the WPPSS' survey, to the composition of the Grays Harbor County labor force, as determined by the 1970 Census of Population, the latest data available for this purpose. As exhibited, the Satsop labor force tends to be grouped in the 25 to 44 age groups far more than the labor force of the County. This, of course, is not particularly surprising given the skilled, yet strenuous, nature of work involved on the project. As such, it is expected that the project would likely represent a downward shift in the general age structure of the County, counter to the historical pattern of the County. While the characteristics of both in-migrating workers and prior residents are largely similar, the in-migrants are slightly more concentrated in the 25-34 age group; related probably to the greater mobility of that group.

TABLE 4.1
AGE OF WORKERS

Age Group	% of In-migrant Satsop Workers Responding To Both Questions (N = 397)	% of Prior Residents Responding To Both Questions (N = 651)	% of All Satsop Workers Responding To Age Question (N = 1,603)[1]	Percent Of In-migrants and Prior Residents Responding To Both Questions (N = 1,048)[2]	% Distribution of Grays Harbor Labor Force 1970
15-24	16.9	17.8	15.8	17.5	20.1
25-34	41.6	38.7	37.6	39.8	19.3
35-44	21.7	23.8	24.6	23.0	18.9
45-64	18.9	19.4	21.3	19.2	37.7
65 +	1.0	.3	.6	.6	4.0
	100.0	100.0	100.0	100.0	100.0

SOURCE: WPPSS' Work Force Survey Computer Tabulations, 2nd Quarter 1980, and U.S. Census of Population, 1970.

[1] 1,603 persons responded to age and migration questions out of 1,658 surveys returned. This represents a 63.2% response rate.
[2] This column does not tally with the preceding column due to no responses for migratory status.

Table 4.2 portrays the marital status of Project workers as related to the general population of both Grays Harbor County and the State. The most remarkable aspect of this data is the relatively high proportion of separated and divorced people among construction workers, particularly the in-migrators, while the general proportion of married people is consistent with both Grays Harbor County and the State. This difference is made up from a lower proportion of single and widowed people among the Satsop Workers.

Table 4.3 and 4.4 provide greater insight into the family structure of Satsop workers. As can be seen, the proportion of Satsop households of one person is far above the County average. Even after discounting the effect of this large number of single person housholds, family size still tends to be smaller than the County average with a greater proportion in the under four person household category. While prior resident total household size is comparable to the County average, the distribution of households is different. Although the proportion of one person prior resident households is four times the County average, it is only half of that of the in-migrants.

4.4 Distribution of Satsop Workers: The WPPSS' worker survey has also recorded the residential location of all workers that have been hired (that have completed the survey) on the Project during the second quarter of 1980. Table 4.5 presents these results in order to identify the distribution of Satsop workers. This table is different from the estimates made in Chapter 3, since it relates only to hires made during the second quarter of 1980. Estimates in Chapter 3 are based upon all hires over the life of the Project. As indicated, two-thirds of all workers live in either Thurston or Grays Harbor County.

TABLE 4.2
MARITAL STATUS

Marital Status	% Of In-migrants Responding To Marital Status Question (N = 731)	% Of Prior Residents Responding To Marital Status Question (N = 233)	% Of Total Workers Responding To Marital Status Question (N = 964)[1]	1970 % Of Grays Harbor Population Over 14	1970 % Of State Population Over 14
Married	59.2	69.1	61.6	64.6	64.2
Widowed	.3	1.7	.6	8.2	2.4
Separated/ Divorced	16.3	10.3	14.8	6.5	5.2
Single	24.2	18.9	22.9	21.2	28.2
	100.0	100.0	100.0	100.0	100.0

SOURCE: WPPSS' Work Force Survey Computer Tabulations, 2nd Quarter, 1980, and U.S. Census of Population, 1970.

[1]58.1% response rate.

TABLE 4.3
TYPE OF HOUSEHOLD

Type of Household	% Of Prior Residents Responding To Question (N = 229)	% Of In-Migrants Responding To Question (N = 697)	% Of All Workers Responding To Appropriate Question (N = 926)[1]
Live Alone	12.7	25.0	21.9
Live with spouse or dependents	72.1	51.1	56.3
Live with other project workers	1.3	13.8	10.7
Other type of households	14.0	10.2	11.1
	100.0	100.0	100.0

SOURCE: WPPSS' Work Force Survey Computer Tabulations, 2nd Quarter, 1980.

[1]55.9% response rate.

Pierce County is the third largest contributor, and Lewis County is the fourth. The relatively high proportion of workers from Lewis County is perhaps the most unexpected result in this analysis,[2] Almost all workers hired (91.3%) were within about one hour driving time (see Map 4.1). This feature is lower

TABLE 4.4
HOUSEHOLD SIZE

Size of Household	% Of In-migrants (N = 695)	% Of Prior Residents (N = 227)	Percent Of Total Satsop Workers Responding To Household Size Question (N = 922)[1]	Percent Of Occupied Housing Units In Grays Harbor In 1970
One Person	49.4	28.2	44.1	7.1
Two	19.4	22.0	20.1	21.4
Three	11.1	13.7	11.7	15.6
Four	10.6	13.2	11.3	18.5
Five	5.0	13.7	7.2	15.6
Six	2.0	4.0	2.5	10.6
Seven	1.4	2.2	1.6	6.0
Eight or More	1.0	3.1	1.5	5.2
	100.0	100.0	100.0	100.0
Average Household Size	2.2	3.0	2.4	2.9

SOURCE: WPPSS' Work Force Survey Computer Tabulations, 2nd Quarter, 1980, and U.S. Census of Population, 1970.

[1]55.6% response rate.

than many analysts had anticipated and is somewhat lower than previous Grays Harbor Regional Planning Commission estimates.[3]

TABLE 4.5
ESTIMATED RESIDENTIAL DISTRIBUTION OF NEWLY HIRED SATSOP WORKERS
BY WORKERS RESPONDING TO SURVEY

Area	(N = 1,141)[1]
Grays Harbor County	
Elma Area (includes Satsop)	15.3
McCleary Area	3.0
Montesano Area	4.7
Oakville Area (includes Porter/Malone)	.5
Urban Area	12.1
Other Areas	1.9
Grays Harbor County Total	37.6
Lewis County	5.8
Mason County	2.5
Pacific County	.6
Thurston County	30.2
Pierce County	14.6
Other Areas	8.7
	100.0

SOURCE: WPPSS' Work Force Survey Computer Tabulations, 2nd Quarter, 1980.
[1]68.8% response rate.

MAP 4.1
DISTANCE IN MILES FROM SITE

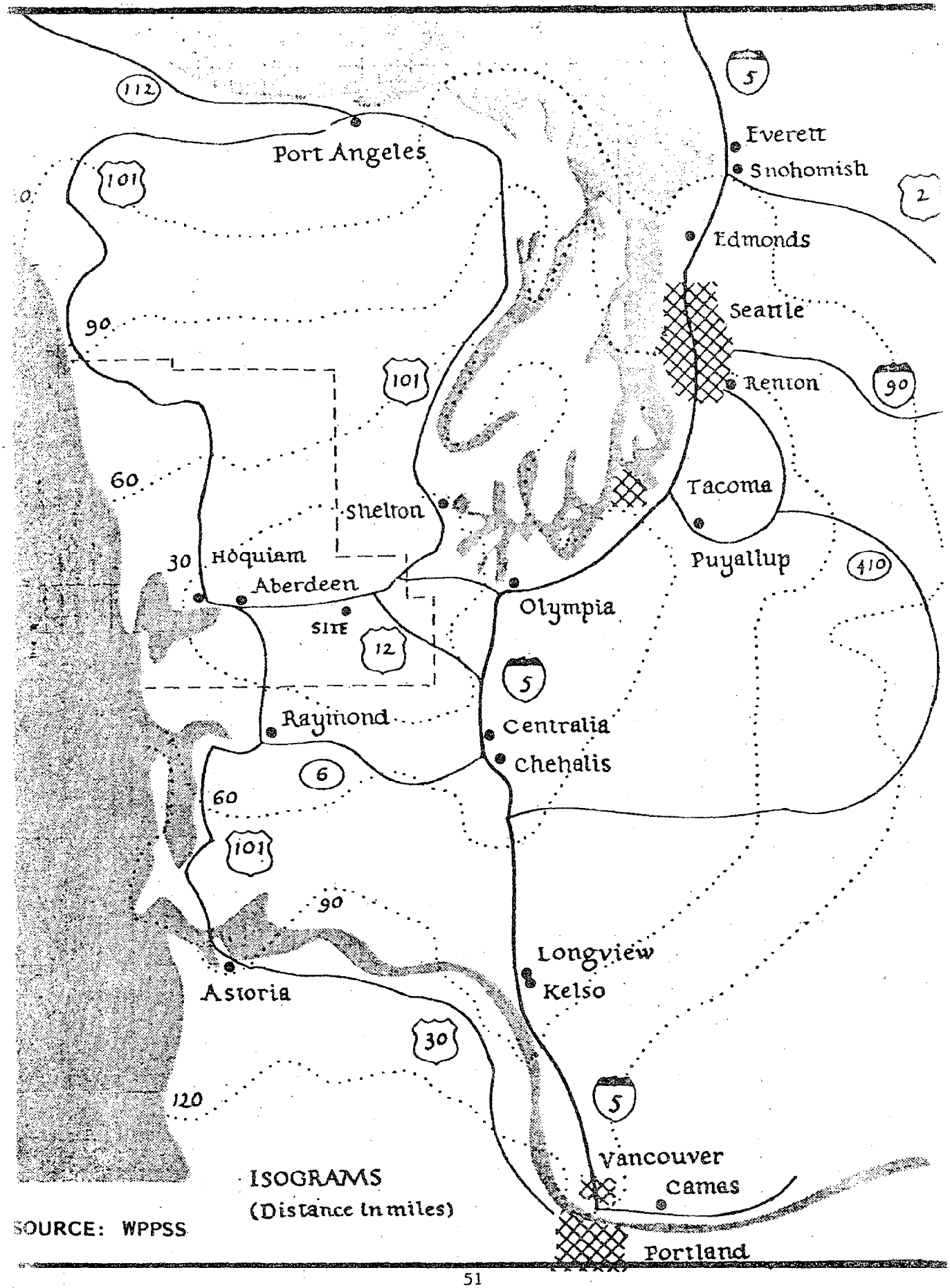


Table 4.6 presents a more detailed look at the distribution of newly hired Project workers within the five County "impact area." This table also identifies the proportion who have in-migrated and the proportion who were prior residents. As indicated, just under half of all in-migrating workers to this five County area reside in Grays Harbor County, while this County has a slightly lower proportion of all prior residents. A similar relationship between in-migrants and prior residents is also present for Thurston County. Again, the most significant anomaly in these results is Lewis County which has about 13% of all prior residents of the five County area hired on the Project. This Lewis County relationship indicates that the effects of a large energy project have the ability to linger well after the project is completed.

TABLE 4.6
ESTIMATED IN-MIGRATION PATTERNS OF SATSOP WORKERS

Area	% Of In-Migrants (N = 611)	% Of Prior Residents (N = 159)	% Of Total Workers In Five County Area (N = 770)[1]
Grays Harbor County			
Elma Area (includes Satsop)	22.9	12.6	20.8
McCleary Area	4.4	3.1	4.2
Montesano Area	5.9	8.8	6.5
Oakville Area (includes Porter/Malone)	.5	1.9	.8
Urban Area	12.9	17.6	13.9
Other Areas	2.9	1.9	2.7
Grays Harbor County Total	49.6	45.9	48.8
Lewis County	5.6	12.6	7.0
Mason County	2.8	5.0	3.2
Pacific County	.8	1.3	.9
Thurston County	41.2	35.2	40.0
	100.0	100.0	100.0

SOURCE: WPPSS' Work Force Survey Computer Tabulations, 2nd quarter, 1980.

[1] 57.5% response rate; the total number responding to location and movedate questions is 953.

4.5 Household Tenure: Household tenure (rent or ownership) of Satsop workers varies dramatically by whether the worker is an in-migrant or not. As indicated on Table 4.7, the vast majority of all migrating workers are renters while the majority of those workers who lived in the area prior to the start of the Satsop Project are owners. Ownership patterns of prior residents are similar to all residents of the County. In 1970, 71% of the occupied units in the County were owner occupied while 66% of the State units were occupied by owners.[4]

4.6 Residential Patterns by Structure Type: As in the case of tenure, the type of housing a Satsop worker uses varies significantly by the migratory status of the worker. Table 4.8 demonstrates that, with considerable consistency,

TABLE 4.7
TENURE PATTERNS OF SATSOP WORKERS BY PERCENT OF SATSOP WORKERS RESPONDING TO APPROPRIATE SURVEY QUESTIONS[1]

AREA	Percent of Total In-Migrants In Each Area		Percent of Total Prior Residents In Each Area	
	RENT	OWN	RENT	OWN
Grays Harbor County				
Elma (includes Satsop	72.5	27.5	55.0	45.0
McCleary Area	59.3	40.7	--	100.0
Montesano Area	69.4	30.6	30.8	69.2
Oakville Area	33.3	66.7	--	100.0
Total East County Area	69.6	30.4	37.5	62.5
Urban Area	93.3	6.7	24.1	75.9
Other Areas	66.7	33.3	--	100.0
Total Grays Harbor County	75.4	24.6	30.6	69.4
Thurston County Totals	73.0	27.0	26.4	73.6

SOURCE: WPPSS' Work Force Survey Computer Tabulations, 2nd Quarter, 1980.
[1]Based on 666 total responses for these areas for a response rate of 40.2%.

approximately two-thirds of all Satsop workers who resided in the area before construction started, resided in single-family dwellings while a substantially smaller proportion of the in-migratory workers to this County reside in such housing types. The proportion of in-migrants who live in single-family structures is substantially higher in Thurston County than in Grays Harbor County. Since property values are generally higher for single family dwellings, the property tax returns from in-migrating construction workers may be expected to be greater in Thurston County than in Grays Harbor County. The property tax impact is very low in Elma.

In analyzing the data of Table 4.8, it must be mentioned that the type of housing a person resides in (especially a new person to an area) is a function of both availability and preference. Consequently, low percentages for any area may reflect the absence of accommodations in that area rather than a difference in preference. For example, due to zoning restrictions the urban area has very few mobile homes in contrast to the east part of the County; hense, a very low percentage of Project workers reside in mobile homes in the urban areas.

Of particular significance on this table is the varying pattern of residences of a temporary nature for in-migrating workers. While the Elma area has a high proportion of R.V. use, it has a low proportion of rooming types of use. The urban areas, in constrast, have very high rooming rates but a low rate of R.V.'s. This, apparently, is related to the greater opportunity to find rooms in the urban areas of Grays Harbor, while R.V.'s and R.V. parks can be more accommodated in rural areas. Also, R.V. parks represent a quick and inexpensive way for investors to capitalize on the need for temporary accommodations. Consequently, as construction began these facilities could be quickly provided in the Elma area while rooming facilities entailed longer time periods and greater risk at the end of construction. This type of factor may also account for the relatively higher proportion of mobile home use by in-migrants in the

TABLE 4.8
RESIDENTIAL PATTERNS OF SATSOP WORKERS BY STRUCTURE TYPE
BY PERCENTAGE OF SATSOP WORKERS RESPONDING TO APPROPRIATE QUESTIONS[1]

AREA	SINGLE FAMILY HOME	APARTMENT/ DUPLEX	MOBILE HOME	HOTEL/ MOTEL, ROOMING HOUSE	R.V. OR OTHER	TOTAL
IN-MIGRANTS						
Grays Harbor County						
Elma Area (includes Satsop)	15.2	22.5	27.5	8.0	26.8	100.0
McCleary Area	33.3	18.5	33.3	3.7	11.1	100.0
Montesano Area	33.3	41.7	11.1	11.1	2.8	100.0
Oakville Area (includes Porter/Malone)	100.0	-	-	-	-	100.0
Total East County	22.1	25.0	25.0	7.8	20.1	100.0
Urban Areas	25.3	22.7	6.7	44.0	1.3	100.0
Other Areas	44.0	11.1	27.8	16.7	-	100.0
Total Grays Harbor County	24.2	23.7	20.5	17.5	14.1	100.0
Total Thurston County	47.1	33.2	8.6	5.7	5.3	100.0
PRIOR RESIDENTS						
Grays Harbor County						
Elma Area (includes Satsop)	75.0	15.0	10.0	-	-	100.0
McCleary Area	60.0	-	40.0	-	-	100.0
Montesano Area	76.9	7.7	15.4	-	-	100.0
Oakville Area (includes Porter/Malone)	100.0	-	-	-	-	100.0
Total East County	75.0	10.0	15.0	-	-	100.0
Urban Area	85.7	7.1	3.6	3.6	-	100.0
Other Areas	66.6	-	33.3	-	-	100.0
Total Grays Harbor County	78.9	8.5	11.3	1.4	-	100.0
Total Thurston County	69.8	13.2	13.2	1.9	1.9	100.0

SOURCE: WPPSS' Work Force Survey Computer Tabulations, 2nd Quarter, 1980.
[1]40.1% response rate; N = 665.

Elma-McCleary area. This very high proportion of mobile homes in the McCleary area is probably due to the opening of a relatively large mobile home park near the freeway in the McCleary area.

In regards to the locational tendency of transients, there has been a very significant change since the last report. In that analysis, 24% of the in-migrants to Thurston County were "roomers," but this dropped to only 5.7% this year. Meanwhile, in the urban area of Grays Harbor, the proportion increased from 32% to 44%. The causes of this shift are unknown. Data from this table can be compared to Chapter 6 in this report which addresses residential construction patterns in the County.

4.7 Household Characteristics: As is demonstrated on Table 4.9, a high proportion of workers live alone or with other Project workers. Over 52% of the in-migrants to the Elma area are in such households. This tendency, however, appears to decrease with distance to the east of the Project as the proportion of workers with dependents becomes higher.

TABLE 4.9

HOUSEHOLD CHARACTERISTICS OF IN-MIGRATING SATSOP WORKERS FOR SELECTED AREAS BY PERCENTAGE OF SATSOP WORKERS RESPONDING TO APPROPRIATE QUESTIONS[1]

AREA	LIVE ALONE	LIVE WITH SPOUSE OR OTHER DEPENDENT	LIVE WITH OTHER PROJECT WORKER	LIVE IN OTHER TYPE OF HOUSEHOLD	TOTAL
Elma Area (N = 138)	24.6	47.8	22.5	5.1	100.0
East County Area (N = 201)	25.4	48.3	18.9	7.5	100.0
Urban Area (N = 78)	33.3	30.8	28.2	7.7	100.0
Total Grays Harbor Area (N = 298)	27.5	43.6	21.1	7.7	100.0
Total Five County Area (N = 597)	24.5	50.8	15.9	8.9	100.0

SOURCE: WPPSS' Work Force Computer Tabulations, 2nd Quarter, 1980.

[1]56% response rate; a total of 928 persons responded to all three appropriate questions out of a possible 1,658 who returned surveys.

4.8 Conclusion: It is apparent from the data presented here that the Project labor force tends to be younger, have fewer family commitments, and tends to be more mobile than the host community. These newcomers, with significantly different characteristics, will bring with them significantly different norms, values, and behaviors. When these norms, values, and behaviors interact with the preexisting norms and values of a community, significant social change in the community can occur.[5] While these effects are difficult if not impossible to measure, data presented in the last Chapter of this report suggests that such change is happening and perhaps substantially. For example, the rise in crime that is reported in that Chapter could be considered evidence that such change is occurring.[6]

CHAPTER 4
NOTES

1. Information regarding the social characteristics of construction workers on other projects is quite limited. This is in part due to the highly changing and complex employment patterns common to large projects. This continual changing makes any surveying of workers difficult, and many technical problems relating to sampling procedures are encountered. These problems were present in this survey, and, consequently can affect the validity of the data reported here.

   These conditions also pose interpretive problems when data are used. These intepretive problems have led to disagreements on how this information might be used, and it should be noted that the data as interpreted here by the Grays Harbor Regional Planning Commission staff does not reflect the view of the Power System.

To further complicate the issues involved, the information in this section relating to migratory status (in-migrating or prior resident) is not comparable to similar analysis published separately by WPPSS. This is due to a difference in the definitions of in-migrating Project workers as used by the GHRPC and WPPSS. The GHRPC considers anyone who moved to his residence since the start of the project as an in-migrator. WPPSS, on the other hand, classifies an in-migrator as one who responds affirmative to the question, "Did you move to this area to work on the project?"

2. If these higher proportions of construction workers from the Centralia area are due to the construction of the coal plants there, then it would appear that many workers may remain in an area for many years after a project is completed. The Centralia project was completed in 1972. This could have some implication on the withdrawal of workers from this area after the Satsop project is completed.

3. A commute of greater than 60 miles is not considered unusual for construction workers. Such a commuting distance reaches beyond the Tacoma area where a large construction labor force is present. An analysis of the supply of construction workers in Washington is found in Employment Trends in Construction Industry, 1975-1985, Department of Revenue, 1975. An analysis of the socioeconomic impact of WNP-3 and WNP-5 in 1975 anticipated much greater long-distance commuting than is now occurring. The second year report estimated that over 15% of the workers resided outside of the 60 mile driving distance.

4. Grays Harbor Region Housing Element, Grays Harbor Regional Planning Commission, 1979.

5. Stephen J. Fitsimmons, et al, Social Assessment Manual, Western Press, Boulder, Colorado, 1977, provides a concise discussion of these effects on pages 36 through 39. A standard sociology text, Rodney Stark, Social Problems, Random House, New York, 1975, discusses a concept referred to as "strangerhood" on page 50 and its relationship to social problems. Warren G. Bemis and Philip E. Stark, The Temporary Society, Harper and Row, New York, 1968, discusses some theoretical implications on mobility on page 78. Martha Curry, et al, State and Local Planning Procedures Dealing with Social and Economic Impacts from Nuclear Power Plants, Battelle Northwest, Seattle, 1977, suggests that social change can be associated with nuclear power plant construction and indicates that such changes did occur during the Trojan Project in Oregon (p. 34). Karl Hekler, et al, Evaluation of Power Facilities, Berkshire County Regional Planning Commission, Pittsfield, Mass. discusses particular aspects of the interaction between various groups of people during a construction project.

6. A National Strategy to Reduce Crime, National Advisory Commission on Criminal Justice Standards and Goals, 1973, page 16, states, "Every serious study of crime has noted the association between fluctuation in crime rates and changes in population, social values, and economic conditions." It further notes the relationship between crime and proportion of younger males in the population, population mobility, and family stability.

CHAPTER 5

ECONOMIC CHANGES

5. ECONOMIC CHANGES

5.1 Introduction: Any large construction project can significantly affect economic conditions in a region. The potential of the Satsop project to do this is substantial since the total estimated project cost is over seven times the total assessed value of the County, and a peak employment of approximately 6,400 workers represents about 23% of the total employment of the County. It is currently estimated that the payroll of the project to Grays Harbor County residents exceeds $12 million each quarter. This Chapter will discuss the economic change that has been occurring in the study area and the region during the first three years of construction.

The Monitoring Project has considered economic change and reports all recent information available on economic activity. This information generally consists of data related to employment, unemployment, and sales. In addition, some information is available on banking and mortgage activity, number of businesses, and new construction.

5.2 Employment and Unemployment: As discussed under Chapter 2, employment is rising out of the 1975 "recession." The latest employment data available by economic sector discussed in that Chapter demonstrated that all sectors have increased. More recent data relating to estimated total employment are presented on Table 5.1. This indicates that the employment growth up to June 1979 was well above the long-term trends. Since then, however, County total employment has decreased and unemployment has risen sharply.

Project employees comprise approximately 9% of the total County June 1980 employment, and the increase in Project employment tends to reduce the magnitude of the drop in total employment. Since the start of construction in June 1977, Project employment has accounted for 90% of the total net increase in employment.

Table 5.2 reports the change in unemployment registration by the type of job last held between June 1977, June 1978, and June 1979. In all sectors, except construction and wood products, unemployment is somewhat down, or even, from 1977. This is in sharp contrast from previous years when construction and wood products unemployment levels were also declining, and declines in other sectors were much greater.

As noted in various reports on the regional economy, Grays Harbor is heavily dominated by the forest products industry. This industry is particularly noted for its wide cycles of economic activity associated with national housing markets. As mortgage interest rates continue to escalate nationally, a slowdown in this market can be anticipated, and a downward cycle in the region's forest products sectors will probably ensue. The current rise in unemployment and decrease in employment appears clearly related to these factors.[1]

One of the anticipated effects of the Project was that it could induce unemployment by attracting people to the area for work. Earlier analysis could not detect such an effect occurring. Except for the rise in average construction unemployment, Table 5.2 still does not clearly identify this effect. The rise in average construction unemployment could indicate that

TABLE 5.1
GRAYS HARBOR EMPLOYMENT, UNEMPLOYMENT, AND LABOR FORCE
COMPARED TO ON-SITE CONSTRUCTION EMPLOYMENT
MONTHLY AVERAGES, JUNE 1977 TO JULY 1980

Period	Labor Force	Employment	Unemployment	Unemployment Rate	On-Site Employment Monthly Ave.
June 1977	28,628	25,844	2,784	9.7	315*
July 1977	28,495	25,580	2,915	10.2	389
August	28,468	25,756	2,712	9.5	461
September	28,381	26,046	2,335	8.2	389
October	27,894	25,535	2,359	8.5	462
November	27,628	25,021	2,607	9.4	431
December	27,865	24,983	2,882	10.3	372
January	27,500	24,530	2,970	10.8	381
February	27,150	24,650	2,500	9.2	409
March	27,950	25,380	2,570	9.2	393
April	28,240	25,850	2,390	8.5	407
May	28,700	26,730	1,970	6.9	517
June 1978	29,130	27,270	1,860	6.4	680
July 1978	29,640	27,360	2,280	7.7	1,053
August	29,980	27,560	2,420	8.1	1,210
September	29,930	27,760	2,170	7.3	1,305
October	29,310	27,260	2,050	7.0	1,467
November	29,000	26,850	2,150	7.4	1,383
December	29,260	26,860	2,400	8.2	1,328
January	30,700	26,760	3,940	12.8	1,481
February	30,670	27,620	3,050	9.9	1,820
March	31,000	28,420	2,580	8.3	1,835
April	31,630	28,780	2,850	9.0	1,911
May	32,480	30,100	2,380	7.3	2,101
June 1979	33,280	31,030	2,250	6.8	2,211
July 1979	33,170	30,570	2,600	7.8	2,100
August	32,650	30,260	2,390	7.3	2,211
September	32,310	30,140	2,170	6.7	2,211
October	32,140	29,730	2,410	7.5	2,312
November	31,860	28,850	3,010	9.4	2,401
December	32,320	28,710	3,610	11.2	2,481
January	31,210	26,450	4,760	15.3	2,517
February	30,830	27,650	3,180	10.3	2,800
March	31,260	28,020	3,240	10.4	2,905
April	31,610	27,790	3,820	12.1	3,039
May	31,480	28,490	2,990	9.5	2,607
June 1980	31,650	28,620	3,030	9.6	2,519
July 1980	31,550	27,980	3,570	11.3	3,143
Percent Change					
July 1977-June 1978	2.2%	6.6%	-36.2%	-37.3%	74.8%
July 1978-June 1979	12.3%	13.4%	-1.3%	-11.7%	110.0%
July 1979-June 1980	-4.6%	-6.4%	16.5%	23.1%	20.0%

SOURCE: Employment Security and WPPSS' "Manning" Report.
*Estimated. Please note that all employment figures are estimates and are subject to revision by the Employment Security.

TABLE 5.2
CHANGE IN REGULAR ENTITLEMENT UNEMPLOYMENT
INSURED RECIPIENTS BY SECTOR
GRAYS HARBOR COUNTY

		Number Change		
	June 1977	6/77-6/78	6/77-6/79	6/77-6/80
Total Recipients	1,465	-679	-805	+207
Construction	160	-78	-81	+117
Lumber and Wood Products	603	-277	-344	+228
Other Manufacturing	151	-59	-79	-22
Transportation, Communications, and Utilities	144	-89	-123	-59
Trade	189	-76	-73	-3
Finance, Insurance, and Real Estate	17	-11	-11	+1
Service	130	-76	-60	-35
Public Administration	26	-10	-7	-4
Other	45	-3	-27	-16
Total Insured Unemployment	2,784	-924	-534	+246

SOURCE: Various tables in Monitoring Reports, and Table 5.1 on previous page.

this effect may be occurring, but other factors such as the depressed housing market were probably more significant. Also, employment on the Project has a high turnover, and this turnover is affected by the weather and the actual construction activities. Between jobs, construction workers may file for unemployment compensation thus increasing the number of claims reported. This measure of idle construction workers is associated with any construction project, and is not the same as attracting unemployed workers who do not obtain employment on the Project. In June 1980, the usual factors were augmented by the collapse of a construction crane and the Mt. Saint Helen's eruption.

As noted on Table 5.3, there has been a significant rise in new applicants for jobs at the Washington State Employment Security Service Office for Grays Harbor. While this could be an early indication of an induced unemployment effect, it was probably more related to problems in the forest products industry. It is interesting to note that new registrations also fell for the second quarter of 1980. It will be particularly difficult to associate any relationship between the Project and County unemployment levels because of the more prominent influence of forest products.

5.3 Sales Activity: A common measure of economic activity in Washington State is sales activity since data relating to sales are readily available due to the collection of a State sales tax. While this information is most useful for measuring economic activity, it does have two significant limitations: first, it only reflect taxable sales and does not include sales to areas outside the State, and second, it is heavily influenced by inflation and, hence, tends to overstate true economic change.

Table 5.4 presents current taxable sales volumes in the County and compares change to the Seattle consumer price index. While total sales increased over

TABLE 5.3
EMPLOYMENT APPLICATIONS AND PLACEMENT
AT ABERDEEN EMPLOYMENT SERVICE

	1977		1978		1979		1980	
	Third Quarter	Fourth Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter
Aberdeen								
Applications	1,442	1,384	1,312	1,391	1,480	1,649	1,736	1,570
Placements	819	764	603	892	659	886	657	711
Ratio	0.59	0.55	0.46	0.64	0.44	0.54	0.38	0.45
Statewide								
Applications	77,624	73,061	61,161	71,982	69,161	83,167	75,652	79,480
% in Aberdeen	1.86	1.89	2.15	1.93	2.14	1.98	2.29	1.98
Placements	28,324	27,062	22,338	33,506	26,174	30,242	23,457	26,550
State Ratio	0.36	0.37	0.37	0.47	0.38	0.36	0.31	0.33

SOURCE: Tables under Employment Section of various Monitoring Reports.

the reported period, this increase varied substantially by sector. Not surprisingly, contract construction sales (which includes most contracts-including labor--on the Satsop plant) has increased dramatically. The slowdown in retail sales is in part due to the removal of sales tax on food.[2] The strong performance of wholesaling is particularly noteworthy.

TABLE 5.4
TAXABLE RETAIL SALES, GRAYS HARBOR COUNTY
1975-1979
(in thousands of dollars)

	1975	1977	75-77 % Δ	1979	77-79 % Δ
Retail Sales	$147,734	$202,271	36.9	$201,471	-0.4*
Services	20,469	28,150	37.5	30,036	6.7
Contracting	20,377	59,880	193.9	205,810	243.7
Manufacturing	7,981	12,702	59.2	23,589	85.7
Transportation, Communications, and Utilities	1,479	3,114	110.5	3,050	-2.1
Wholesaling	27,738	45,252	63.1	64,152	41.8
Financing, Insurance, and Real Estate	1,038	3,492	236.4	3,459	-0.9
Other	1,012	1,218	20.4	1,175	-3.5
TOTAL	227,829	356,078	56.3	532,741	49.6*
Total Except Contracting	$207,452	$296,198	42.8	$326,931*	10.4*
Seattle Consumer Price Index	155.8	177.6	14.0	222.6**	25.3

SOURCE: Table GH-T.4.81, 1/81.

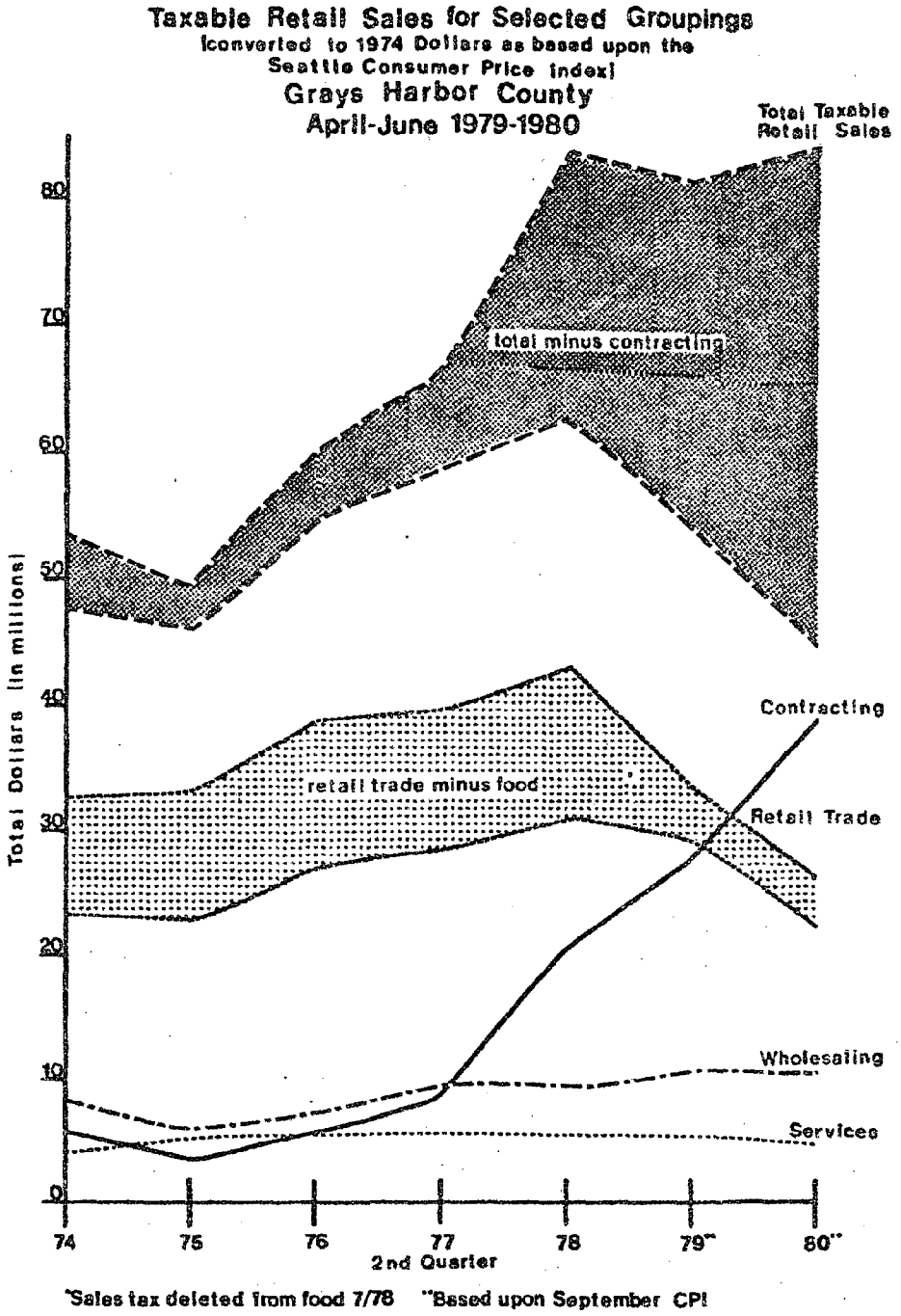
Numbers might not add due to rounding. *Sales tax on food was deleted as of July 1, 1978. **September.

Graph 5.1 deflates this sales data by means of the consumer price index. This reveals a substantial loss in terms of real business activity (except construction) throughout the County. This falling off of sales in most sectors is a disturbingtrend that indicates the beginning of another downward cycle in the area's economy that has been so characteristic of the County's history.[3]

Information regarding the sales activity by various sectors is not available for the study area. However, it is possible by means of using sales tax revenue information to determine the total sales volume in the cities of the study area.[4] Table 5.5 presents this data for East County cities and other incorporated areas in the County. Since data by sector are based upon when taxes are paid and since data by area are based upon when taxes are received by local governments, Table 5.4 and 5.5 cannot be directly compared.

The most significant conclusion of Table 5.5 is that all small cities in the region, except for Elma, lost sales in 1979. This is a reversal of the earlier pattern of firm growth during the Project. Even when sales did not drop (Elma and the urban area), growth in dollar volume was less than the rate of inflation. Another significant feature of Table 5.5 is the identified drop in sales activity in Elma prior to the Construction Project and its dramatic turnabout after the Project began. In Montesano and McCleary, significant

GRAPH 5.1



*Sales tax deleted from food 7/78 **Based upon September CPI

TABLE 5.5
TAXABLE SALES OF GRAYS HARBOR COUNTY
BY INCORPORATED AREAS
(Thousands)

	1975	1976	1977	1978*	1979	75-76 % Δ	76-77 % Δ	77-78 % Δ	78-79 % Δ
Elma	$ 9,637	$ 8,936	$ 12,190	$ 16,229	$ 18,379	-17.7	35.4	33.1	13.2
McCleary	2,322	2,942	3,381	4,528	4,289	26.7	14.9	33.9	-5.3
Montesano	16,030	18,930	20,493	27,427	27,301	18.1	8.3	33.8	-0.5
Oakville	1,233	1,330	1,654	1,532	1,415	7.9	24.4	-7.4	-7.6
Total Cities in Study Area	29,222	32,138	37,718	49,716	51,384	10.0	17.4	31.8	3.4
Aberdeen-Hoquiam-Cosmopolis	176,189	205,220	245,104	290,937	294,515	16.5	19.4	18.7	1.2
Beach Cities	$ 21,301	$ 26,845	$ 32,886	$ 37,308	$ 33,240	26.0	22.5	13.4	-10.9
Seattle Consumer Price Index	155.8	164.5	177.6	194.8	222.6**	5.6	8.0	13.2	14.3

SOURCE: Table GH-T.4.80, 1/81.

*Sales tax on food was deleted July 1, 1978.
**September.

increases in sales occurred in 1978, the first full year of construction. Oakville continues to decline in sales. Taken together, this information appears to suggest that economic activity in East County experienced a significant indirect stimulus from the Construction Project in the first year of construction activity. Since then sales activity has moderated but is still well above pre-Project levels. It is probable that current slowdowns are more related to the general weakening in other sectors than to the Project. If this is correct, the early stimulus of the Project has helped to insulate these cities from the cyclical economic problems that may be beginning in the forest products industry.

5.4 Banking Activity: Other common indicators of economic activity are loans and deposits in banking institutions. All banking activity has increased since 1975, Table 5.6. Also, as in other indicators, the rate of increase has declined for the County generally but accelerated for East County during 1977-1978 which continues into 1980. Table 5.7 evidences a sharp decline in the number of mortgages in the last year. This factor is almost certainly due to the continuing increase in interest rates and has particular significance to land development trends which will be considered in the next Chapter. While the number of mortgages declined, (1980 mortgages are fewer than the total number recorded in 1976), the average value of mortgages has dramatically increased leading to an increase in total value in spite of the decline in number.

5.5 Business Activity: The Monitoring Project has sought to measure changes within the business community of East County. Unfortunately, this is a difficult task since almost all major data sources relating to economic activity do not report any information at the subcounty level by sector.[5]

Since direct periodic surveying of the business community was impractical due to the expense, another method had to be developed. A possible source of insight into changes in the business community is available by comparing successive editions of yellow pages of the appropriate telephone books. The yellow pages provide information regarding both the number of businesses operating and the number of business services available in the area, and these businesses or services can be separated by sector. While this method cannot be used to directly indicate employment or volume of business occurring, it could identify significant shifts in business opportunity within this area and, hence, insight into economic conditions.

Table 5.8 compares the change in the number of business services, as recorded in the yellow pages, with the number of businesses. Business services represent the total listings in the yellow pages with many businesses offering a number of services and, hence, are listed in several places. The number of businesses thus represents the number of different establishments irrespective of the number of services each might provide. This yellow page information is then compared to the number of reporting sales tax units as recorded by the Department of Revenue for Aberdeen, Grays Harbor County, and the State. While reporting tax units are not strictly comparable to the count of businesses in the yellow pages, the trends in business information, as indicated by both, should be roughly comparable.

Table 5.8 indicates that businesses are being formed faster in the study area than in the State, County, or Aberdeen. In fact, the rate of net new business formation is higher in the area of Grays Harbor outside Aberdeen than

TABLE 5.6
BANKING ACTIVITY IN GRAYS HARBOR COUNTY

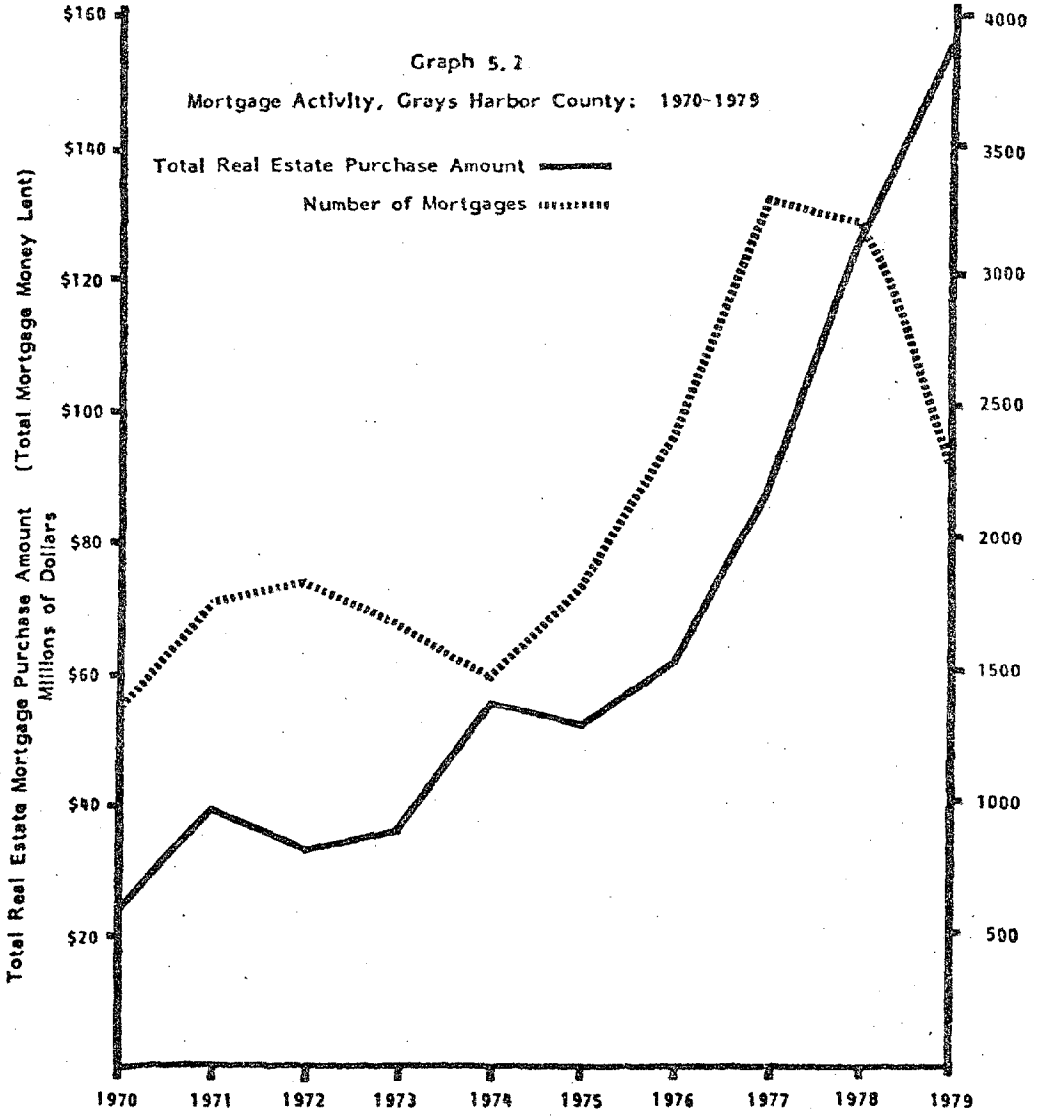
	1975	1976		1977		1978		1979	
	AMOUNT	AMOUNT	% CHANGE	AMOUNT	% CHANGE	AMOUNT	% CHANGE	AMOUNT	% CHANGE
East County Banks									
Deposits ($)	34,654,255	35,364,532	2.0	40,056,176	13.3	51,588,000	28.8	59,506,000	15.3
Loans ($)	11,765,094	12,489,453	6.2	15,583,875	24.8	20,242,000	29.9	26,513,000	31.0
Ratio Loans/ Deposits	0.339	0.353	4.1	0.389	10.2	0.392	0.8	0.446	13.8
Urban Area Banks									
Deposits ($)	95,385,941	107,643,660	12.9	121,132,084	12.2	145,400,000	20.0	147,001,000	1.1
Loans ($)	48,011,480	62,756,429	30.7	83,832,808	33.6	81,163,000	-3.2	94,760,000	16.8
Ratio Loans/ Deposits	0.503	0.583	15.9	0.692	18.7	0.558	-19.4	0.645	15.6

SOURCE: Monitoring Table GH-T.4.69, 4/80.

TABLE 5.7
REAL ESTATE MORTGAGE ACTIVITY
GRAYS HARBOR COUNTY

	1975	1976		1977		1978		1979	
	AMOUNT	AMOUNT	% CHANGE	AMOUNT	% CHANGE	AMOUNT	% CHANGE	AMOUNT	% CHANGE
Number of Mortgages	1,842	2,400	30.3	3,294	37.3	3,218	-2.3	2,332	-27.5
Total Value of Real Estate Mortgage Purchases ($)	52,341,963	61,845,696	18.2	97,628,015	57.9	127,188,134	30.3	155,438,338	22.2
Average Value Per Transaction ($)	28,416	25,769	-9.3	29,638	15.0	39,524	33.4	66,655	68.6

SOURCE: Monitoring Table GH-T.4.80, 1/80.



SOURCE: Table number GH-T.4.80, 1/80.

TABLE 5.8
EAST COUNTY BUSINESSES

	1976	1978	1979	1976-1979 Number Change	1976-1979 Percent Change
Number of Business Services					
Elma	268	337	318	50	18.7
Montesano	285	361	332	47	16.5
McCleary	80	99	96	16	20.0
Other East County	34	39	27	-7	-20.6
Total	667	836	773	106	15.9
Number of Businesses					
Elma	164	223	213	49	29.9
Montesano	172	204	205	33	19.2
McCleary	45	57	56	11	24.4
Other East County	16	20	11	-5	-31.1
Total	397	504	485	88	22.2
Sales Taxing Units (Quarterly Average)					
Aberdeen	897	990	1,000	103	11.5
Grays Harbor County	2,291	2,596	2,610	319	13.9
State	119,762	128,102	135,150	15,388	12.8

SOURCE: Monitoring Tables GH-T.4.57-64, 4/80 and Department of Revenue.

in Aberdeen or the State as a whole. In the study area, the rate of net new business formation is particularly high in Elma where the number of businesses represented over 55% of all new business formation in East County in 1979. While city business activity is growing in East County, the outlying areas are losing businesses.

Table 5.9 compares the change in number of businesses between 1976 and 1979 by sector in both East County as a whole and the Elma area. Again, this data represents the number of separate establishments rather than the number of different services which might be available. In the case where a business may offer several services in different sectors, some judgment had to be applied to identify the most appropriate sector under which to classify such businesses.

Not surprisingly, new construction related businesses are particularly noticeable. However, there are significant increases in almost all sectors in both areas, and most such increases are above State average rates of business formation for all businesses. While significant increases in those types of businesses which are related to construction worker service should be noted (eating and drinking places, lodging, real estate, etc.) in the first year of the Project, the second year trends illustrate the spreading of activity through other sectors while actually experiencing some declines in these worker service activities.

5.6 New Construction: New construction is a generally accepted and accessible indicator of investment and, hence, economic conditions. Table 5.10 compares the value of new construction in the two years before the Project began

TABLE 5.9
NUMBER OF BUSINESSES BY SECTOR

	1976	1978	1979	% Change 1976-1979
EAST COUNTY TOTAL	397	504	485	22.2
Agricultural and Forest Services	13	15	11	-15.4
Construction	35	58	47	34.3
Mining Total	2	9	3	50.0
Sand and Gravel	(2)	(9)	(3)	(50.0)
Manufacturing	23	30	29	26.1
Transportation, Communications, and Utilities	13	15	24	84.6
Trade and Wholesaling Total	133	159	170	27.8
Eating and Drinking Places	(20)	(29)	(25)	(25.0)
Taverns	(6)	(8)	(8)	(33.3)
Services Total	151	176	163	7.9
Motels and Lodging	(11)	(14)	(12)	(9.1)
Finance, Insurance, and Real Estate Total	27	42	38	40.7
Real Estate	(8)	(20)	(15)	(87.5)
ELMA AREA TOTAL	164	223	213	29.9
Agricultural and Forest Services	3	4	3	0.0
Construction	13	29	23	76.9
Mining Total	1	6	2	100.0
Sand and Gravel	(1)	(6)	(2)	(100.0)
Manufacturing	12	15	14	16.7
Transportation, Communications, and Utilities	8	9	13	62.5
Trade and Wholesaling Total	53	67	76	43.4
Eating and Drinking Places	(10)	(15)	(13)	(30.0)
Services Total	67	78	71	6.0
Motels and Lodging	(6)	(8)	(5)	(-16.7)
Finance, Insurance, and Real Estate Total	7	15	11	57.1
Real Estate	(3)	(9)	(6)	(100.0)

SOURCE: Monitoring Tables GH-T.4.57-64, 4/80.

with the last three years during construction. It excludes any construction value of the Satsop project. At first glance the indicator departs in its implications from all others in this report with a decline occurring in the Elma area over this period. However, this decline is almost completely due to the construction of a new chemical plant near Elma which was assessed during the two years previous to the start of the Satsop project. If the influence of this project is deleted the results of this table are generally similar to all other indicators; an overall rise in the County with a much stronger increase in East County. The tremendous growth in the McCleary area should be noted, along with the exceptionally high amount of activity occurring in the Montesano area.

In order to illustrate the significance of new construction on various areas, Table 5.10 also compares the value of new construction in the last three years to the total assessed value of Grays Harbor County. While this new construction equalled 10.1% of the total assessed value of the County each year, new construction equalled 3.8% in East County.

This is the only indicator or piece of datum that draws out the presence of the Ventron Chemical Plan near Elma. As a new multimillion dollar facility employing between 40 and 50 people, this plant clearly has significance on economic conditions and growth patterns in Elma. Unfortunately, none of the available data is capable of assessing this relationship and, consequently, the impact of this facility on this analysis is not clear.

TABLE 5.10
VALUATION OF NEW CONSTRUCTION
(Excluding the Satsop Project)

	ANNUAL AVERAGES			1978-1980 Annual Average New Construction Percent of 1979 County Assessment For Each Area
	Two Years Before Project 1976 and 1977	Three Years Of Project 1978, 1979, and 1980	Percent Change	
Elma City	$ 787,923	$ 1,423,521	80.7	5.8
Elma Area	6,135,743[3]	2,865,885	-53.3	3.5
McCleary City	324,114	606,478	87.1	3.8
McCleary Area	87,520	946,349	981.3	13.1
Montesano City	529,975	1,760,627	132.2	3.2
Montesano Area[1]	877,780	3,569,063	306.6	33.4
Oakville City	48,885	212,665	335.0	5.4
Oakville Area	164,355	325,272	97.9	2.7
Total East County	8,956,295	11,709,860	30.7	3.8
Urban Area[2]	16,642,893	19,082,025	14.7	3.7
Rest of County	5,740,382	13,246,431	130.8	3.0
Total Grays Harbor County	31,339,570	44,038,316	40.5	10.1
East County Excluding Elma Rural	$ 2,820,552	$ 8,843,975	213.6	3.9

[1]Includes Central Park; [2]Incorporated area only; [3]Includes construction of Ventron Chemical Plant.

SOURCE: Monitoring Tables GH-T.5.102, 10/80 and GH-T.7.154, 7/80.

5.7 Conclusion: All generally accepted indicators of economic conditions were improving during the start of the Project. This was particularly true for the first year of construction with some slackening in the second year. However, the third year of construction has demonstrated a decline in several aspects.

It is clear that much of the economic problems now slowing economic growth are due to general factors in the regional economy not related to Satsop. The Satsop project may be playing a substantial role in moderating those worsening conditions. The Satsop project is a diversification in the economy which appears to have provided some buffering to the economy in face of some strikes and some large mill closings which occurred during this period. This diversification could become very important if the current lumber recession continues.

Available information still does not indicate that a significant induced unemployment effect is occurring, although there is a noticeable increase in unemployed construction workers. Whatever effect may be present would certainly be overshadowed by influences on unemployment from other sectors.

CHAPTER 5
NOTES

1. See Overall Economic Development Plan, Grays Harbor Regional Planning Commission, June 1979, for discussions of the cyclical nature of the Grays Harbor economy. Since June 1980 and the actual writing of this report, these factors become much worse as numerous forest products lay-offs began during the fall of 1980.

2. By statewide vote the sales tax on food was removed, thus creating a reduction in taxable retail sales, even though total sales probably did not decrease.

3. Overall Economic Development Plan, op. cit.

4. The volume of taxable retail sales for a city or town is calculated by multiplying the annual sales tax revenue total by a factor of 238.877.

5. At the onset of the Monitoring Project extensive discussions occurred between WPPSS' staff, Grays Harbor Regional Planning Commission staff, and the Washington State Employment Security Department in an attempt to arrange for a subcounty reporting of employment information. However, this was to no avail.

CHAPTER 6

LAND USE AND DEVELOPMENT CHANGES

6. LAND USE AND DEVELOPMENT CHANGES

6.1 Introduction: Since a major construction project may stimulate land development activity, such activity has been closely monitored. Change in land use patterns which may be produced by induced growth and other effects of the Project could be one of the more lasting results of this Project's construction.

Land development activities and land use changes proceed along a logical sequence of events through the obtaining of proper zoning for an anticipated use, partitioning of land for sale, obtaining any necessary zoning permits, and obtaining a building permit. Of course, any of these particular steps may or may not be needed for all development or for any particular development or use of land. However, when growth occurs one may expect all these activities to increase. The early steps (zone changes and land divisions) should occur well in advance and, indeed, are usually expected to be the first signs of a potential rapid change in the actual use of land. These early activities may occur only on the basis of an expectation that growth may occur.

6.2 Zoning: Good records of zone changes are available only for the unincorporated area jurisdiction of the County Planning Department. This, however, does not pose a serious problem since it is in the unincorporated area where it is generally necessary to obtain a zone change as a prelude to development. Table 6.1 summarizes the activity that has occurred over the last seven years. Several points are significant:

1. While East County has been the focal point for zoning attention over the past six years, the greatest activity inside this area occurred during 1978. There was a slight decrease in zoning changes in 1979. The first half of 1980 seems to suggest another slight decrease from the previous year, although if the activity recorded for the first half continues, zoning changes will be double the 1977 level.
2. While there was an increase in zoning activity in the East County during 1977, it was not as pronounced nor as high as it was in 1973. In 1978, however, the increase was dramatic.
3. While almost all zoning changes from 1977 to the first half of 1980 in East County were to more intense use classifications (mostly conversion of agricultural areas), the opposite was true in 1976 when almost all zoning changes were to a less intense use. These could indicate that the threat of development pressure may lead some land owners to seek greater protection.
4. The greatest impact of zoning changes has been the loss of agricultural areas to other potential uses.[1]
5. Rezoning activity had not yet increased significantly by the end of 1977, but in 1978 a sharp increase occurred. This was well after the start of the Construction Project.
6. The overall pattern of zoning activity consisted of a rapid increase in conversions to more intense use as the Project started, then, while still high, appears to be moderating.

Zoning changes are illustrated on Map 6.1 This map clearly demonstrates the focus of this activity in the Elma area.

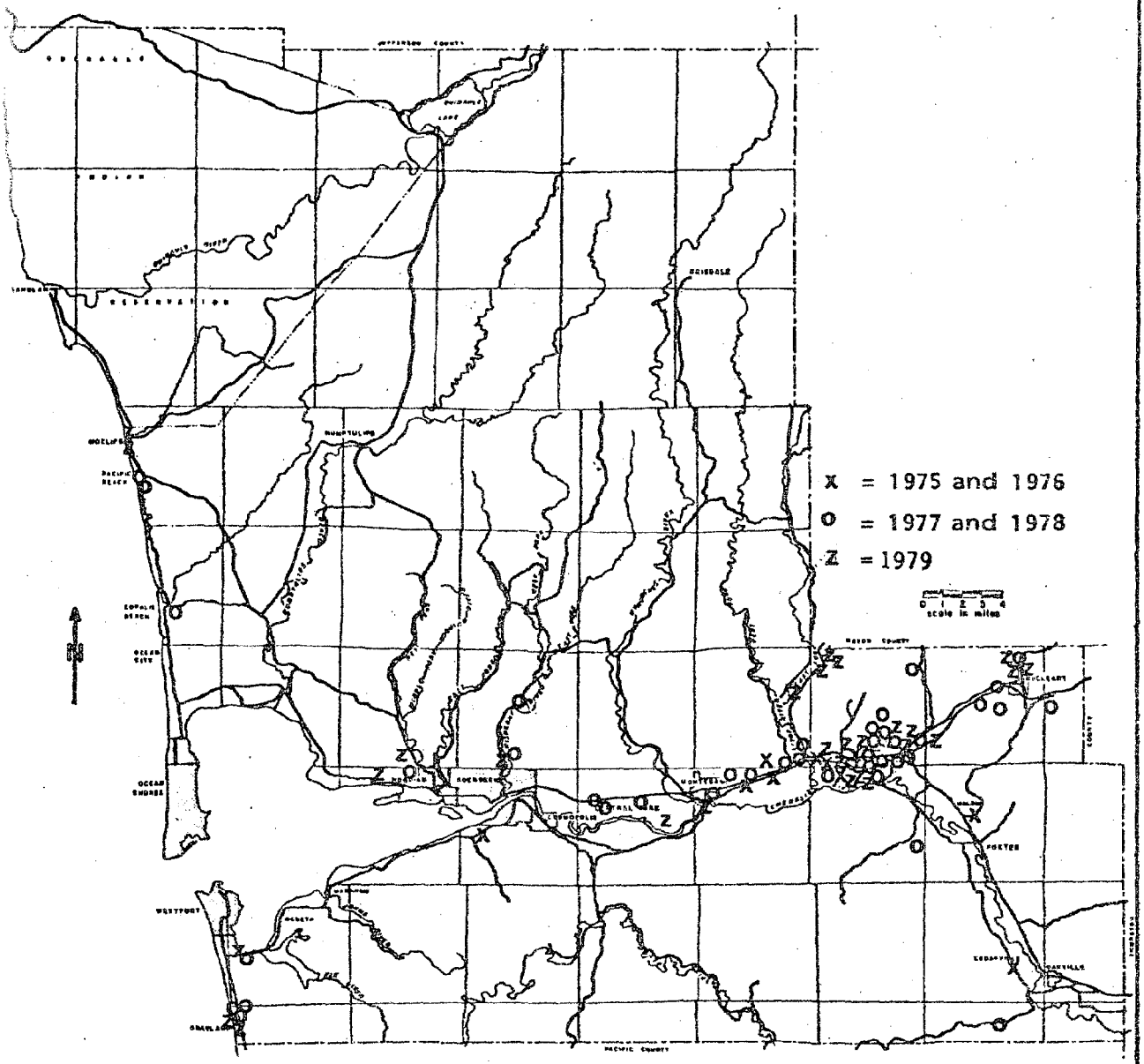
TABLE 6.1
ZONING CHANGES[2]
1973-1980

	1973	1974	1975	1976	1977	1978	1979	First Half 1980	Total Changes
EAST COUNTY TOTAL CHANGES	10	5	4	5	8	22	20	8	82
Changes to More Intense Use:	7	3	2	-	7	20	18	7	64
From Agriculture	6	3	2	-	5	17	15	5	53
From General Development	1	-	-	-	-	1	-	-	2
From Other	-	-	-	-	2	2	3	2	9
Changes to Less Intense Use:	3	1	1	5	-	2	2	1	15
To Agriculture	-	-	1	2	-	1	-	-	4
To General Development	2	1	-	2	-	-	1	-	6
To Residential	1	-	-	1	-	1	-	1	4
To Other	-	-	-	-	-	-	1	-	1
Same Intensity	-	1	1	-	1	-	-	-	3
OTHER AREAS OF COUNTY TOTAL CHANGES	2	1	1	1	4	6	6	2	23
More Intensive	1	-	1	-	3	5	5	1	16
Less Intensive	-	1	-	1	1	-	1	1	5
Same Intensity	1	-	-	-	-	1	-	-	2

SOURCE: Monitoring Table GH-T.9.48, 10/80

6.3 Land Divisions: For various reasons not completely understood, actual subdivisions of land (division of land into more than four separate parcels) had been fairly rare in this County from 1972 to 1978. As recorded by the Assessor, as of January 1978, there has been only one approved subdivision in East County since 1972 (10 lots inside McCleary). Prior to 1978 the last subdivision in the unincorporated areas of the County was in the North Beach area (42 units) in 1973. In 1978, however, 6 subdivisions of 76 lots were approved with 63 of those lots being in East County. This surge of subdivision activity apparently subsided in 1979 in East County, but increased in other parts of the County, primarily in Ocean Shores. The first half of 1980 shows renewed subdivision activity in East County.

MAP 6.1
ZONING CHANGES
1975-1979



SOURCE: Map number GH-M.32.9.143, 4/80.

HRPC

Subdivision, however, is not the only method of land division. Short platting involves the creation of four or less lots out of one parcel. Here activity had been increasing until 1980 where first half figures could be indicating a slight decline. This is illustrated on Table 6.3. The rate of lot creation in East County jumped by 89% between 1976 and 1977, another 61% in 1978 and 8.9% in 1979. East County activity comprises most of the activity in the County (71% during the first half of 1980). Since requirements and standards which must be met are less demanding for short plats than for subdivisions, the reliance by potential developers on short platting rather than subdivision indicates that lower quality but less intensive lots are generally being created.

TABLE 6.2
SUBDIVISION LOTS CREATED
(Excluding Condominiums)

	East County	Other	Total Lots	Total Subdivisions
1974	0	0	0	0
1975	10	0	10	1
1976	0	13	13	1
1977	0	0	0	0
1978	63	13	76	6
1979	0	56	56	5
1980 First Half	31	18	49	2

SOURCE: Monitoring table GH-T.9.46, 10/80.

TABLE 6.3
SHORT PLAT LOTS CREATED

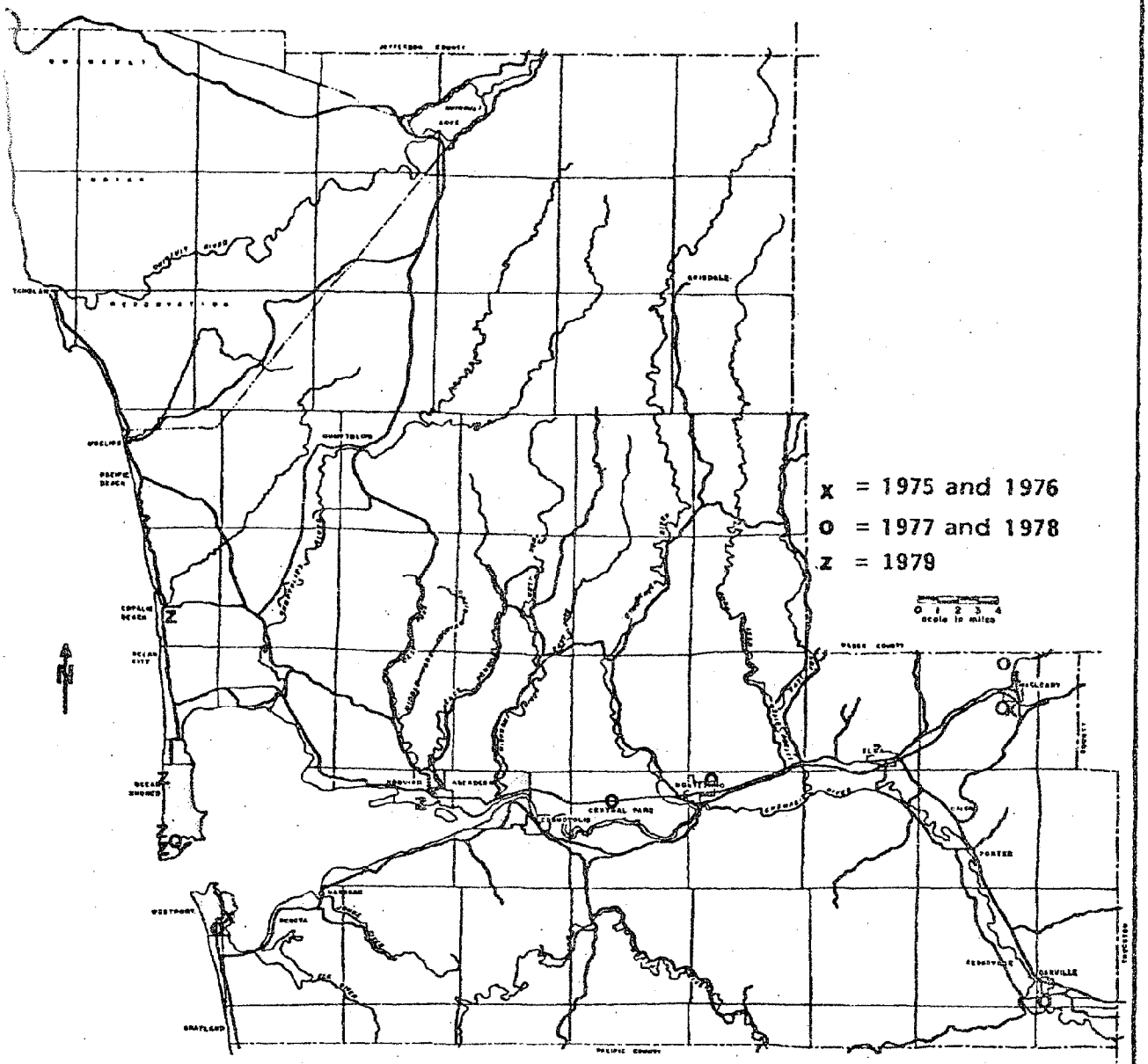
	East County	Other	Total
1975	18	17	35
1976	26	6	32
1977	49	24	73
1978	79	22	101
1979	86	16	102
1980 First Half	30	12	42

SOURCE: Monitoring table GH-T.9.47, 10/80.

See location of both subdivisions and short plats as identified on Maps 6.2 and 6.3. Map 6.3 again shows the high level of activity occurring in East County although not particularly focused on the Elma area as in the case of zoning.

6.4 Other Zoning Actions: In addition to obtaining the proper zoning for a development, there are often other zoning actions that may be necessary before a project or activity can continue. These actions include conditional uses and variances. While only a small percentage of all development requires such permits, their presence can indicate a general interest in land development. As these permits increase, development activity also tends to increase.

MAP 6.2
LOCATION OF SUBDIVISIONS
1975-1979



SOURCE: Map number GH-M.32.9.141, 4/80.

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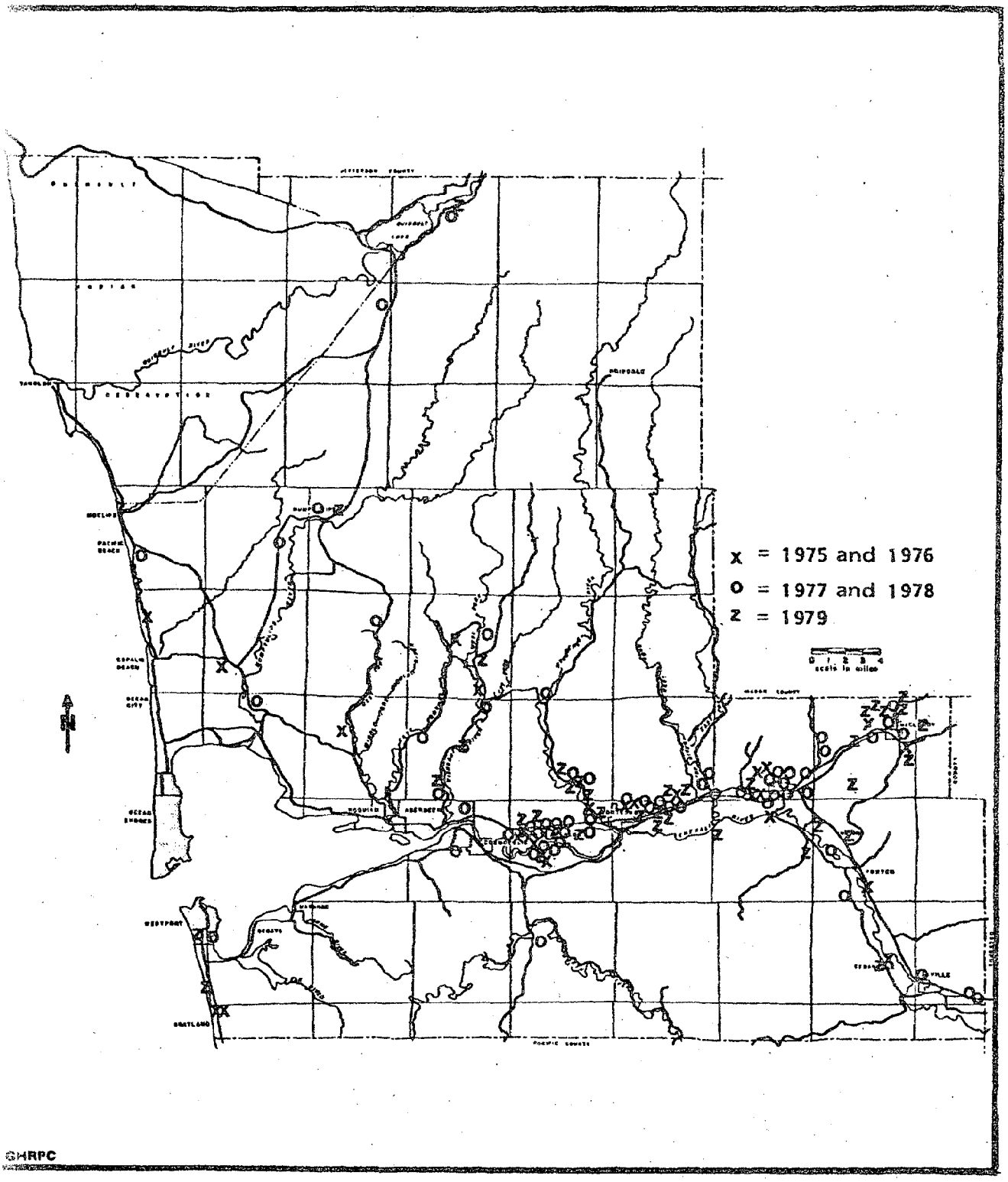
MAP 6.3
LOCATION OF SHORT PLATS
1975-1979



SOURCE: Map number GH-M.32.9.142, 4/80.

As in the case of other activities, conditional use permits increased rapidly in the East County area at the start of the project (from 2 in 1973 to 24 in 1977 and 23 in 1978 then moderating in 1979 (18) and 1980). These permits have been generally of two types both closely related to the Satsop project: (1) permits for gravel operations, and (2) mobile home parks. However, mobile home permit activity has dropped significantly since 1978. Figures for 1980 indicate a substantial slow down in activity, including opening new gravel pits.

The rapid increase in the number of gravel permits has been one of the most apparent and significant impacts of the project. Not only does the activity significantly alter the character of the land where they are granted, but they also determine the flow of construction trucks and related concerns of traffic congestion, wear on streets, accidents, etc. Granting of these permits, furthermore, adds to the conversion of agricultural land discussed earlier under 6.2 Zoning, as 63% of all gravel use permits have been granted in agricultural zones.[3] Map 6.4 illustrates the distribution of these permits in the County. This activity finally seems to be slowing with only one new permit being issued in the first half of 1980 in East County.

TABLE 6.4
COUNTY CONDITIONAL USE PERMIT ACTIVITY

	East County				
	Mobile Home Parks	Gravel	Other	Total	Total County
1973	1	0	1	2	10
1974	4	1	1	6	8
1975	2	5	3	10	19
1976	4	7	1	12	17
1977	3	18	3	24	30
1978	3	17	3	23	47
1979	1	13	4	18	29
1980 First Half	1	1	2	4	10
TOTAL	19	62	18	99	170

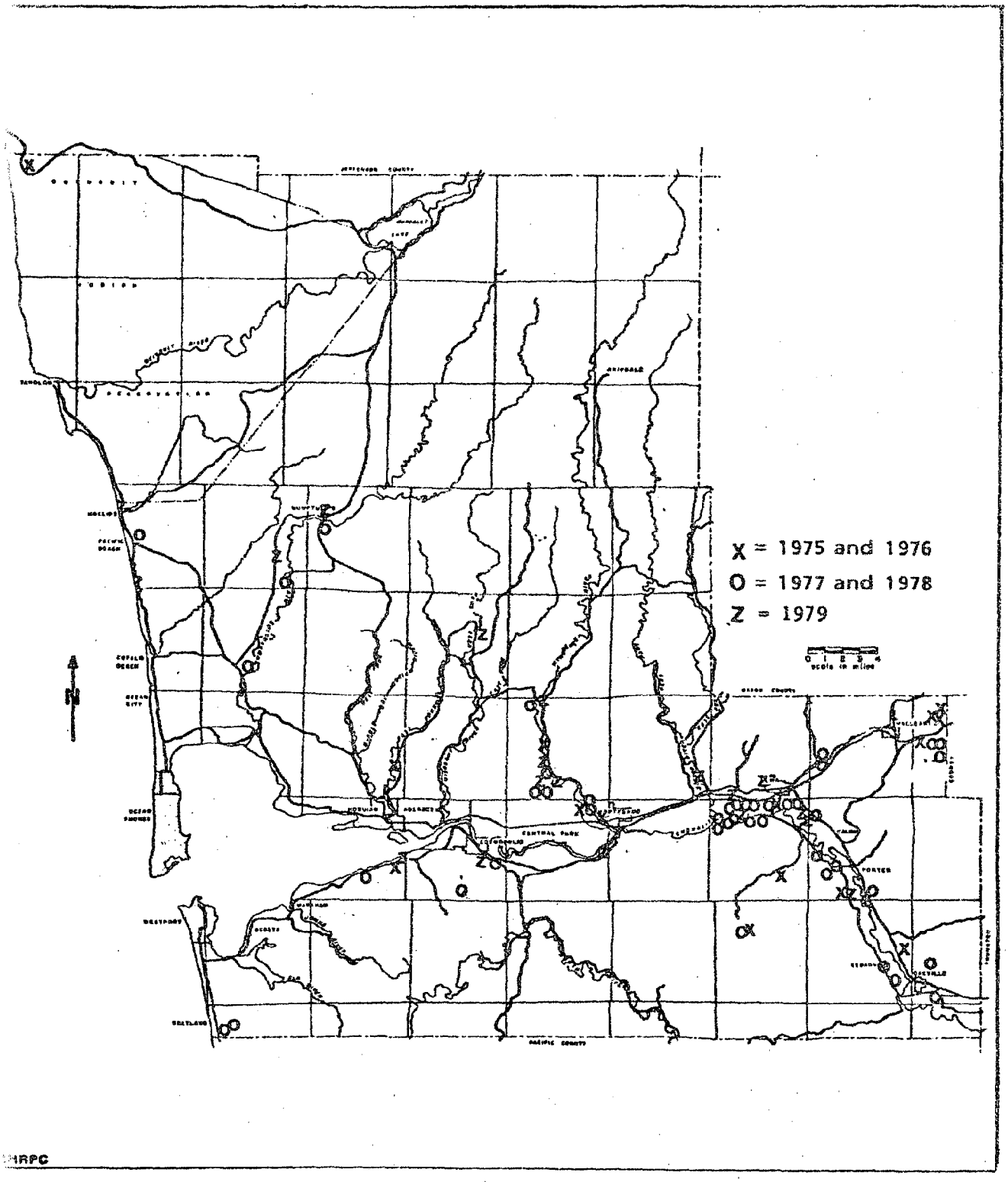
SOURCE: Monitoring table GH-T.9.49, 10/80.

TABLE 6.5
AGRICULTURAL AREAS AND GRAVEL PERMITS

	Total Conditional Use Permits For Gravel Extraction		Number Granted in Agricultural Zones	Percent Located in Agricultural Zones
	East County	Other Areas		
1973	0	0	0	0
1974	1	0	1	100.0
1975	5	2	2	28.6
1976	7	1	4	50.0
1977	18	3	15	71.4
1978	17	6	15	65.2
1979	13	5	12	66.7
1980 First Half	1	2	2	66.7
TOTAL	62	19	51	63.0

SOURCE: Monitoring table GH-T.9.50 and 51, 10/80.

MAP 6.4
LOCATION OF CONDITIONAL LAND USE PERMITS APPROVED FOR
GRAVEL EXTRACTIONS, ROCK QUARRIES, AND SURFACE MINING, 1975-1979



SOURCE: Map number GH-M.32.9.145, 4/80.

The issuance of variances by the County has increased. However, unlike some other planning activities, variance activity is also taking place on the beach areas. Less than half of the approved variances in 1976, 1977, and 1979 were in East County though this area had 52% of this activity in 1978 and 60% for the first half of 1980. The most frequent type of variance request was for a variance of setback requirements (53% of the total activity since 1973). Map 6.5 shows the location of approved variances in the County. Unlike other indicators, this activity continues to increase.

TABLE 6.6
VARIANCE PERMIT ACTIVITY

	East County	Other Areas	Total
1973	1	6	7
1974	1	2	3
1975	13	2	15
1976	6	7	13
1977	6	9	15
1978	14	13	27
1979	10	17	27
1980 First Half	9	6	15
TOTAL	60	62	122

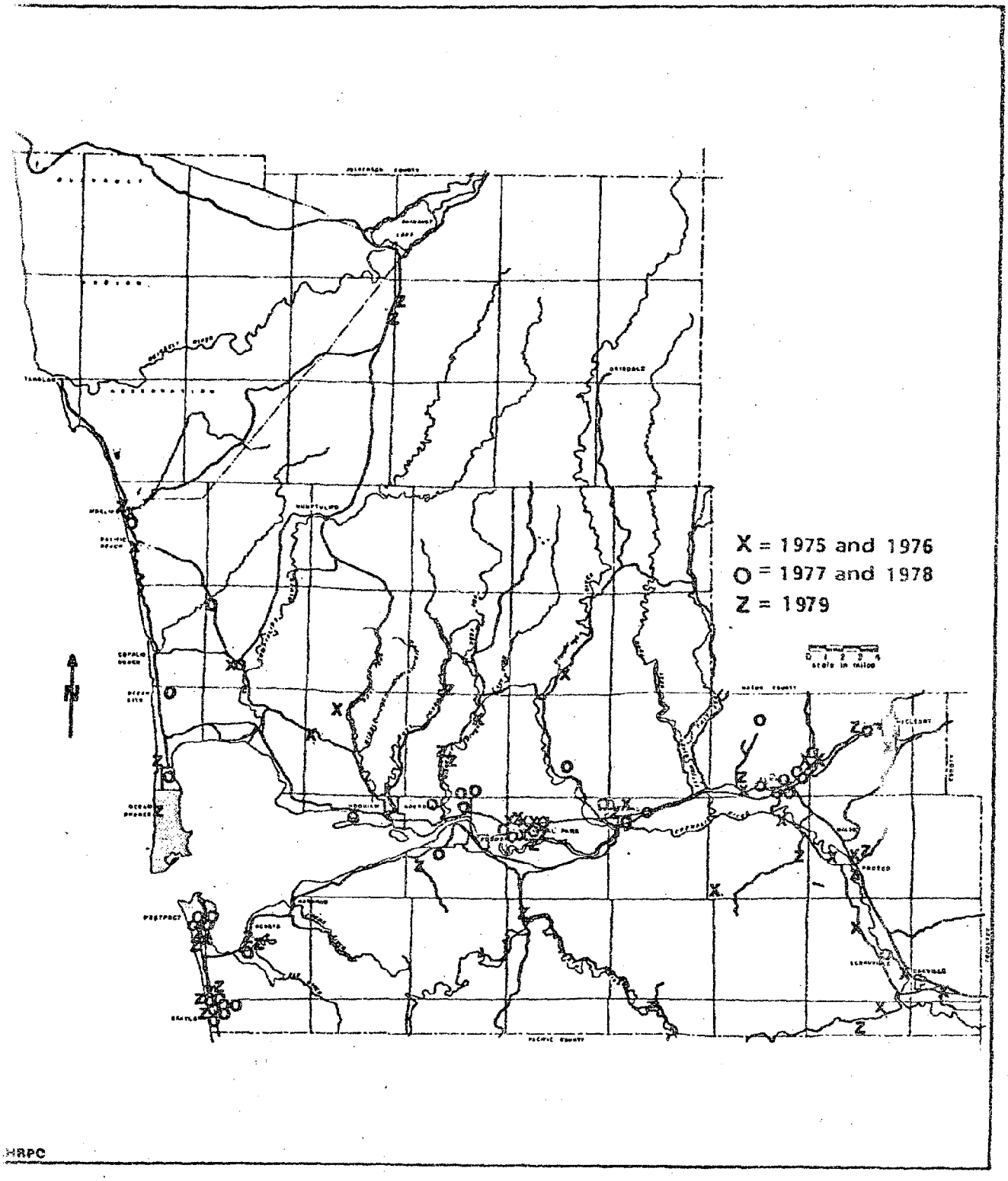
SOURCE: Monitoring table GH-T.9.52, 10/80.

6.5 Building Permits: After all necessary zoning permits are obtained, a building permit is usually the next required step for development. Graphs 6.1, 6.2, and 6.3 illustrate the activity which is occurring throughout the County. Building permit activity was up in the entire County in 1977 and 1978 with East County being no exception. In 1979, activity was still high but is below the level of the two previous years, but a sharp decline started with the first half of 1980. As noted on Graph 6.2, of the three major areas of the County, East County led in the number of permits (by number of units) issued during 1977, but in 1978, 1979, and 1980 permits dropped below that level. While this area has approximately 30% of the population, it has had over 34% of the new housing construction since the start of the Satsop project. The number of permits in West County continued to rise through 1979, but this area also appears to be slowing into 1980.

While the bulk of all permits in East County during 1977 (45%) was for multiple family units, multiple family dwellings dropped to a more characteristic level during 1978 and 1979 and are estimated to be only about 11% for 1980. Single family and mobile home starts reached a peak for the County in 1978 with single family home starts estimated to decline by 33% and mobile homes by 24% in 1980. It is noted that mobile homes in East County rose 31% in 1980 over 1979, and again reach almost the same level as 1978.

Table 6.7 identifies the location of new starts in eastern Grays Harbor County. As shown, total activity has doubled in East County since 1975 with most of the building activity being focused on the Elma area, followed closely by the Montesano area. A sharp decline appears for 1980, however. It is interesting to note that building permit activity does seem to be closely related with household growth as measured by electrical connections. The Elma

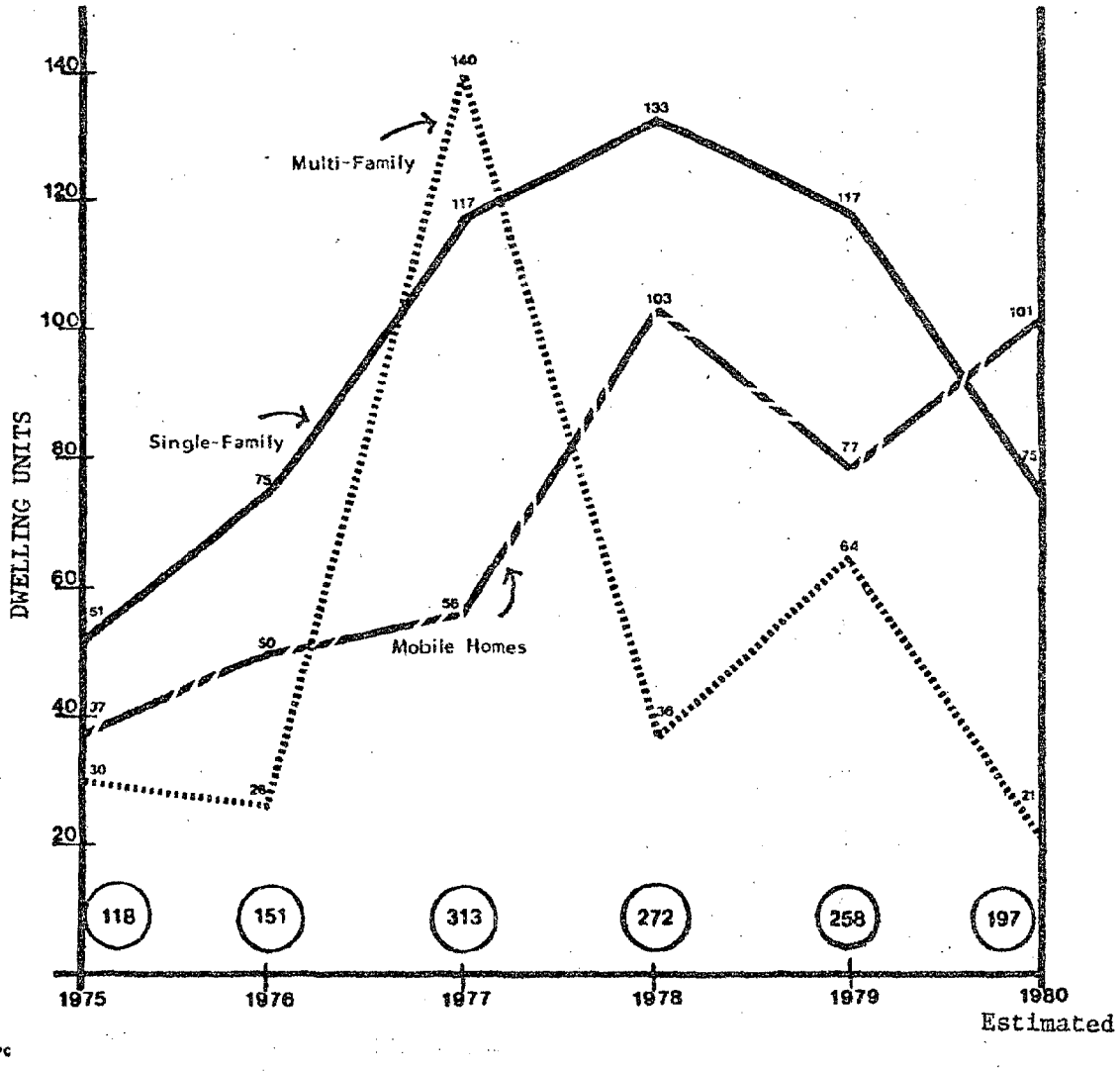
MAP 6.5
LOCATION OF VARIANCES
1975-1979



SOURCE: Map number GH-M.32.9.146, 4/80.

GRAPH 6.1

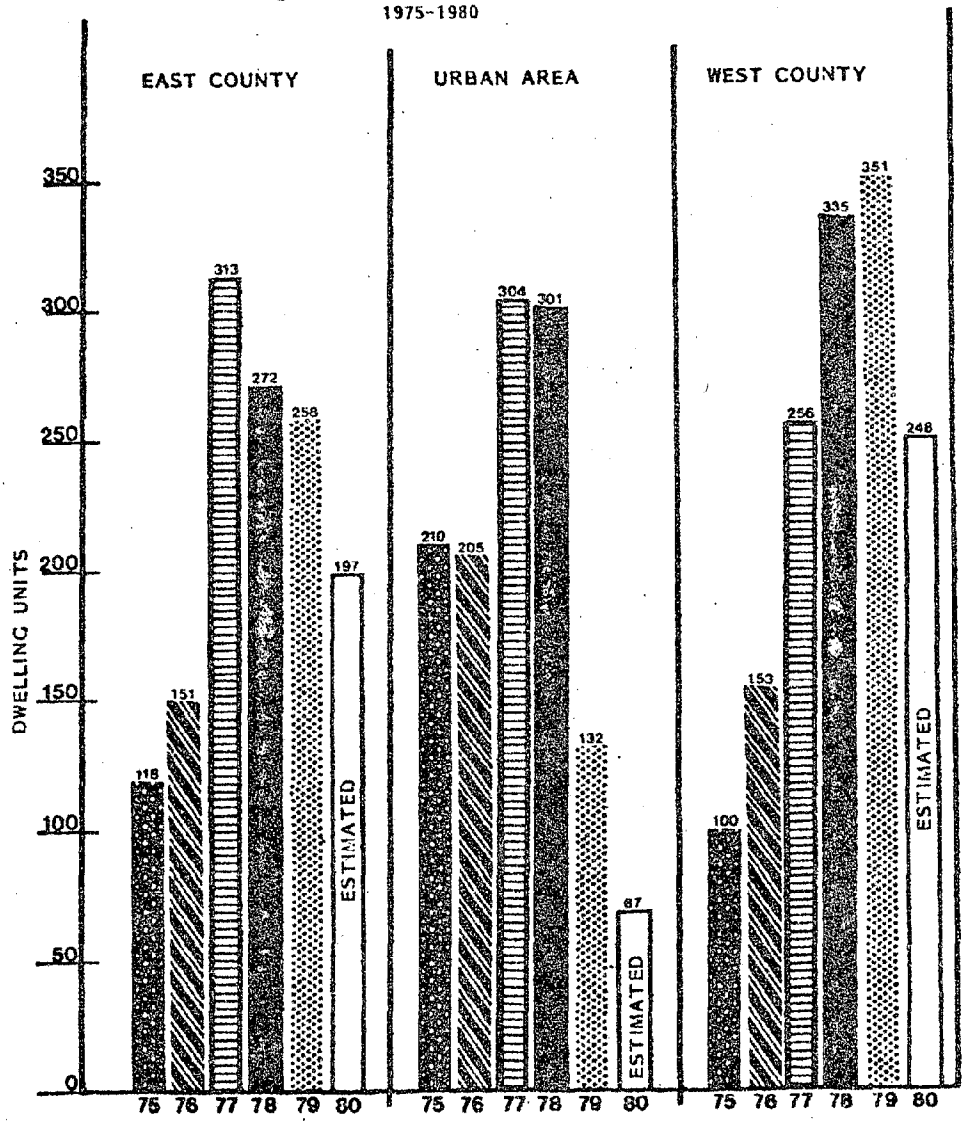
AUTHORIZED DWELLING UNITS BY TYPE
EASTERN GRAYS HARBOR COUNTY
1975-1980



SOURCE: Monitoring table GH-T.5.103, 1/81.

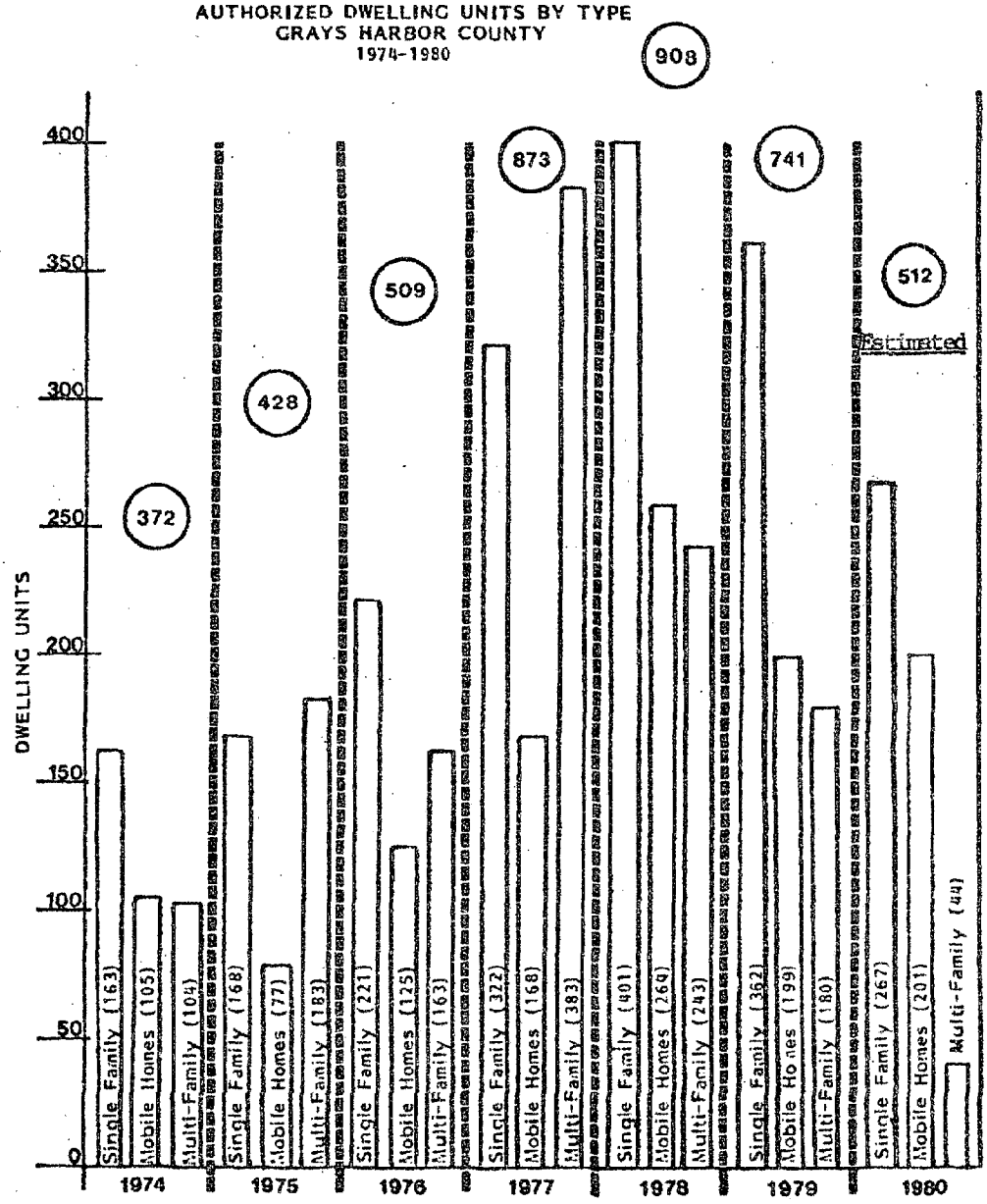
GRAPH 6.2

AUTHORIZED DWELLING UNITS BY AREA
GRAYS HARBOR COUNTY
1975-1980



SOURCE: Monitoring table GH-T.5.103, 1/81.

GRAPH 6.3
AUTHORIZED DWELLING UNITS BY TYPE
GRAYS HARBOR COUNTY
1974-1980



SOURCE: Monitoring table GH-T.5.103, 1/81.

area (including the City) leads in both activities, followed closely by Montesano. New building starts in 1979 and the first half of 1980, in nearly all areas of the County except for the Beach Area, are below the levels reached in 1977 and 1978. This probably reflects the availability of mortgage money and the high interest rates. See Section 5.4 in Chapter 5.

TABLE 6.7
NEW BUILDING STARTS BY LOCATION

	1975	1976	1977	1978	1979	1980 First Half
Central Park	11	15	14	19	22	5
Montesano City	17	8	48	32	18	2
Montesano Unincorporated Area	14	33	67	43	39	30*
Elma City	12	26	71	14	47	4
Elma Unincorporated Area	24	27	58	74	59	14
McCleary Town	16	9	17	20	5	1
McCleary Unincorporated Area	5	7	9	24	37	3
Oakville City	N/A	4	2	8	7	4*
Oakville Unincorporated Area	13	13	19	25	18	10*
Satsop	6	9	8	13	6	8*
Total East County	118	151	313	272	258	81
Urban Area	210	205	304	301	132	38
Beach and Other Areas	100	153	256	335	351	105
TOTAL COUNTY	428	509	873	908	741	224

SOURCE: Monitoring Table GH-T.5.101, 10/80.

*Greater than rate of construction in 1979.

At present it is impossible to compare building permit activity in the last few years with the early part of the decade since data for the permitting agencies are not readily available. However, the Assessor's Office has data specifying when new dwellings are placed on the assessment rolls. Since there may be a considerable time lag between the issuance of a permit and the placement of the structure on the tax rolls, information is not comparable to data presented above.[4] Table 6.8 presents this information for the East County area. As shown, there was intense building activity in the study area early in the decade which slacked off in the middle years. This was followed by a period of resurgence.[5]

In conclusion, land development activity in the study area sharply increased during 1978, especially in zoning actions which convert agricultural zones to other uses. While building activity also increased singificantly, it seems to reach a peak in 1978 with a considerable slowing of activity during 1979 and 1980. Assessor's data indicate that current activity is of a similar level to earlier periods (1972-1973) in the decade.

TABLE 6.8
COMPLETED NEW DWELLING UNITS
(Excludes Mobile Homes)
1971-1979

	Central Park and Vicinity	Elma and Vicinity	McCleary and Vicinity	Malone-Porter and Vicinity	Montesano and Vicinity	Oakville and Vicinity	Total East County
1971	26	38	12	1	43	2	122
1972	51	75	36	7	23	13	205
1973	29	35	17	6	66	14	167
1974	20	16	10	1	63	10	120
1975	16	57	17	3	14	4	111
1976	10	17	13	1	28	5	74
1977	27	52	32	3	83	4	201
1978	28	66	50	7	44	10	205
1979	34	77	42	3	38	9	203
TOTAL	241	433	229	32	402	71	1,408

SOURCE: Monitoring tables GH-T.32.5.95-100, 7/80.

6.6 Housing Costs and Availability: The Monitoring Program has observed change in both the costs and availability of housing in the East County area.

Table 6.9 and 6.10 and Graph 6.4 record large increases in both the costs of new houses and in rents. While this has been observed, the significance of this rise is difficult to assess since it is known that housing costs and rents are rising generally throughout the County and elsewhere. From 1970 to 1978, (Table 6.10) median values increased most significantly in the McCleary area. Table 6.9 illustrates similar conclusions for McCleary from 1974 to 1979 for sale costs.

While the availability of units for rent increased in the last year over 1977, (Table 6.11 and Graph 6.5) the number of homes purchased has declined (Table 6.11) from the high recorded in 1977. This again could reflect interest rates rather than availability.

Table 6.12 records the total number of units for which permits were issued county-wide since 1976. These starts, plus the County total for 1974 and 1975, are compared to projections under two different population forecast assumptions by the Regional Planning Commission for new units needed to meet regional housing needs between 1974 and 1990 (Tables 6.13 and 6.14).

As shown, housing starts for 1974, 1975, and 1976 were substantially below the identified needs. However, for the first time housing starts in 1977 were above projected needs as were starts for 1978 under all assumptions. This was also true in 1979, under almost all assumptions. In spite of this resurgence in the regional housing market, new construction still lags well below long-term housing needs. Reports from other areas of the State indicate that this sharp increase in housing starts during this period is part of a general trend, and therefore cannot be readily attributable to the Construction Project.[6]

TABLE 6.9
HOUSING COSTS[7]
EAST COUNTY

Average Monthly Advertised Rents:

	1974	1975	1976		1977		1978		1979	
		11/1-12/31	1/1-6/30	7/1-12/31	1/1-6/30	7/1-12/31	1/1-6/30	7/1-12/31	1/1-6/30	7/1-12/31
East County	N/A	$135	$149	$162	$190	$188	$228	$247	$266	$282

Average Sale Price of Three Bedroom Homes:

	1974	1975	1976	1977	1978	1979	% Change 1974-1979
Central Park and Vicinity	$30,320	$31,306	$34,333	$45,456	$50,739	$56,410	86.0
Elma and Vicinity	24,613	28,514	30,537	32,927	43,524	46,821	90.2
McCleary and Vicinity	20,729	21,670	26,891	29,150	34,334	48,344	133.2
Malone-Porter and Vicinity	Insufficient data (is included in total averages)						
Montesano and Vicinity	24,585	24,449	30,864	34,656	41,833	50,794	106.6
Oakville and Vicinity	25,951	30,944	39,542	22,280	50,188	43,971	69.4
TOTAL EAST COUNTY	$25,631	$27,641	$31,310	$34,843	$43,068	$50,208	95.9

Average Sale Price of Two Bedroom Homes:

	1974	1975	1976	1977	1978	1979	% Change 1974-1979
Central Park and Vicinity	$36,963	$22,864	$24,939	$40,552	$38,012	$64,136	73.5
Elma and Vicinity	16,563	16,765	21,926	23,503	33,753	32,028	93.4
McCleary and Vicinity	10,224	15,546	16,268	18,331	23,502	38,269	274.3
Malone-Porter and Vicinity	Insufficient data (is included in total averages)						
Montesano and Vicinity	22,607	17,935	22,950	22,521	27,384	39,540	74.9
Oakville and Vicinity	13,955	10,704	12,829	39,400	39,354	30,000	115.0
TOTAL EAST COUNTY	$19,234	$17,843	$23,162	$26,193	$31,059	$40,661	111.4

SOURCE: Table GH-T.32.5.86-92, 7/80 and Grays Harbor County Assessor's Records.

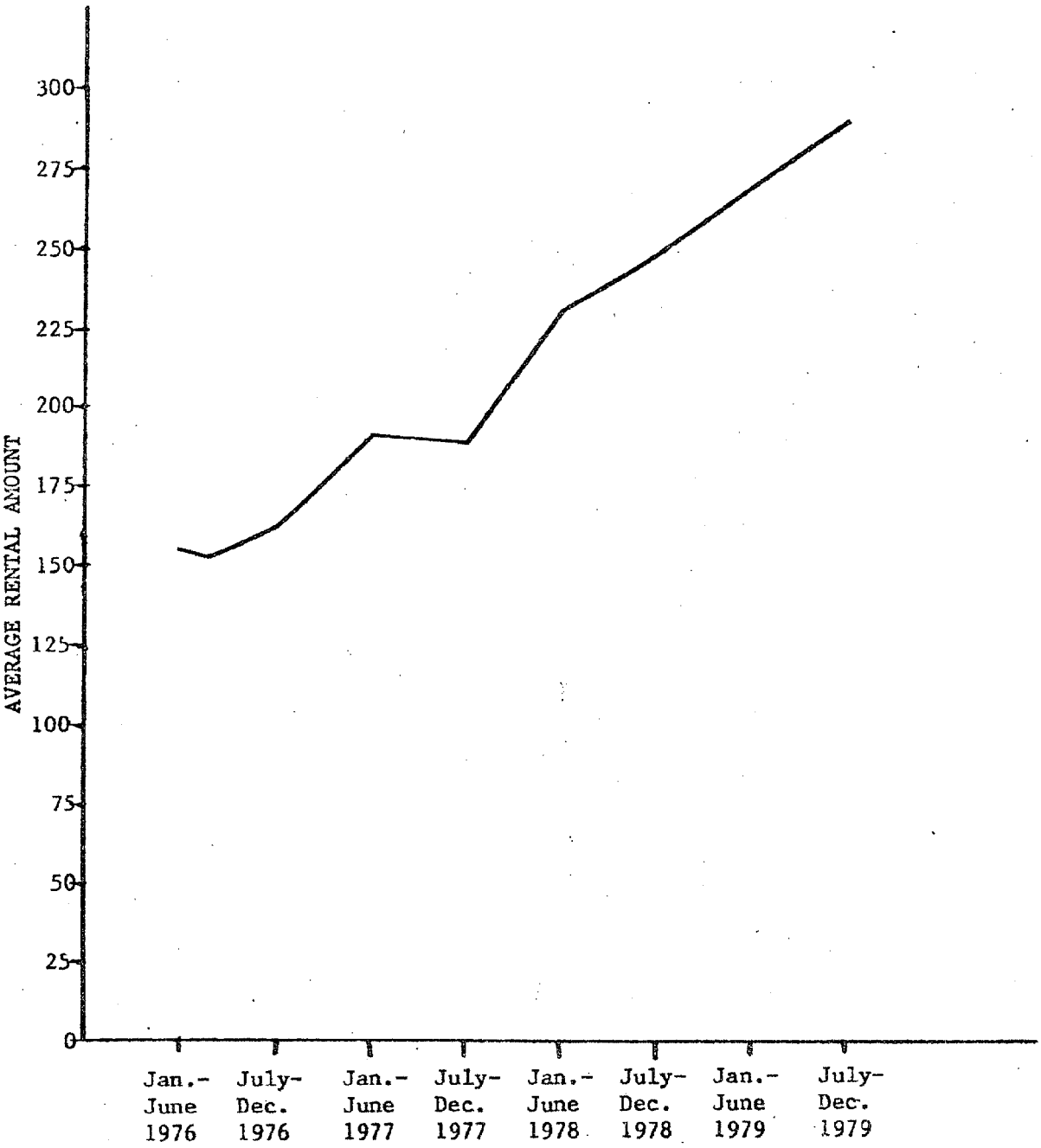
TABLE 6.10
MEDIAN RESIDENCE VALUES
GRAYS HARBOR COUNTY AND COMPARATIVE AREAS
1970-1978

	1970	1978	Percent Change
National	$17,000	$ ---	---
Washington State	18,500	---	---
Seattle-Everett	19,500	---	---
Portland, Oregon	16,700	---	---
Grays Harbor County			
Aberdeen	13,445	28,177	109.6
Westport	14,285	24,999	75.0
Ocean Shores	23,333	35,714	53.1
East County Area			
Central Park	22,415	44,473	98.4
Montesano	15,721	31,660	101.4
Elma	13,981	34,990	150.3
McCleary	12,319	27,857	126.1
Oakville	$ 8,447	$19,166	126.9

SOURCE: GH-T.32.5.62, 6/79.

GRAPH 6.4

AVERAGE RENT PER UNIT (ALL UNITS INCLUDED REGARDLESS OF TYPE)
MONTESANO, ELMA, MCCLEARY, SATSOP, AND OAKVILLE
(EAST COUNTY), GRAYS HARBOR COUNTY



SOURCE: Chart number GH-C.32.5.10, 7/80.

TABLE 6.11
HOUSING AVAILABILITY[8]
EAST COUNTY

Average Monthly Number of Rental Units Advertised:

	1974	1975 (Nov.-Dec.)	1976 Jan.-June	1976 July-Dec.	1977 Jan.-June	1977 July-Dec.	1978 Jan.-June	1978 July-Dec.	1979 Jan.-June	1979 July-Dec.
East County	N/A	11	13.5	6.5	6.7	9.8	14	11	12.2	18.5

Total Number of Sales of Three Bedroom Homes:

	1974	1975	1976	1977	1978	1979	% Change 1974-1979
Central Park and Vicinity	35	42	55	62	38	42	20
Elma and Vicinity	27	35	36	41	41	38	41
McCleary and Vicinity	17	15	26	60	42	31	82
Malone-Porter and Vicinity	0	0	3	6	4	2	-
Montesano and Vicinity	32	46	48	49	49	44	38
Oakville and Vicinity	13	12	15	14	16	12	-8
TOTAL EAST COUNTY	124	150	183	232	190	169	36

Total Number of Sales of Two Bedroom Homes:

	1974	1975	1976	1977	1978	1979	% Change 1974-1979
Central Park and Vicinity	13	14	12	28	20	12	-8
Elma and Vicinity	19	27	23	46	38	19	0
McCleary and Vicinity	13	9	29	30	31[9]	13[9]	0
Malone-Porter and Vicinity	4	3	7	7	2	2	-50
Montesano and Vicinity	30	29	40	37	33	22	-27
Oakville and Vicinity	13	9	9	10	17	7	-46
TOTAL EAST COUNTY	92	91	120	158	141	75	-18

SOURCE: Tables GH-T.32.5.86-92, 7/80 and Grays Harbor County Assessor's records.

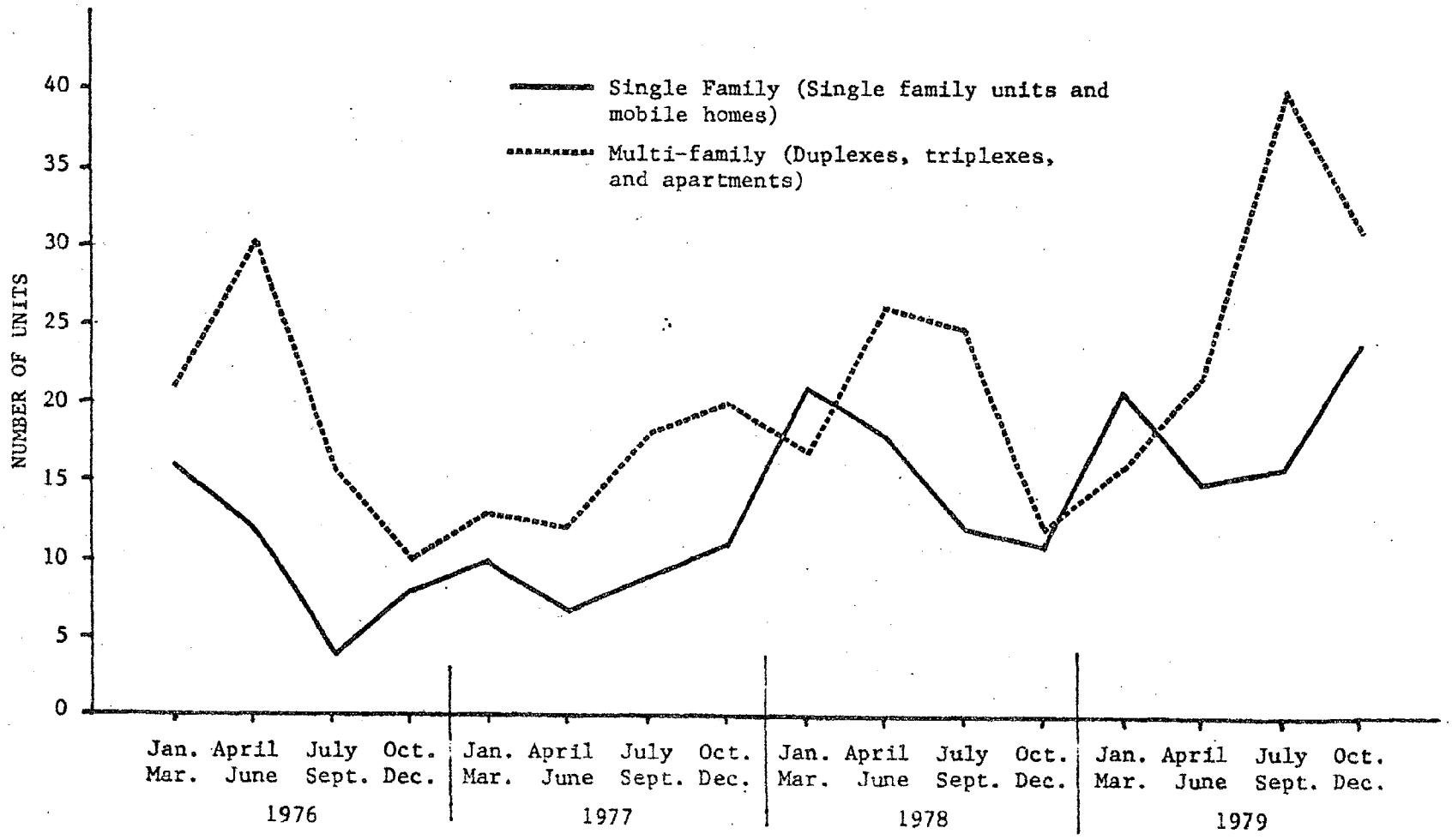
TABLE 6.12
INCREASES IN HOUSING STARTS
IN GRAYS HARBOR COUNTY BY AREA
1976-1979

	1976	1977	1978	1979	1976-1979 Number Increase	1976-1979 Percent Increase
Satsop	9	8	13	6	-3	-33.3
Central Park	15	14	19	22	7	46.7
Oakville Area*	17	21	33	25	8	47.1
McCleary Area	16	26	44	42	26	162.5
Montesano Area	41	115	75	57	16	39.0
Elma Area	53	129	88	106	53	100.0
East County	151	313	272	258	107	70.9
Urban Area	205	304	301	132	-73	-35.6
Rest of County	153	256	335	351	198	129.4
Total County	509	873	908	741	232	45.6

*Includes Malone-Porter and Vicinity.

SOURCE: Monitoring table GH-T.5.103, 1/81.

GRAPH 6.5
NUMBER OF UNITS (BY TYPE) ADVERTISED AS AVAILABLE
MONTESANO, ELMA, MCCLEARY, SATSOP, AND OAKVILLE (EAST COUNTY), GRAYS HARBOR COUNTY



SOURCE: Chart number GH-C.32.5.9, 7/80.

However, the clear focus of new starts on Elma, as seen on Table 6.12, suggests that the communities near the Site are particularly attractive to housing investment. This attractiveness would seem to be at least partially related to the prospective economic and population growth which is expected to occur due to the Project. Also, in spite of a tightening of the money market and rising interest rates, new housing starts are still significantly higher than they were in 1976.

TABLE 6.13
ANNUAL UNITS REQUIRED TO MEET REGIONAL 1990 CONSTRUCTION GOALS AND CURRENT CONSTRUCTION WITH CONTINUED ECONOMIC DEVELOPMENT 1974-1979

		Annual Goal		Surplus/Deficit	
Year	Actual New Construction	With Aggressive Rehabilitation	Without Aggressive Rehabilitation	With Aggressive Rehabilitation	Without Aggressive Rehabilitation
1974	372	676	853	-304	-481
1975	428	676	853	-248	-425
1976	509	676	853	-167	-344
1977	873	676	853	197	20
1978	908	676	853	232	55
1979	741	676	853	65	-112
TOTAL	3,831	4,056	5,118	-225	-1,287

SOURCE: Grays Harbor Region Housing Element, Grays Harbor Regional Planning Commission, June 1979, as updated.

TABLE 6.14
ANNUAL UNITS REQUIRED TO MEET REGIONAL 1990 CONSTRUCTION GOALS AND CURRENT CONSTRUCTION WITH POOR ECONOMIC CONDITIONS 1974-1979

		Annual Goal		Surplus/Deficit	
Year	Actual New Construction	With Aggressive Rehabilitation	Without Aggressive Rehabilitation	With Aggressive Rehabilitation	Without Aggressive Rehabilitation
1974	372	517	671	-145	-299
1975	428	517	671	-89	-243
1976	509	517	671	-8	-162
1977	873	517	671	356	202
1978	908	517	671	391	237
1979	741	517	671	224	70
TOTAL	3,831	3,102	4,026	729	-195

SOURCE: Grays Harbor Region Housing Element, Grays Harbor Regional Planning Commission, June 1979, as updated.

6.7 Actual Land Use Change: Zoning and land division actions do not automatically lead to an actual change in use. Consequently, such actions are only an indication of where land use change might occur in the future, and other information is needed to assess the actual change that is occurring in the area. As a part of the Monitoring Program, actual changes in use are being observed.

In 1977, all land uses were inventoried in areas where settlement patterns were focused in East County.[10] These original inventory areas are identified on Map 6.6. This inventory was then updated in 1978, 1979, and 1980. Thus, all change can be identified by comparing these inventories. The expanded areas, also shown on Map 6.6, were inventoried for the first time in 1980 and noted all changes from base information taken from 1977 aerial photographs. All inventories are on file with the Regional Planning Commission and were published as maps and tables in the December 1978, January 1980, and January 1981 editions of the Monitoring Reports.

Table 6.15 tabulates the acres of land use change identified in this process from 1977 to 1980. Within the inventoried area, a total of 1,069 acres changed use. Table 6.16 tabulates the number of land use changes that have occurred, a total of 959. The most significant new use is residential, comprising 39% of the total acres changed and 84% of the total number of changes. The most frequent type of new residential use is classifed as low density. In all inventoried areas, a total of 755 changes, comprising 374 acres, created new low density residential use. Of the total area inventoried, 165 acres changed to low density residential use which had been forest lands, 116 had been vacant (i.e. not in an identifiable use) and 101 acres had been in agriculture uses.

New industrial uses constituted 34% of the total change in acres. Out of the total, 361 acres changed to industrial use, 330 acres or 91% of the total are now used for gravel pits. The land now used for gravel pits was originally in forest (163 acres), agricultural uses (154 acres), and vacant (14 acres). With the exception of public/semi public uses (11%), and agricultural uses (9%), all other new uses (commercial, vacant, and forest) amounted to 5% or less of the total new use of acreage. The west laydown area for the Satsop Construction Project accounted for 100 acres of the 121 total acres changed to public/semi-public use. Almost all new uses occur on land previously classified as forest, agricultural, or vacant land. The amount of forest land lost to development is 529 acres, accounting for approximately 50% of the total. Development occurred on 321 acres of former agricultural land (30%) and on 178 acres previously classified as vacant (17%).

Tables 6.17 and 6.18 shows the acres of change and the number of changes for the incorporated areas of East County. New low density residential use occurred in the incorporated area on only 33 acres out of the total of 374 (9%) and 125 changes out of the total of 755 (17%). This indicates that this kind of development is far greater in the unincorporated areas of East County.

Tables 6.19 and 6.20 give the general distribution of all land use change by acres and units in the inventoried areas. Map 6.7 graphically compares the changes in each of the inventory areas. Since this table excludes gravel pits, it consists primarily of residential uses, and mostly of a low density character.

MAP 6.6

LAND USE INVENTORY AREAS
EASTERN GRAYS HARBOR COUNTY
1977-1980

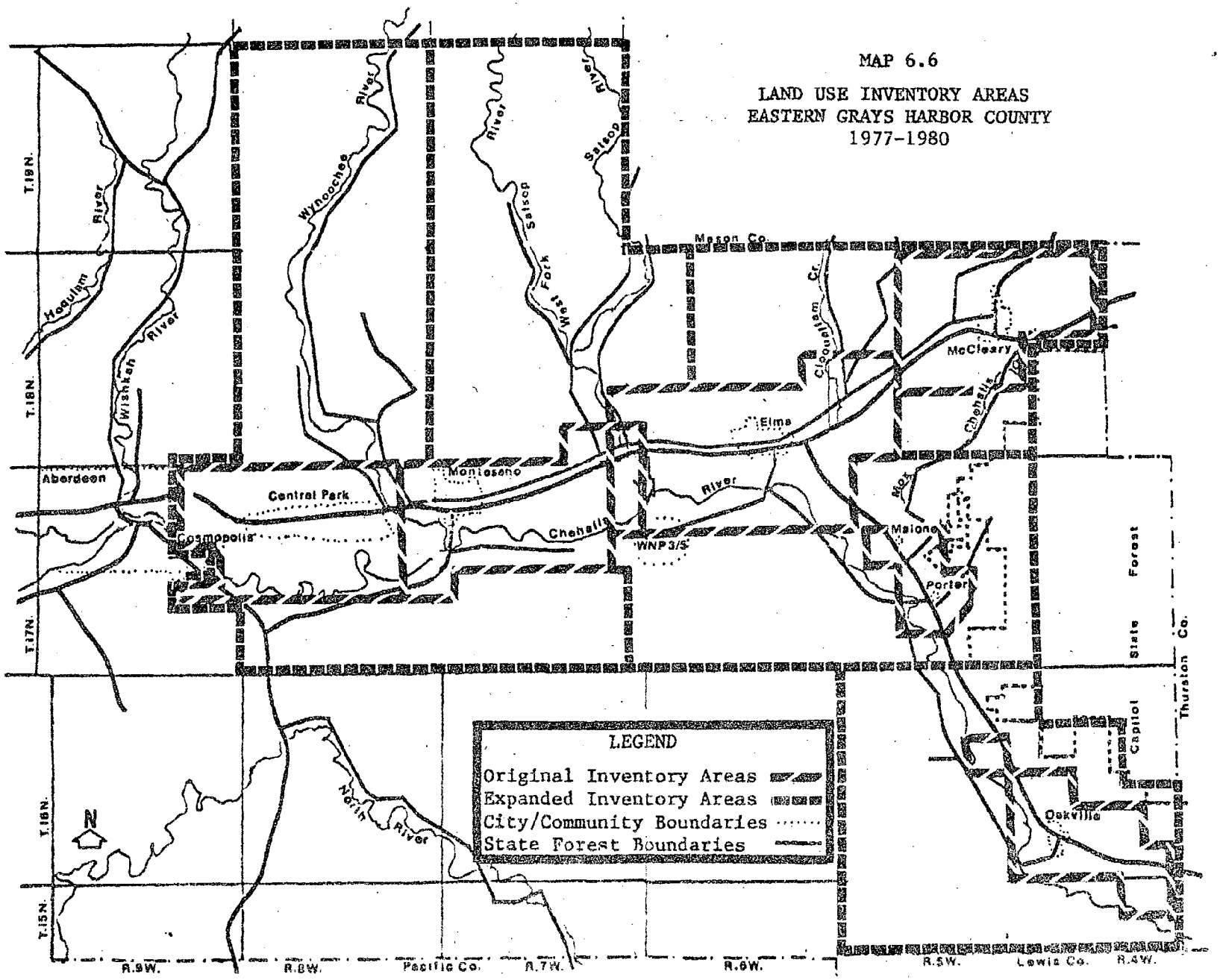


TABLE 6.15
TOTAL ACRES OF LAND USE CHANGES-ORIGINAL AND EXPANDED INVENTORY AREAS
EASTERN GRAYS HARBOR COUNTY
1977-1980

	Original Use and Acres of Change								
New Use	Residential	Agricultural	Industrial	Commercial	Public/ Semi Public	Vacant	Forest	Total Change	% of Total Change
Residential	.56	111.75	.70	1.21		138.99	162.40	415.61	39
Low Density		100.75	.70	1.21		115.60	156.15	374.41	35
Moderate	.56	11.00				20.62	6.25	38.43	4
High						2.77		2.77	*
Agricultural						4.30	94.00	98.30	9
Industrial Total	3.76	169.02				16.80	171.40	360.98	34
Gravel		153.52				13.80	162.60	329.92	31
Commercial	5.63	1.50			.50	6.28	1.50	15.41	1
Public/ Semi Public	10.70			.61		9.50	100.00[1]	120.81	11
Vacant	14.57	38.15		.70	.16	2.50		56.08	5
Forest	.50	1.00						1.50	*
Total	35.72	321.42	.70	2.52	.66	178.37	529.30	1,068.69	100%
Percent	3%	30%	*	*	*	17%	50%	100%	

*Less than 1%.
Percentages might not total 100% due to rounding.
[1]Represents the west laydown area for the Satsop Construction Project.

TABLE 6.16
TOTAL NUMBER OF LAND USE CHANGES-ORIGINAL AND EXPANDED INVENTORY AREAS
EASTERN GRAYS HARBOR COUNTY
1977-1980

	Original Use and Number of Changes								
New Use	Residential	Agricultural	Industrial	Commercial	Public/ Semi Public	Vacant	Forest	Total Change	% of Total Change
Residential	3	180	2	5		356	260	806	84
Low		176	2	5		314	258	755	79
Moderate	3	4				38	2	47	5
High						4		4	*
Agricultural						1	2	3	*
Industrial Total	3	7				5	11	26	3
Gravel		4				1	6	11	1
Commercial	21	3		4	1	18	3	50	5
Public/ Semi Public		5		4		3	2	14	2
Vacant	51	2		3	1			57	6
Forest	1	2						3	*
Total	79	199	2	16	2	383	278	959	100%
Percent	8%	21%	*	2%	*	40%	29%	100%	

*Less than 1%.
Percentages might not total 100% due to rounding.

TABLE 6.17
TOTAL ACRES OF LAND USE CHANGES-INCORPORATED AREAS
EASTERN GRAYS HARBOR COUNTY
1977-1980

	Original Use and Acres of Change								
New Use	Residential	Agricultural	Industrial	Commercial	Public/ Semi Public	Vacant	Forest	Total Change	% of Total Change
Residential	.56	2.75		.47		38.35	2.50	44.63	68
Low Density		2.75		.47		27.21	2.25	32.68	50
Moderate	.56					9.87	.25	10.68	16
High						1.27		1.27	2
Industrial	.14						1.00	1.14	2
Commercial	2.28				.50	2.98		5.76	9
Public Semi Public				.51		1.00		1.51	2
Vacant	4.17	8.15		.10	.16			12.58	19
Total	7.15	10.90		1.08	.66	42.33	3.50	65.62	100%
Percent	11%	17%		2%	1%	65%	5%	100%	

Percentages might not total 100% due to rounding.

TABLE 6.18
TOTAL NUMBER OF LAND USE CHANGES-INCORPORATED AREAS
EASTERN GRAYS HARBOR COUNTY
1977-1980

	Original Use and Number of Changes								
New Use	Residential	Agricultural	Industrial	Commercial	Public/ Semi Public	Vacant	Forest	Total	Percent
Residential	3	5		3		127	6	144	72
Low Density		5		3		112	5	125	62
Moderate	3					13	1	17	8
High						2		2	1
Industrial	1						1	2	1
Commercial	13				1	11		25	12
Public/ Semi Public				3		1		4	2
Vacant	23	1		1			1	26	13
Total	40	6		7	1	139	8	201	100%
Percent	20%	3%		3%	*	69%	4%	100%	

Percentages might not total 100% due to roumding.

TABLE 6.19
ACRES OF LAND USE CHANGE (EXCLUDING GRAVEL PITS)
ORIGINAL AND EXPANDED INVENTORY AREAS
EASTERN GRAYS HARBOR COUNTY
1977-1980

	Original Use and Acres of Change					
Original Inventory Areas	In Incorporated Areas	In Agricultural Areas	In Forest Areas	In Other Rural Areas	Total	Percent
Central Park	--	1.00	5.30	24.40	30.70	4
Montesano and Area	9.12	37.95	15.60	48.78	111.45	15
Elma and Area	31.18	45.00	165.40	38.06	279.64	38
McCleary and Area	11.96	15.20	13.00	7.60	47.76	7
Porter/Malone Area	--	2.00	3.00	2.40	7.40	1
Oakville and Area	13.18	29.50	106.00	13.80	162.48	22
Subtotal	65.44	130.65	308.30	135.04	639.43	88
Expanded Inventory Areas						
South of Central Park and Montesano Planning Areas	--	--	1.00	--	1.00	*
Wynoochee Valley	--	5.50	14.50	1.50	21.50	3
Satsop Valley	--	8.00	11.50	3.50	23.00	3
North of Elma Planning Area	--	--	6.50	--	6.50	1
South of McCleary Planning Area	--	--	--	.50	.50	*
Vicinity of Elma and Malone-Porter Planning Areas	--	5.00	8.00	.50	13.50	2
Vicinity of Oakville Planning Area	--	9.50	10.00	5.00	24.50	3
Subtotal	--	28.00	51.50	11.00	90.50	12
Grand Total	65.44	158.65	359.80	146.04	729.93	100
Percent	9%	22%	49%	20%	100%	

*Less than 1%.
Percentages might not total 100% due to rounding.

As in virtually every other factor of change, the Elma area has the most acres changed (38% of the total) and also the most in number (26% of the total). Oakville, in contrast to most other indicators of change discussed in this report, has been the site of significant activity in land use change comprising 22% of the change in acreage (the second highest behind Elma) and 13% of the number of changes. The Montesano area is third in the number of acres changed (15% of the total), but has the second highest number of changes (21% of the

MAP 6.7

LAND USE CHANGE BY INVENTORY AREAS
(EXCLUDING GRAVEL PITS)
EASTERN GRAYS HARBOR COUNTY
1977-1980

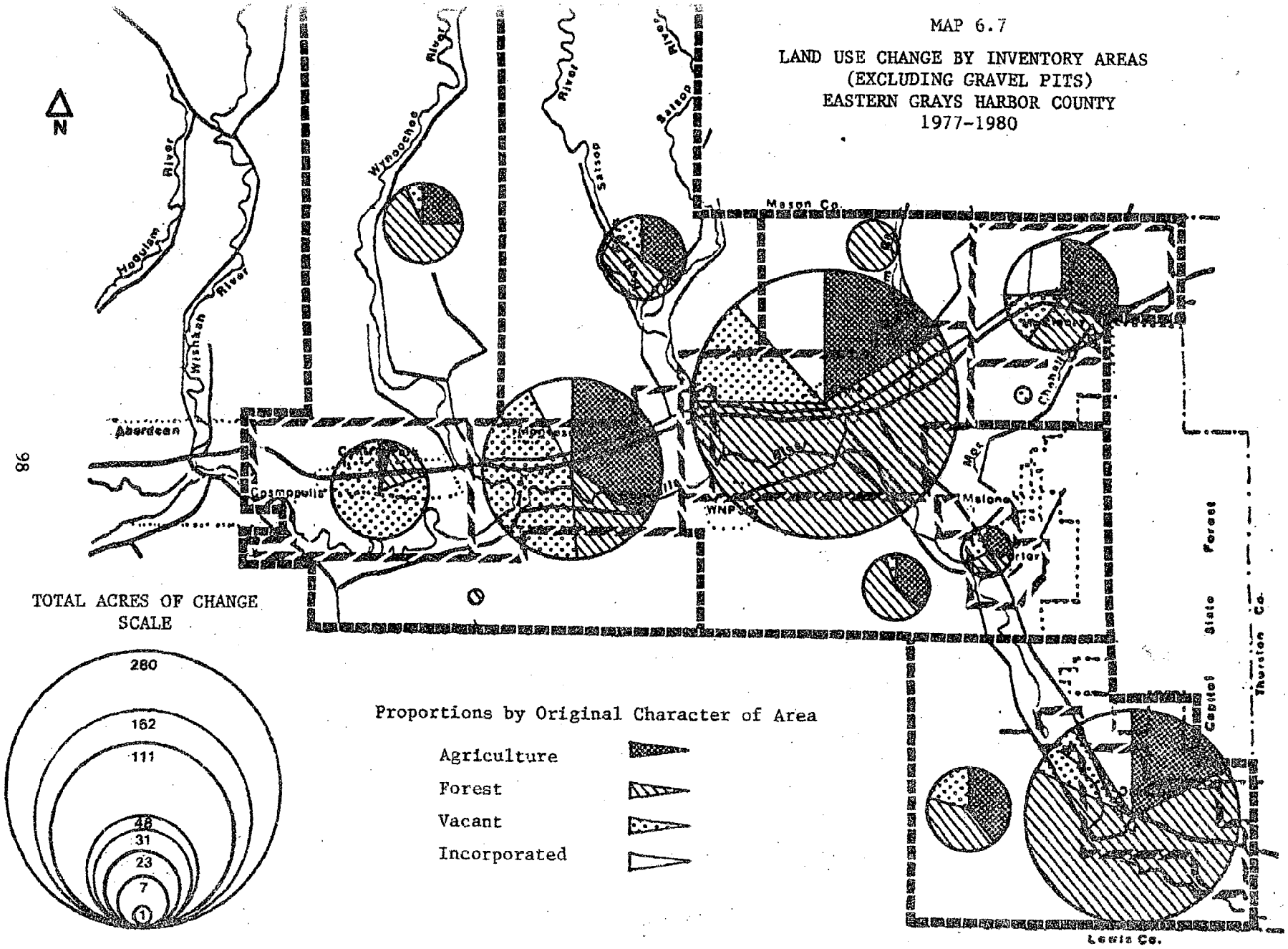


TABLE 6.20
NUMBER OF LAND USE CHANGES (EXCLUDING GRAVEL PITS)
ORIGINAL AND EXPANDED INVENTORY AREAS
EASTERN GRAYS HARBOR COUNTY
1977-1980

Original Inventory Areas	Original Use and Number of Changes: In Incorporated Areas	In Agricultural Areas	In Forest Areas	In Other Rural Areas	Total	Percent
Central Park	--	5	17	70	92	10
Montesano and Area	47	16	26	112	201	21
Elma and Area	79	35	85	43	242	26
McCleary and Area	37	22	24	13	96	10
Porter/Malone Area	--	4	3	8	15	2
Oakville and Area	38	51	19	18	126	13
Subtotal	201	133	174	264	772	82
Expanded Inventory Areas						
South of Central Park and Montesano Planning Areas	--	--	2	--	2	*
Wynoochee Valley	--	11	15	3	29	3
Satsop Valley	--	16	25	7	48	5
North of Elma Planning Area	--	--	13	--	13	1
South of McCleary Planning Area	--	--	--	1	1	*
Vicinity of Elma and Malone-Porter Planning Areas	--	10	16	1	27	3
Vicinity of Oakville Planning Area	--	19	20	10	49	5
Subtotal	--	56	91	22	169	18
Grand Total	201	189	265	286	941	100
Percent	21%	20%	28%	30%	100%	

*Less than 1%.
Percentages might not total 100% due to rounding.

total). The expanded inventory areas had only 12% of the total acreage that changed use and 18% of all land use changes. In the expanded inventory areas, the most activity appears to be in the Satsop and Wynoochee Valleys and in the vicinity of the Oakville planning area.

Table 6.21 illustrates that the intensiveness of land use changes varies significantly between areas. In Central Park the land area involved in each change is very small, about one third of an acre, while in the Elma and Oakville areas each change averaged more than one acre.

TABLE 6.21
RATIO OF ACRES TO NUMBER OF CHANGES
(EXCLUDING GRAVEL PITS)
1977-1980

Original Inventory Areas	Number Of Acres	Number Of Changes	Acres Per Change
Central Park	30.70	92	.334
Montesano and Area	111.45	201	.554
Elma and Area	279.64	242	1.156
McCleary and Area	47.76	96	.498
Porter/Malone Area	7.40	15	.493
Oakville and Area	162.48	126	1.290
Subtotal	639.43	772	.828
Expanded Inventory Areas			
South of Central Park and Montesano Planning Areas	1.00	2	.500
Wynoochee Valley	21.50	29	.741
Satsop Valley	23.00	48	.479
North of Elma Planning Area	6.50	13	.500
South of McCleary Planning Area	.50	1	.500
Vicinity of Elma and Malone-Porter Planning Areas	13.50	27	.500
Vicinity of Oakville Planning Area	24.50	49	.500
Subtotal	90.50	169	.536
Grand Total	729.93	941	.776

Table 6.19 also illustrates that only 9% of the acres changed are in incorporated areas, while 49% are in unincorporated forest areas, and 22% are in unincorporated agricultural areas. Most of the agricultural land losses occurred in the Elma area (45 acres), the Montesano area (38 acres) and the Oakville area (30 acres). Of the incorporated areas, the city of Elma changed the most followed, surprisingly, by Oakville. The fact that 91% of the acres changed (again, excluding gravel pits) and 79% of the number of changes has occurred in the unincorporated areas may be one of the observations of this Monitoring Project which has long-term implications. This change can be described appropriately as urban sprawl in areas with minimal, if any, public services and facilities. If this sprawl continues, additional public expenditures may be needed to support these new developments. A growing body of literature at the national, state, and local levels are suggesting that continued urban sprawl creates considerable long-term costs to local governments and that more orderly patterns of growth may significantly reduce these costs.[11]

In addition to such costs, sprawl into agricultural areas interferes with the retention of these areas in agriculture. Not only do residences themselves

displace agriculture, residential uses also conflict with adjacent farming activities. Families often object to farming practices such as fertilizing and spraying, and children or pets may interfere with farm activities. This, coupled with increased land values induced by new development, frequently leads to further conversion of agricultural land and the breakup of economic farm units.[12]

6.8 Land Development and the Project: Except for the obvious example of gravel pits, the relationship between the Construction Project and the adverse effects of land development discussed in this Chapter (increased urban sprawl and conversion of agricultural land) is indirect at best. While there is an obvious relationship between the Project and land development (accounting for approximately 68% of the demand for total new housing units from 1977-1980 in East County, Table 3.8), the Project cannot be held completely responsible for the specific location of development and, hence, the undesirable aspects. It is clear that the population and economic growth either created or induced by the Project has created a significant portion of this market for this land development. It also appears that the presence of the Project has tended to attract and focus investment and, hence, land developers in East County and Elma in particular. It might even be asserted that without the Project the focus of this development might not have been on Elma. However, the Satsop Project has little, if any, influence on whether land development will occur on agricultural land or in incorporated areas. This effect could occur only if there were no opportunities in appropriate locations, but this generally is not the case.[13] Specific development decisions are made by land owners and residential developers acting independently in a competitive market. Only local government planning and zoning authority has the ability to reduce these problems once the market develops. The ability of a local government to respond to these problems is determined by a complex interaction of political pressures, public awareness, and financial ability. Potential pressures for development has in the past tended to make response less than effective. Awareness of the problems associated with uncontrolled development is increasing and may lead to greater effectiveness.

While the project is responsible for a portion of the market leading to these problems, its presence has also, again indirectly, assisted in increasing the ability of the local area to respond to these pressures. This has occurred in several ways:

1. Direct financial assistance to local governments to build infrastructures and provide services;
2. Direct tax payments and indirect tax revenue from increased economic activity;
3. Planning assistance to cities;
4. Qualifying the area for grants to address these issues;
5. Financing the Monitoring Project which increases knowledge about these problems; and,
6. The Project's controversial nature stimulates greater attention and concern for these problems than what otherwise would exist.

While this Chapter has indicated that the ability of this area to respond to these pressures is less than fully effective, it, nonetheless, is likely that conditions could be worse and much activity is now occurring to reduce these problems.[14]

The land development now occurring in the region does have very significant positive effects. Nonetheleast of these is the increase in the housing supply. The region in general and East County in particular, especially Elma, has had for many years severe housing problems, both in terms of undersupply and in condition. The economic stimulus and its related improvement in investment climate in East County unquestionably has assisted in creating good years in housing construction, permitting the region to exceed its annual housing goals (Table 6.13). Even with the growth stimulated by the project, housing construction has kept pace leading to an increase in availability (Table 6.11). This housing supply will remain available after the project is completed.

6.9 Conclusion: Land development activities have increased dramatically since the start of the Project proceeding at a particularly rapid pace during the first two years of construction, then moderating in part. This increase has occurred in all phases of the development process, from zoning actions to actual changes in land use. This activity is generally focused on the Elma area. Land development occurs more frequently in unincorporated areas rather than in the cities of East County.

Land development activities of both the speculative nature and of actual construction are leading to an increase in the loss of agricultural land and in urban sprawl. As such, these activities have long-term implications on the area. Land development activities have also greatly increased the housing supply and housing availability in East County.

The Project itself has a very significant and direct impact on land development and use patterns in the form of creating large expanses of gravel pits. This is probably the most significant visual impact of this Project to date and has resulted in the permanent loss of many acres of farm lands. The relationship of the Project to other aspects of land development is basically indirect--creating a major part of the market and improving the investment climate, especially as it relates to the Elma area. The Satsop project has also tended to increase public concern about and attention to land development activity.

CHAPTER 6
NOTES

1. The number of zone conversions and conditional use permits granted in agricultural zones warrant particular attention since it portends a significant environmental impact of the Project. However, the number of changes or permits granted as cited in this report do not necessarily in themselves provide any idea of the significance of this activity. Since extensive areas of the County are zoned agricultural, it is possible that many of these conversions might be appropriate. Further research is needed to identify acres of land involved, types of soils, whether the use actually does change, and presence of other factors. Two separate studies are currently being undertaken, "Agricultural Land Policies" and "Rural Land Policies" to address this issue by Grays Harbor Regional Planning Commission and the County.

2. The agricultural zone has had a ten (10) acre minimum lot size and has uses generally restricted to agriculturally related activities. The

General Development zone is a mixed rural zone allowing a variety of uses on a low density basis; it generally has a five (5) acre minimum lot size, and it does allow mobile home courts as a conditional use.

3. See note 1 above.

4. This discrepancy between building permit data and Assessor records could be a significant limitation to the use of building permit data, and further research should be undertaken.

5. While much of the data contained in the State Housing Report for our area is not accurate (1978 Housing Report, op. cit.), their building permit data for the State gives a similar pattern of high construction activity early in the decade.

6. This conclusion is derived from information in the Thurston County portion of the Monitoring Program, and from controversies being extensively reported in the Seattle media.

7. Each sale is included regardless of age, condition, acreage, or other items that might be included in the sale. Thus, a very large sale or a very small sale could deflate or inflate these figures in any one year. These figures are, therefore, not totally comparable to figures shown on table GH-T.32.5.93, 7/80 which do not include the sale price of residences which included more than ten acres of land.

8. These figures include transactions where the sale price is not known.

9. In the platted areas outside the town limits of McCleary (Township 18, Range 5), there were insufficient sales of two bedroom homes to develop averages. Two sales, one in 1978 and one in 1979, therefore, did not appear on table GH-T.32.5.89, 7/80 but are included in these figures.

10. The methodology for this inventory is discussed in the December 1978 Monitoring Report, and in a series of planning analyses for each of those planning areas. These analyses also discuss land use patterns and trends prior to the Construction Project:

- City of Montesano Comprehensive Plan, Part I, Inventory and Analysis, Grays Harbor Regional Planning Commission, 1977.
- City of Elma Comprehensive Plan, Part I, Inventory and Analysis, Grays Harbor Regional Planning Commission, 1978.
- Town of McCleary Comprehensive Plan, Part I, Inventory and Analysis, Grays Harbor Regional Planning Commission, 1978.
- City of Oakville Comprehensive Plan, Part I, Inventory and Analysis, Grays Harbor Regional Planning Commission, 1978.
- Planning Analysis For Central Park, Part I, Inventory and Analysis, Grays Harbor Regional Planning Commission, 1978.

11. Problems associated with urban sprawl in Grays Harbor County are discussed at length in the Grays Harbor Region Housing Element, Grays Harbor

Regional Planning Commission, 1979. Other major studies include Costs of Sprawl, Real Estate Research Corporation for the Council on Environmental Quality, 1974, and Cost of Growth: Public Costs of Alternative Development Patterns, King County, 1979.

12. These problems have been identified and discussed by a special committee for agricultural policy development appointed by the County Board of Commissioners in 1979.

Land Use: Tough Choices in Today's World, Soil Conservation Society of America, 1977, offers an overall discussion of agricultural vs. development issues.

13. See land use analyses cited in Note 10, and the Region Housing Element cited in Note 11. These reports have generally concluded that sufficient area is available in appropriate locations to accommodate much of this growth pressure. The major exception to this may be in the City of Montesano.

14. Unlike many nonmetropolitan counties, this County was completely zoned prior to the Construction Project with an extensive agricultural zone on most agricultural lands. Furthermore, much of the prime agricultural land is also controlled by means of a strong shoreline management program in the floodplains. (Indeed, residential development on floodplains has been minimal.) These controls have probably diverted a considerable amount of development pressure. The project and the development discussed in this Chapter has stimulated far greater interest in land use problems than existed before. All four cities and the County have completed or are undertaking massive adjustments to their land use programs with a significant portion of these efforts being funded by the Power System or by grants made available because of the Construction Project.

CHAPTER 7

SOCIAL CONCERNS

7. SOCIAL CONCERNS

7.1 Introduction: In any comprehensive analysis of this type, it is imperative to look at those changes that might occur as the result of this Construction Project that affect other than physical or land use type of issues. These concerns are usually referred to as "social" issues. Data are generally "softer" in this area, thus it is much more difficult to make a direct correlation of any occurrence to any other occurrence. While this report touches briefly on social issues as they relate to characteristics of the Satsop labor force with comparisons to Grays Harbor's demographics in Chapter 4, several other areas warrant further attention.

7.2 Crime: Populations which rapidly increase and change, either permanently or temporarily, can contribute to increased social stress. One measurement of social stress that can be examined is the change in and level of criminal activity in the affected areas.[1]

Criminal activity can be measured by the number of actual criminal offenses reported to police agencies and by the number of actual arrests made by these agencies. While a number of things can affect local data from year to year (change in administration, record keeping procedures, more police officers, better training, and the willingness of the public to report offenses), a fairly accurate picture of the current conditions can be depicted by comparing local rates per 1,000 population to national rates as furnished by the FBI for comparable sized communities.[2]

Table 7.1 illustrates the FBI Part I crime classification (murder, rape, robbery, aggravated assault, burglary, larceny, and motor vehicle theft) offense rates per 1,000 population for the urban area (Aberdeen, Hoquiam, and Cosmopolis), the East County departments (Elma, McCleary, and Montesano; Oakville data were not available until 1980 and historically were included within the Sheriff's data), and the unincorporated rural areas of Grays Harbor County (Sheriff's jurisdiction).

TABLE 7.1
OFFENSE RATES

Area	Local Offense Rates						National Offense Rates for Comparable Sized Areas				
	1975	1976	1977	1978	1979	1980	1975	1976	1977	1978	1979
Elma	71.25	59.92	110.93	128.86	112.36	---	41.13	39.88	39.06	40.30	45.04
McCleary	21.18	30.48	24.33	19.82	77.86	73.50	41.13	39.88	39.06	40.30	45.04
Montesano	34.76	34.05	44.80	70.36	57.89	45.26	41.13	39.88	39.06	40.30	45.04
Oakville	---	---	---	---	---	54.79	41.13	39.88	39.06	40.30	45.04
Urban Area	67.63	63.69	58.83	62.44	71.62	82.66	55.91	55.37	52.69	54.03	59.63
Unincorporated Rural Area	40.34	40.99	41.63	40.14	---	---	17.67	17.68	17.26	16.56	17.44

SOURCE: Tables GH-T.11.106-114, 10/80 and Washington State UCR Program.
--- = unavailable.

National rates for these sized cities appear to decline slightly each year from 1975 through 1977 and then increase in 1978 and 1979. National rates for unincorporated areas appear fairly constant over time with slight reductions in 1978 and 1979. Local rates for the unincorporated area (though more than double national rates) appear fairly constant with some slight declines. Urban area rates appear to increase significantly in 1979 and again in 1980 to a level of 22% over 1975 rates. McCleary rates increase in 1976 and then decrease each year until 1979 where a 268% increase over 1975 rates are recorded. This appears to decline slightly in 1980. Montesano rates rise in 1977 to above historical rates and for the first time are higher than national rates. A large increase occurred in 1978 but appears to decline in 1979 and again in 1980 to a similar rate as 1977. Offense rates in Elma rise dramatically in 1977 to over three times the national rate. Offense rates in 1978 continue to rise to a level of 220% higher than national rates though a leveling off occurs in 1979. Accurate data appears unavailable for 1980.[3] Oakville rates for 1980 are 22% higher than national rates for cities of comparable size.

Table 7.2 illustrates and compares all criminal arrest (FBI Part I and Part II crime classifications, excluding traffic) rates.

TABLE 7.2
ARREST RATES

Area	Local Arrest Rates					National Arrest Rates for Comparable Sized Areas			
	1976	1977	1978	1979	1980	1976	1977	1978	1979
Elma	66.80	88.50	138.56	137.82	120.80	48.04	48.90	45.41	47.13
McCleary	44.97	37.26	51.40	90.71	56.54	48.04	48.90	45.41	47.13
Montesano	--	--	52.86	67.72	51.42	48.04	48.90	45.41	47.13
Urban Area	79.77	82.18	94.66	123.87	--	44.13	43.79	42.60	44.31
Unincorporated Rural Area	45.61	50.58	44.04	--	--	31.71	32.22	32.21	34.34

SOURCE: Tables GH-T.11.118-126, 1/81 and local agencies.

National arrest rates appear fairly constant over time with small city rates being slightly less and urban area and unincorporated rates slightly higher than in 1976. Local rates, except for Montesano, rise from 1976 to 1977 for all agencies. Significant increases are seen in 1978, except for the unincorporated area, with the Elma rates more than doubling from 1976. When comparing 1979 local rates to 1979 national arrest rates, McCleary's rates are 92% higher, Montesano's are 44% higher, and the urban area is 180% higher. The rates for Elma in 1979 are 192% higher than 1979 national arrest rates. In 1980, all local rates appear to decline from 1979 but remain higher than the national rates.[4]

An additional indicator of crime trends in an area is the number of juveniles referred to the County Juvenile Department by police or other agencies.[5] The trend on Table 7.3, at least for total Part I referrals, follows essentially the same patterns as are apparent for several agencies on Table 7.2--a slight increase from 1976 to 1977 which is followed by large increases from 1977 to 1978 and from 1978 to 1979.

TABLE 7.3
NUMBER OF JUVENILES REFERRED TO COUNTY JUVENILE DEPARTMENT
FOR SELECTED OFFENSES
GRAYS HARBOR COUNTY, 1975-1978[6]

PART I CLASSES	1975	1976	1977	1978	1979
Criminal Homicide	0	1	1	0	0
Forcible Rape	6	1	0	1	0
Robbery	2	2	5	0	6
Aggravated Assault (Estimated)	11	22	23	10	6
Burglary	114	82	72	96	173
Larceny	168	183	198	284	299
Motor Vehicle Theft	29	21	16	39	47
Total Part I	330	312	315	430	531
PART II CLASSES					
Other Assaults (Estimated)	11	22	23	10	26
Narcotic Drug Laws	77	115	69	71	68
Offenses Against Family/Children	12	15	56	21	47
Liquor Laws	332	263	294	288	264

SOURCE: Table GH-T.11.115, 10/80.

Attempts have been made in the Monitoring Program to identify specific Construction Project related offenses and offenders in the Elma, McCleary, and Montesano Police Departments. Forms soliciting this information are supplied to each police department, and all have agreed upon a common definition of "site related."[7] Table 7.4 and 7.5 depict the results of these efforts.

TABLE 7.4
PERCENTAGE OF TOTAL ACTUAL PART 1 OFFENSES
KNOWN TO BE PROJECT RELATED

AREA/OFFENSE	1978 (%)	1979 (%)	1980 (%)
Elma			
Robbery	0.0	100.0*	0.0
Aggravated Assault	50.0	47.7	66.7
Burglary	19.1	7.7	0.0
Larceny-Theft	14.8	22.5	17.4
Auto Theft	15.4	30.0	0.0
Total Part I FBI Offenses	19.7	27.8	15.8
McCleary			
Burglary	10.0*	0.0	0.0
Larceny	6.7*	3.7	10.2
Total Part I FBI Offenses	7.4	2.7	9.6
Montesano			
Total Part I FBI Offenses	--	0.6*	0.0

SOURCE: Tables GH-T.11.44, 47, & 50, 3/79; GH-T.11.77-79, 10/79, and GH-T.11.137-139, 4/81.

*Actual numbers are very small. -- = unavailable.

TABLE 7.5
PERCENTAGE OF PART I AND II ARRESTS
KNOWN TO BE PROJECT RELATED

	1978 (%)	1979 (%)	1980 (%)
Elma			
Aggravated Assault	37.5	52.0	66.7
Burglary	64.3	17.6	0.0
Larceny	2.9	12.1	16.7
Other Assaults	21.1	31.1	16.7
Stolen Property (Buy., Poss., Rec.)	12.5	0.0	100.0*
Narcotic Drug Laws	11.1	6.1	12.5*
DWI	14.3	29.2	25.3
Liquor Laws	6.4	8.0	3.4
All Other	10.2	19.3	20.3
TOTAL ARRESTS	13.0	20.9	18.0
McCleary*			
Larceny	20.0	12.5	27.3
Other Assaults	0.0	0.0	100.0
Narcotic Drug Laws	28.6	9.1	10.0
Offenses Against Family/Children	0.0	40.0	0.0
DWI	0.0	15.4	0.0
Liquor Laws	0.0	0.0	7.1
All Other	10.0	33.3	40.0
TOTAL ARRESTS	5.9	10.0	18.8
Montesano*			
Burglary	--	9.0	--
Larceny	--	14.3	--
Narcotic Drug Laws	--	25.0	--
DWI	--	11.8	--
Liquor Laws	--	2.7	--
TOTAL ARRESTS	--	5.1	--

SOURCE: Tables GH-T.11.44, 47, and 50, 3/79; GH-T.11.77-79, 10/79; and GH-T.11.137-139, 4/81.

*Actual numbers are very small. -- = unavailable.

As can be readily observed by these two tables, the percentage of total offenses and arrests that are known to be related to the Satsop Project is considerable. This involvement appears to almost double each year in McCleary and increases in Elma approximately 38% over 1978. Even if total numbers are small (e.g. in McCleary), these figures still reflect an actual portrayal of workload on these departments.[8]

7.3 Other Police Services: In addition to crime related activities, local police departments, and particularly smaller departments, are service type of agencies. For example, they might provide directions or other information, they might assist the ambulance service, or they might assist with any variety of complaints that do not culminate in an arrest or an offense. Table 7.6, in an effort to document this type of activity, is presented. Police traffic activities are addressed in the next section of this chapter.

TABLE 7.6
TOTAL CALLS FOR SERVICE AND RADIO DISPATCHES

Calls For Service:	1978	1979	1980		Percent Change 1978-1980
Elma	10,632	17,520	25,794	(3,130)	142.6
McCleary	1,389	1,078	1,059	(--)	-23.8
Montesano	19,480	25,640	22,741	(--)	16.7
Radio Dispatches:					
Elma	43,510	61,726	65,633	(7,612)	50.8
McCleary	667	654	620	(--)	-7.0
Montesano	5,700	6,714	2,144	(--)	-62.4

SOURCE: Tables GH-T.11.44, 47, and 50, 3/79; GH-T.11.77-79, 10/79; and GH-T.11.137-139, 4/81.

Please note that these figures are not comparable between departments. For example, Montesano Police Department does not dispatch for the fire and ambulance while Elma Police Department does. Methodologies for recording calls for service also could be different. Numbers in parentheses are the numbers of known Site-related calls and dispatches.

Project related calls for service and radio dispatches in Elma for 1980 appears to be almost 12%. It must be noted that the actual Project Site is not within Elma's jurisdiction though they would respond to requests for assistance. Calls for service in 1980 doubled over 1978 levels in Elma, increase about 16% in Montesano, and decrease substantially in McCleary. Radio dispatches appear to increase in Elma, though at about half the rate as calls for service, and decrease in McCleary and Montesano.

7.4 Traffic: One of the most visible phenomenons associated with a large construction project, particularly in rural areas, may be increased traffic activity, and the Satsop Construction Project may be no exception. Complaints, especially relating to gravel and rock trucks, are heard in Elma, McCleary, Montesano, and in the unincorporated areas around the Site.[9] To give an idea of the volume of gravel trucks that has occurred in the area, on May 8, 1978, 1,080 gravel trucks--most with "pups" (trailers)--passed in-bound by the WPPSS' guard post on the WPPSS' East Access Road (an extension of Lambert Road which intersects with Wakefield Road) between 6:00 a.m. to 10:00 p.m. At that time, they were hauling approximately 30,000 cubic yards per day with an estimated need to haul 50,000 cubic yards per day for the next six months to meet the construction schedule.[10] While this number has not remained at this high volume consistently, this type of traffic will probably continue throughout most of the construction period. It is clear that large volumes of Project related traffic are in the East County area, but except for access roads to the Project Site, quantification of this impact is difficult.[11]

Traffic activity can be measured by traffic volumes (usually measured by average daily traffic volumes-ADT) on key roads and by traffic violation and collision activity. Although a number of variables can affect local data (administrative policy, road conditions and miles of road, record keeping procedures, and unusual events such as local celebrations or protests), a fairly accurate picture can be ascertained by examining local data over time.

The following tables reflect the number of traffic collisions and traffic violations reported by local police agencies for several areas within Grays Harbor County.[12]

TABLE 7.7
TRAFFIC COLLISIONS PER 1,000 POPULATION

AREA	1975	1976	1977	1978	1979	1980 Projected
Elma*	--	25.91	48.12	22.25	29.82	--
McCleary*	--	22.10	16.73	13.22	12.14	4.24
Montesano	20.07	17.56	16.49	21.43	14.04	12.32
Aberdeen	43.45	48.00	45.77	46.65	39.48	37.00
Hoquiam	29.24	31.59	36.43	30.38	29.42	30.88
Grays Harbor Rural (includes all areas except Aberdeen, Hoquiam, and Montesano)	35.51	38.01	39.04	40.67	33.94	25.99
Grays Harbor County Total	36.13	39.09	39.64	39.92	33.97	29.15
State of Washington (State Highways)	10.35	10.24	10.00	9.77	9.27	--

SOURCE: Various Monitoring Reports under public safety section; "Summary of Vehicle Collisions," Records Section, Washington State Patrol; and Highway Traffic Accident Report, Washington State Department of Transportation (Olympia: annually).

Estimates for 1980 are based upon 6 months of data. -- = unavailable.
*Figures for these agencies might not be comparable with the statistics for the other areas as methodologies could be different.

TABLE 7.8
NUMBER OF TRAFFIC VIOLATIONS

AREA	1976	1977	1978	1979	1980
Elma	597	1,171	1,351 (--)	2,069 (539)	--
McCleary	332	280	694 (20)	396 (19)	406 (23)
Montesano	--	--	468 (--)	444 (32)	387 (14)

SOURCE: Various tables in the public safety section of numerous Monitoring Reports.

Figures might not be comparable between entities because of differing methodologies. Numbers in parenthesis are the number of known Site related violations.
-- = unavailable.

From observing Table 7.7, it appears that traffic collisions decline or remain fairly constant in all areas except for 1977 in Elma. Traffic violations in Elma appear to increase dramatically each year with figures for 1979 being 247% higher than in 1976. McCleary, too, shows substantial increases from 1976 to 1978 though data for 1979 indicates a decline from the 1978 levels. Activity appears to decline over time in Montesano.

Data on Table 7.9 shows increases on state highways from 1976 to 1979 in accidents occurring at seven locations that are in the vicinity of the Project. Rates for 1979 appear to increase from 1978 at six locations though three of the eleven locations are lower than 1978 rates.

TABLE 7.9
ACCIDENT RATES REPORTED, STATE HIGHWAYS, GRAYS HARBOR COUNTY

Highway Number/Location	1976 Rate	1977 Rate	1978 Rate	1979 Rate
Highway 8				
Junction 12	.5	.3	.9	.8
Junction 108	.8	1.0	.5	1.4
Mox-Chehalis Road	.4	1.4	.7	1.1
Highway 12				
Junction 101	15.7	16.3*	5.0	5.5
Central Park Drive	1.4	1.6	.8	1.7
Junction 107	.6	.5	.7	.3
Satsop Road	.3	.5	.3	.3
Schouweiler Road (Hurd)	.2	.9	.8	1.0
Junction Highway 8	.7	2.0	1.8	2.7
Mox-Chehalis Road	2.0	2.8	1.8	2.6
Porter Creek Road	2.5	2.8	3.2	1.5
State Total	2.6	2.4	2.2	2.2

SOURCE: Tables GH-T.8.12, 9/78 and GH-T.8.48, 1/81.

*This location's rate ranked thirteen highest within the State Highway System in 1977. The accident rates are computed on the following formula:

$$\text{Accident Rate} = \frac{(\text{Number of accidents}) \times 1{,}000{,}000}{(\text{Section length}) \times (\text{AADT}) \times (365 \text{ Days})}$$

Tables 7.10 and 7.11 and Graph 7.1 display average daily traffic volumes for certain Grays Harbor County roads and for various locations on State Routes 12 and 8.

TABLE 7.10
AVERAGE DAILY TRAFFIC VOLUMES (ADT)
GRAYS HARBOR COUNTY ROADS

Highway	Functional* Classification	Capacity* (ADT)	1973 (ADT)	10/1977 (ADT)	7/1978 (ADT)	6/1979 (ADT)	6/1980 (ADT)	% Δ 1973-1980
Highway 410 Between Brady and Satsop	Major Arterial	1,000-3,000	2,249	1,915	2,398	2,888	3,035	34.9
South Bank Road South of Delezene Road Intersection	Secondary Arterial	500-1,000	206	306	434	388	724	251.5
Porter Creek Road West of Bridge	Access Road	250-500	477	-	-	1,120	586 (9/80)	22.9
Schouweiler Road Between 410 and Highway 12	Access Road	250-500	974	2,152	1,872	1,777	1,878	92.8
Site Related Roads								
Wakefield Road**	Secondary Arterial	500-1,000	1,022	1,778	5,435	5,015	5,388	427.2
Workman Creek**	Access Road	250-500	70 (1969)	2,117	4,794	3,528	5,013	136.8 (77-80)
Wenzel Slough	Access Road	250-500	164	1,106	4,135	459	422	157.3
Keys Road**	Access Road	250-500	321	454	461	273	601	87.2

SOURCE: Tables GH-T.32.8.2, 12/77, GH-T.32.8.25, 6/79, and GH-T.32.8.39, 7/80.

*Based upon the Grays Harbor County Road Department's functional classification and capacity standards as adopted in 1978.

**These roads have been or are planned to be improved as the result of approximately $3 million appropriated by WPPSS.

See map number GH-M.8.13, 10/80 for actual locations.

TABLE 7.11
AVERAGE DAILY TRAFFIC VOLUME (ADT)
STATE HIGHWAYS

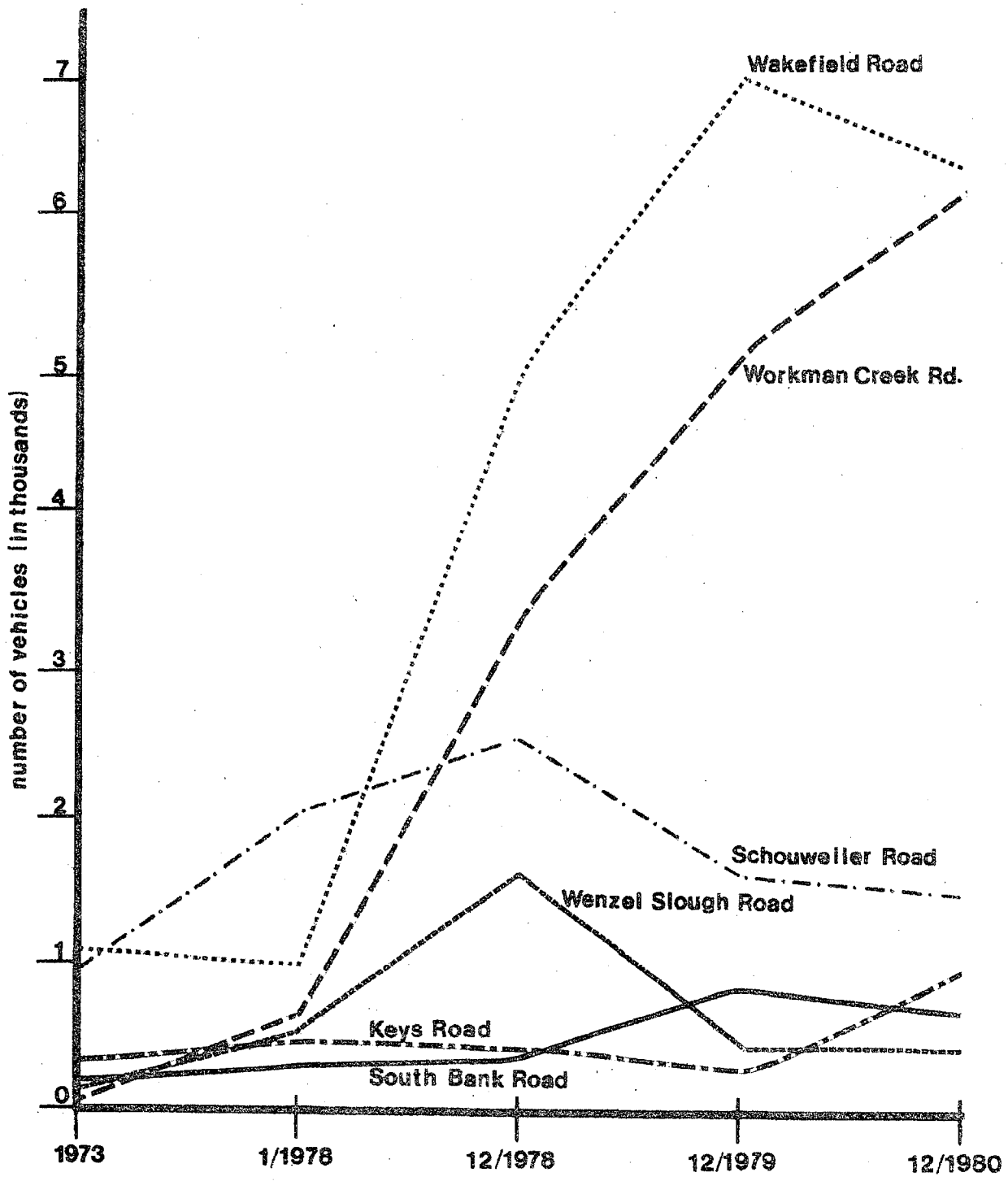
Highway/Location	1973 (ADT)	1975 (ADT)	1977 (ADT)	1979 (ADT)	% Δ 73-75	% Δ 75-77	% Δ 77-79
Highway 8							
Thurston/Grays Harbor County Line	7,600	7,400	8,900	9,900	-2.6	20.3	11.2
McCleary City Limits (ECL/WCL)	6,600	6,600	7,800	8,700	.0	18.2	11.5
Junction on Ramp Hwy 12 (NE)	8,100	8,300	10,100	11,200	2.5	21.7	10.9
Highway 12							
Thurston/Grays Harbor County Line (W)	3,100	3,450	3,650	3,850	11.3	5.8	5.5
Oakville-ECL	2,950	3,100	4,100	4,400	5.1	32.3	7.3
Elma-Junction off Ramp to 3rd Street (W)	9,800	10,600	12,200	15,400	8.2	15.1	26.2
Junction Schouweiler Road (E)	9,800	10,600	12,200	15,400	8.2	15.1	26.2
Junction Satsop Road (E)	9,700	9,500	10,900	13,700	-2.1	14.7	25.7
Montesano (WCL)	10,200	9,900	11,700	14,300	-2.9	18.2	22.2
Central Park Drive (NW)	15,100	15,200	17,400	19,300	.7	14.5	10.9
Wishkah Bridge, Aberdeen	19,300	19,300	22,100	25,200	.0	14.5	14.0
Highway 101							
Junction 107 (N)	4,100	4,250	4,750	4,900	3.7	11.8	3.2
Highway 108							
McCleary (NCL)	1,480	1,470	1,550	1,650	-.7	5.4	6.5

SOURCE: Tables GH-T.32.8.1, 12/77 and GH-T.8.47, 1/81.

Letters in parentheses represent the leg of an intersection, the direction of the flow of traffic, or the City limits (e.g. ECL = east city limits).

GRAPH 7.1

AVERAGE DAILY TRAFFIC VOLUMES
SITE RELATED ROADS, GRAYS HARBOR COUNTY



Average daily traffic volumes for these State routes show increases at all locations with those locations directly related to Site access having the largest increases. For example, Highway 12 and the junction of 3rd Street in Elma is the main access route to the Site, and the junction of Schouweiler and Highway 12 was the location (and still partially is) of numerous Site offices. These two locations show the largest increase in ADT in the State routes listed. The Thurston/Grays Harbor County line location on Highway 8 shows an increase of 11.2% from 1977 to 1979. This location would record Olympia and Seattle-Tacoma area commuters to the Site. Similar trends occur for County roads. Project related activity can be readily seen in these counts. For example, Keys Road showed an ADT of 461 in July 1978 during a period prior to completion of the East Access Road. The ADT in June 1979 was back to 273 when this road was not used for Site access. However, in 1980 counts are up again as construction began on a west access road and on a large laydown area.

The average daily traffic volumes do not give a complete picture of traffic condition. Peak volumes also must be considered to give an indication of when traffic congestion or other problems might occur. These types of counts are available from special counters that record vehicles in fifteen minute segments.

TABLE 7.12
PEAK HOURLY TRAFFIC VOLUMES
SITE ACCESS ROUTES

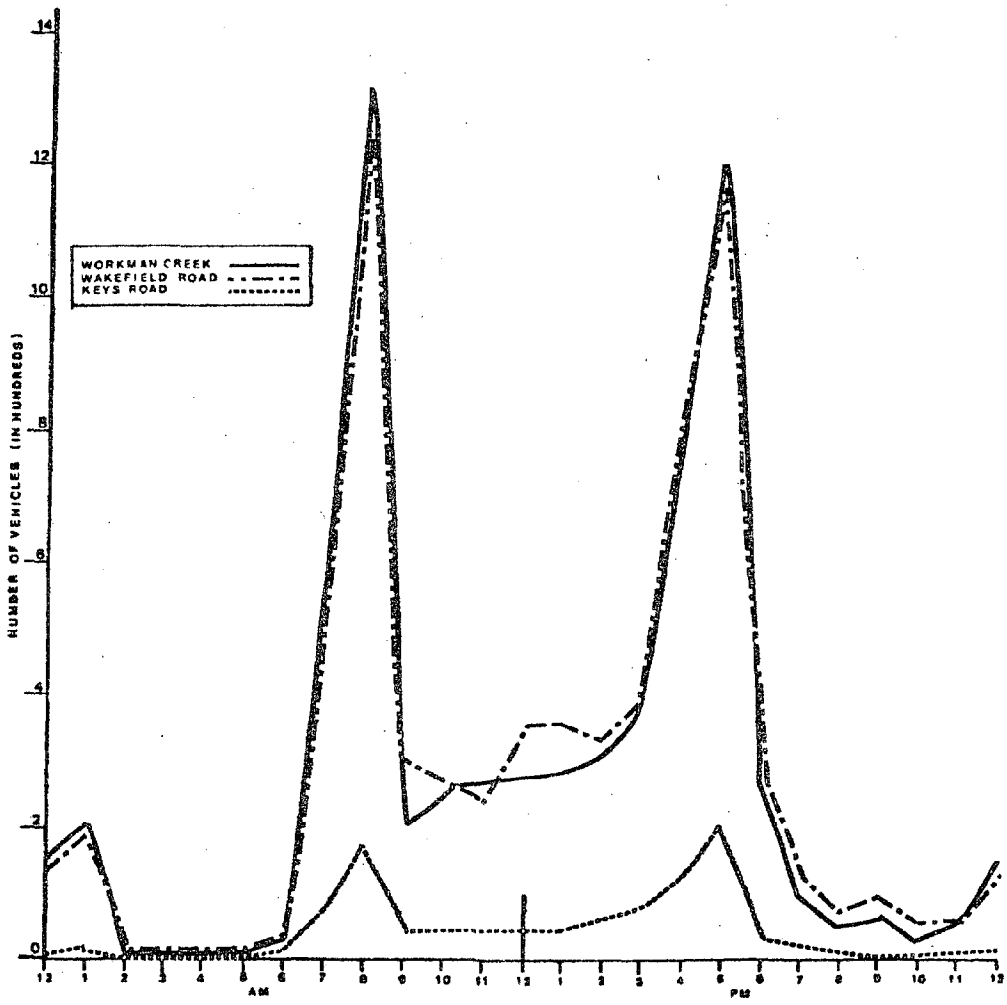
Location	April 1978	December 1978	September 1979	September 1980
Workman Creek				
A.M.	416	476	988	1,175
P.M.	454	483	926	1,041
Wakefield Road				
A.M.	214	912	1,765	1,108
P.M.	329	1,094	1,251	1,039
South Bank Road				
A.M.	81	--	248	490
P.M.	133	--	353	301

SOURCE: Tables GH-T.32.8.10, 6/78; GH-T.32.8.19, 12/78; GH-T.32.8.32, 10/79; and GH-T.8.46, 10/80.

Graph 7.2 clearly demonstrates the worker traffic to the Site--7:00-8:00 a.m. is the starting time of most employees and 4:00-5:00 p.m. is the quitting time. This peak type of situation has caused some problems particularly at the South Elma intersection of Wakefield, Workman Creek, and South Bank Road. This has necessitated a traffic control officer to direct vehicles at peak periods even though this intersection was improved.

GRAPH 7.2

HOURLY TRAFFIC VOLUMES
SITE ACCESS ROUTES, GRAYS HARBOR COUNTY
DECEMBER 1980



SOURCE: GH-C.8.26, 1/81.

Composition of traffic, as seen in Table 7.13, reflects the construction type of traffic (i.e. gravel trucks, heavy equipment, material deliveries, etc.). It also shows the declining percentage of over two axle traffic as total traffic volumes increase to the Site.

TABLE 7.13
COMPOSITION OF TRAFFIC
PERCENTAGE OF TOTAL COUNTS OVER 2 AXLES

LOCATION	OCT. 1977	SEPT. 1978	SEPT. 1979	JUNE 1980
Wenzel Slough Road	57.1 84.8	--	27.0	--
Workman Creek Road	53.6	19.7	20.1	30.7
Wakefield Road	63.5	33.9	2.6	19.1
South Bank Road	--	7.0	27.1	--

SOURCE: Numerous tables shown in the traffic section of various Monitoring Reports.

Two numbers are shown when a count was taken on more than one day during the month indicated. -- = unavailable.

As manpower has increased availability of parking on Site has become a premium with various solutions proposed from the use of more mass transit to adding parking. The Grays Harbor Transit Authority has one workrun bus daily to and from the Site which serves areas from Hoquiam to Elma. It costs a rider only 50¢ a day for this service, and ridership remained at about eighty riders per day during 1980. A similar run was begun from Olympia in 1979 but was dropped because of low ridership. Table 7.14 illustrates that some car pooling is occurring though over time it appears to decrease. Part of this could be due to more shifts being added and to staggerging beginning and ending work hours.

TABLE 7.14
VEHICLE OCCUPANCY RATES

LOCATION	DATE	RATE
Wakefield,	September 1979	1.55
South Bank, and	June 1980	1.48
Workman Creek	September 1980	1.44
Intersection	December 1980	1.48

SOURCE: Various tables in traffic section of different Monitoring Reports.

One other piece of datum available on traffic characteristics is the number of vehicles with out-of-state licenses at the Wakefield/Workman Intersection. This percentage indicates that persons in-migrating from out-of-state to work on this project represents a higher proportion of this population than is indicated by the total state in-migrations of out-of-state vehicles.[13]

TABLE 7.15
PERCENTAGE OF OUT-OF-STATE VEHICLES

LOCATION/EXPLANATION	DATE	% OF TOTAL VEHICLE REGISTRATIONS WITH OUT-OF-STATE LICENSES
South on Wakefield Road	September 1979	11.7
East on Workman Creek	December 1979	12.0
State Registrations of Out-of-State Vehicles	1979 1979	7.5

SOURCE: GH-T.32.8.36, 1/80 and State Department of Licensing.

7.5 Schools: The subject of schools and its related concerns were not addressed in the First Year Report. This was partially because schools are financially covered by statute (and agreement) for impact related to large construction projects such as Satsop and partially because of a desire to limit the scope of that report to areas which were not being covered elsewhere, i.e. the schools were probably doing their own impact analysis. However, to comprehensively cover those areas where social well-being and a way-of-life might be affected, it is necessary to give some attention to this subject.

Table 7.16 identifies the May school district full-time equivalent enrollment (FTE) in comparison with those students identified as eligible for WPPSS' impact payments.[14] The obvious problem here is the possibility of undercounting all new Satsop related pupils as persons who might have moved to the area to work on the project but who were not employed on Site during the May 1 pay period would not be included. Further, no student whose parent resided in the area prior to May 1, 1976 is included.

TABLE 7.16
SCHOOL ENROLLMENT AND PROJECT RELATIONSHIP

Districts	May 1, 1978 FTE	Eligible Project Related Students #	Eligible Project Related Students % of FTE	May 1, 1979 FTE	Eligible Project Related Students #	Eligible Project Related Students % of FTE	May 1, 1980 FTE	Eligible Project Related Students #	Eligible Project Related Students % of FTE	Distribution Of Project Related Students Percent
Grays Harbor County										
Primary Study Area										
Elma	1,626	34	2.1	1,628	94	5.8	1,729	173	10.0	23.4
McCleary	308	6	1.9	354	29	8.2	377	26	6.9	3.5
Montesano	1,395	2*	-	1,470	29	2.0	1,400	43	3.1	5.8
Satsop	68	1	1.5	75	2	2.3	61	7	11.5	.9
Oakville	332	3	.9	346	7	2.0	338	10	3.0	1.4
Subtotal	3,729	46	1.2	3,873	161	4.2	3,905	259	6.6	35.0
Urban Area										
Aberdeen	4,668	8	.2	4,434	3	<.1	4,297	17	.4	2.3
Hoquiam	2,541	2	.1	2,503	3	.1	2,399	13	.5	1.8
Cosmopolis	306	0	.0	312	0	.0	304	0	.0	.0
Subtotal	7,515	10	.1	7,249	6	<.1	7,000	30	.4	4.1
Total Grays Harbor County	11,244	56	.5	11,122	167	1.5	10,905	289	2.7	39.1
Thurston County										
Tenino	-	-	-	-	-	-	1,215	13	1.1	1.8
North Thurston	7,962	25	.3	7,761	76	1.0	8,063	144	1.8	19.4
Tumwater	3,670	6	.2	3,404	40	1.2	3,692	71	1.9	9.6
Griffin	345	5	1.4	355	6	1.7	371	11	3.0	1.5
Olympia	7,268	48	.7	7,204	87	1.2	6,975	138	2.0	18.6
Rochester	1,264	5	.4	1,093	9	.8	1,259	30	2.4	4.1
Total Thurston County	20,509	89	.4	19,817	218	1.1	21,575	407	1.9	55.0
Mason County										
Shelton	3,359	2	<.1	3,429	7	.2	3,321	13	.4	1.8
Mary Knight	154	1	.6	171	1	.6	186	4	2.2	.5
Total Mason County	3,513	3	<.1	3,600	8	.2	3,507	17	.5	2.3
Lewis County										
Chehalis	2,106	0	.0	2,137	0	.0	2,175	7	.3	.9
Centralia	3,270	13	.4	3,248	20	.6	3,241	15	.5	2.0
Winlock	-	-	-	-	-	-	728	5	.7	.7
Total Lewis County	5,376	13	.2	5,385	20	.4	6,144	27	.4	3.6
TOTAL ALL DISTRICTS	40,642	161	.4	39,924	413	1.0	42,131	740	1.8	100.0

SOURCE: Various tables under the school section of different Monitoring Reports; WNP 3/5 Socioeconomic Summary, October 1980, WPPSS; and Superintendent of Public Instruction.

*Because of surveying problems, this figure is probably invalid. - = no school survey conducted.

There are several ways to examine school enrollment information. The usual method is to look at enrollments which are generally based on full-time equivalent students. This method provides an overview of any changes that might occur. The second method is to examine student population by cohort or group. Table 7.17 displays the first method.

TABLE 7.17
SCHOOL ENROLLMENTS (FTE)
OCTOBER 1975-1980

Districts[15]	1975	1976	1977	1978	1979	1980	% Δ 1975-1977	% Δ 1977-1980
Elma	1,604	1,606	1,638	1,663	1,725	1,729	2.1	5.6
McCleary	300	311	311	319	382	359	3.7	15.4
Montesano	1,477	1,448	1,395	1,473	1,435	1,400	-5.6	.4
Satsop	86	71	63	75	61	67	-26.7	6.3
Oakville	365	325	316	342	345	338	-13.4	7.0
Total East County	3,832	3,761	3,723	3,872	3,948	3,893	-2.8	4.6
Urban Area Districts	8,030	7,985	7,921	7,628	7,440	7,009	-1.4	-11.5
Other Districts	1,999	2,080	2,040	2,032	2,002	2,071	2.1	1.5

SOURCE: Various tables under school section of several Monitoring Reports.

As illustrated on Table 7.17, enrollments decline consistently each year from 1975 to 1980 in the urban area districts with a decline of over 12% recorded during this period. Enrollments increase 3.6% from 1975 to 1980 in the other districts though the increase of 4.1% from 1975 to 1976 declines each year thereafter. East County schools show a 1.9% decrease from 1975 to 1976 and a 1.0% decrease from 1976 to 1977; increases of 4.0% from 1977 to 1978 and 2.0% from 1978 to 1979; then a 1.4% decrease from 1979 to 1980. An increase of 1.6% is recorded in 1980 over 1975 levels. While most of the East County school districts lost population from 1975 to 1976, all had sizeable gains from 1977 to 1980. It is difficult to gain insight into migration from these figures though it would appear that some in-migration must be occurring as the decline in birth rates alone would more than compensate for any decline in enrollment during this period.[16]

Another method of examining change in school enrollment patterns is to examine a class cohort, i.e. to follow one class of students as they move up through the grades (first graders in 1973 become second graders in 1974, and the same group becomes eighth graders in 1980). This demonstrates whether a particular class becomes larger or smaller over time. This method eliminates the variable of decreasing enrollments caused by declining birth rates which can have a significant bearing on student populations. We know that live births by Grays Harbor residents reduced 22% from 1970 to 1975 (producing school age children in 1976 through 1981). The State rate declined 18.1% over this same period. It is noted, however, that birth rates appear to increase from 1975 through 1979 for both Grays Harbor and the State which will affect school enrollment six years later (1981 through 1987).[17]

Other variables can influence change in cohorts including interchange with private schools, holding students back or skipping grades, deaths, the dropout rate, and migration. Since the net effect of the first three variables is generally minimal,[18] this change then reflects largely the dropout rate and migration. Therefore, a factoring out of the dropout rate would yield a potential measurement of net migration of school age children and thus net population movement in the area served by a particular school district.

Tables 7.18 and 7.19 reflect this cohort examination with a dropout factor added for the East County schools and for the other school districts in Grays Harbor County.

TABLE 7.18
CHANGE IN COHORT
EAST COUNTY SCHOOL DISTRICTS
MONTESANO, SATSOP, ELMA, MCCLEARY, AND OAKVILLE
OCTOBER 1973-1980

Year (October)	Beginning Grade of Cohort 1	2	3	4	5	Total
1973	297	255	299	323	317	1,491
1974	282	255	307	324	323	1,491
1975	304	254	315	302	333	1,508
1976	279	254	294	312	324	1,463
% Δ in Cohort Prior to Satsop Construction Project	-6.1	-0.4	-1.7	-3.4	2.2	-1.9
1977	285	275	300	308	322	1,490
1978	310	300	342	340	349	1,641
1979	329	306	350	334	350	1,669
1980	326	318	359	316	300	1,619
	8	9	10	11	12	
	Ending Grade of Cohort					
% Δ in Cohort (76-80) After Satsop Construction Project	16.8	25.2	22.1	1.3	-7.4	10.7

SOURCE: Numerous tables in school section of various Monitoring Reports.

TABLE 7.19
CHANGE IN COHORT
ALL SCHOOL DISTRICTS IN GRAYS HARBOR COUNTY
EXCEPT THOSE IN EAST COUNTY
OCTOBER 1973-1980

Year (October)	Beginning Grade of Cohort 1	2	3	4	5	Total
1973	818	791	808	771	815	4,003
1974	782	750	806	762	839	3,939
1975	753	735	823	772	841	3,924
1976	758	742	809	803	852	3,964
% Δ in Cohort Prior to Satsop Construction Project	-7.3	-6.2	0.1	4.2	4.5	-1.0
1977	768	749	850	800	982*	4,149
1978	756	774	824	974*	936	4,264
1979	754	775	977*	928	807	4,241
1980	745	857*	849	780	708	3,939
	8	9	10	11	12	
	Ending Grade of Cohort					
% Δ in Cohort (76-80) After Satsop Construction Project	-1.7	15.5	4.9	-2.9	-16.9	-0.6

SOURCE: Various tables in school section of different Monitoring Reports.

*Entry of private school students into public system.

It is apparent from Table 7.18 that in-migration is now occurring in the East County school districts. While in October 1976 an out-migration was occurring in four of the five cohorts, in 1980 in-migration increased substantially in all cohorts (and seems to reverse the out-migration trend) except for the 5 through 12 cohort group. However, it is possible that the dropout rates could be higher than indicated by available data.[19] The remainder of the school districts in the County appear to have an out-migration only in the two lower grade cohorts and in-migration in the remainder from 1973 to 1976. From 1976 to 1980, the 1-8 cohort continues to decline though not as significantly as the decline from 1973 to 1976. The trend for the second and third groups appears to reverse, and the upper-grade cohort declines considerable. The private school entrants at grade 9 obviously effect these cohorts as can be seen on Table 7.20. It is somewhat difficult to assign these students to any one public school district. However, most students probably enter the Aberdeen and Hoquiam School Districts as St. Marys in Aberdeen is the largest private school (65% of the known private enrollments in 1978) in Grays Harbor County.

TABLE 7.20
PRIVATE SCHOOL ENROLLMENTS

	1975	1976	1977	1978	1979
Total Known Enrollments	191	224	247	265	311

If a school district is confronted with an increase in enrollment, the ability of the district to cope with this situation can be compounded by a lack of facilities, staff, and other resources. East County schools reflect some problems in these areas.[20]

TABLE 7.21
ESTIMATED UNHOUSED STUDENTS
EAST COUNTY SCHOOLS

	1978	1979	1980
Montesano School District	119	165	133
Satsop School District	8	0	0
Elma School District	122	138	203
McCleary School District	0	34	57

SOURCE: Various tables in school section of different Monitoring Reports.

This problem is being addressed by WPPSS. However, it must be stressed that this type of problem, when compounded, can cause changes in how a community might view its schools.

One other indicator available which might depict social change is dropout rates.

TABLE 7.22
DROPOUT RATES
1976-1980

Area	Percent Dropouts 1976-1977	1977-1978	1978-1979	1979-1980	76-77 To 79-80 % Δ
Aberdeen	9.43	9.64	10.89	8.09	-14.2
Hoquiam	10.12	11.05	11.27	3.30	-67.4
North Beach	13.16	15.16	10.88	11.24	-14.6
Quinault	10.26	16.79	10.24	13.95	40.0
Wishkah Valley	5.00	2.22	2.17	3.85	-23.0
Ocosta	7.20	10.92	10.73	5.86	-18.6
Elma	5.49	10.26	10.86	6.85	24.8
Montesano	2.93	4.00	3.03	4.63	58.0
Oakville	4.24	10.08	5.00	7.50	76.9
Grays Harbor County Total Percent	8.27	9.94	9.91	6.77	-18.1
State Total Percent	6.61	7.06	7.96	7.53	13.9

SOURCE: Table GH-T.6.90, 1/80 and GH-T.6.174, 1/81.

While the large increases in dropout rates of the 1977-1978 and 1978-1979 school years appear to decline in the 1979-1980 school year, rates are still significantly higher than 1976-1977 rates for the three East County schools of Elma, Montesano, and Oakville.[21]

7.6 Social Services: Early in the monitoring program a cursory examination was completed of approximately 200 different agencies in Grays Harbor County which provide various social services. Because of the multitude of agencies, it was decided to select several of the "major" social service agencies for more indepth study and annual monitoring.[22] These agencies are Mental Health, Alcohol Program, Health Department, Community Action Council, and the local Department of Social and Health Services. Additionally, United Way was added to give some insight into local funding patterns for social services. While such agencies do not always keep detailed records, some information is available. Further, agencies were requested to try to identify Satsop Project related clients if at all possible.

TABLE 7.23
PERSONS SERVED BY SOCIAL SERVICE AGENCIES
1977-1979

AGENCY	1977	% Satsop Project	1978	% Satsop Project	1979	% Satsop Project
Mental Health	1,835	3.9	2,088	3.5	2,328	3.6
Alcohol Program	1,610	-	2,475	1.0*	2,923	2.6*
Grays Harbor Public Health Services						
Personal Health Services						
Field Activities	3,746	-	5,603	-	5,926	-
Clinic Activities (Service/Visits)	-	-	25,829	-	35,346	-
Environmental Health (Service/Visits)	4,294	-	4,684	-	6,225	-
Community Action Program	2,971	-	4,858	2.2	6,304	6.8
Department of Social and Health Services						
Regular AFDC (average persons per month)	2,533	-	2,378	-	2,435	-
Food Stamps (average persons per month)	4,145	-	3,680	-	4,437	-

SOURCE: Tables under social service section of various Monitoring Reports.

- = unavailable. *Estimated.

While case loads appear to be increasing substantially (almost doubling in several agencies), the known identifiable impact of the Satsop Project appears to be minimal at this time. For example, the persons served by Mental Health increased by 27.3% without the identified Satsop clients from 1977 to 1979. While some of these clients might be considered "secondary" impacts because of increased social stress,[23] this phenomenon cannot be conclusively evidenced at this time.

It is noted that for the first time financial support from United Way was allocated for two specific East County programs in the 1978-1979 funding period. This increased to three programs receiving support in the 1979-1980 funding period. Further, contributions were solicited from three East County business areas for the first time in 1977. In 1979, this was expanded to include the entire communities. Contributions rose from .4% in 1977 to 5.2% of the total County contributions in 1979.[24] This first action illustrates that the perception of "need" in East County is present.

7.7 Political Change: One interesting bit of datum available is the change in elected officials which has occurred in Grays Harbor County. Unfortunately, we have been unable to find any publication by which we can compare this information. While it certainly is apparent that more change occurred from 1976-1978 in the elected offices than had occurred from 1974-1976, it is not known if this trend is something that is part of State or national trends (such as a trend of voting against incumbents), or if this reflects just local patterns. This high degree of change appears to lessen in several entities from 1978-1980. Obviously, as growth pressures occur more and more controversies and pressures arise with the people looking to their elected official for prompt solutions. If solutions and compromise appear unsatisfactory to the local constituents,

the elected official will be quickly replaced. Comparison of 1978-1980 with 1976-1978 indicates that greater stability has returned to the local political scene.

TABLE 7.24
PERCENT CHANGE IN ELECTED OFFICIALS
1976-1978

Entity	1974-1976 % Δ	1976-1978 % Δ	1978-1980 % Δ
Elma	33.3	66.7	0.0
McCleary	33.3	16.7	33.3
Montesano	25.0	75.0	37.5
Oakville	33.3	66.7	16.7
Urban Area	37.5	21.9	28.1
Other	36.4	45.5	45.5
Grays Harbor County (excluding judges)	30.0	20.0	0.0

SOURCE: Table GH-T.32.7.153, 4/80.

7.8 Conclusions: While it is difficult to make direct cause and effect conclusions, the limited available information seems to show that social change is occurring. These indicators, when combined with the analysis of the social characteristics of Satsop workers in Chapter 4, should be expected to indicate gradual shifts of attitudes, norms, and behaviors in the impact area.

Criminal offenses for 1978 through 1980 known to be related to the Project account for an average of 21% of the total known offenses in Elma and 7% in McCleary. When these Satsop related offenses are deducted, rates are still much higher than national averages for comparably sized areas. The amount of this remainder which could be indirectly related to the Project is unknown. Also, the proportion of all arrests which are Satsop related substantially increases over 1978 levels in Elma and McCleary.

Aberdeen-Urban area arrest rates are 180% higher than similar sized communities for 1979 though, historically, rates have been higher (the 1975 rates were 62% higher than the national). In contrast, rural offense and arrest rates appear fairly constant over time and remain higher than national rates. The number of juveniles referred to the County Juvenile Department for Part I offenses declined from 1975 to 1977 and then increased by 69% from 1977 to 1979. General calls for service in Elma are increasing significantly. Approximately 12% of all reported calls for service in Elma were known to be project related during 1980.

While traffic violations in Elma increased by 247% from 1976 to 1979 and 19% in McCleary (a 109% increase was recorded from 1976 to 1978 for McCleary), collisions in these cities do not appear to be increasing significantly. Accidents on State highways appear to increase over 1976 levels at seven locations near the Site. Average daily traffic on County roads leading to the Site shows a direct relationship to the work force employed on the Site as does composition of Site traffic, and the peak count traffic data. The average daily traffic on State highways increased at all locations with these increases being the most dramatic at locations directly related to the Site (at Satsop and Keys Road going east on

Highway 12, at Schouweiler Road going east, and at the Elma off-ramp junction of Third Street and Highway 12). The increase on Highway 8 at the Grays Harbor/Thurston County line could reflect the increased commuter traffic from the Olympia and Seattle-Tacoma areas to the Project. The number of vehicles with out-of-state licenses of workers on Site illustrates the in-migration characteristics of this population.

The largest percentage of total school enrollment that has been identified as Satsop related are in the East County schools with 12% of the Satsop School District enrollment being identified as Project related. It appears that net in-migration is occurring in the East County schools with this rate increasing considerably after the Construction Project began. The remainder of the school districts have declined in net in-migration in several cohorts and may even have had a net out-migration. Dropout rates increase dramatically in most school districts from the 1976-1977 school year to the 1977-1978 school year though this increase appears to decline in most areas in the 1979-1980 school years. All three East County high schools show significant increases from the 1976-1977 school year to the 1979-1980 school year; Elma with an increase of 25%, Montesano 58%, and Oakville 77%.

While case loads appear to increase significantly for all social service agencies monitored, those cases which can be identified as directly related to the Satsop Project appear to be minimal at this time for most agencies.

Increased change is also occurring in the political arena. The change in elected officials increased from 1976 to 1978 in all East County cities except for McCleary. From 1974 to 1980, Montesano and Oakville had a 100% change in their elected officials. Elma had an 83% change, and McCleary a 50% change. All East County cities have adopted new comprehensive plans and zoning ordinances are being revised. The County is currently considering revising its subdivision ordinance and has changed some procedures on gravel pits and private road development. Agricultural land policies and rural land policies are currently being considered. (All growth pressure issues.) Elma and Oakville changed their government form from 4th class city status to non-charter code city status in 1977 as did Hoquiam (was 2nd class) and Cosmopolis.[25]

In summary, social change appears to be occurring in certain areas. In addition, the Project seems to be a contributor to this change and if the secondary impact of the project (see Chapter 3) is considered, the full impact of the Project on the social character of Grays Harbor County could be considerable.

CHAPTER 7
NOTES

1. The term "social stress" has been the short hand notion applied to the potential sociological and psychological change which is often associated with high growth situations. In this case, a relatively rural environment will have a large infusion of newcomers with new ideas and new ways of doing things. The interaction of the new with the old may result in uncertainty and insecurity. These concepts are suggested in both the popular literature (Future Shock) and the technical literature (Stephen J. Fitzsimmons, et al, Social Assessment Manual, Westview Press, Boulder, Colorado, 1977; and Karl Hehler, Evaluation of Power Facilities, A

Reviewers Handbook, Berkshire Regional Planning Commission, Billsfield Mass., 1974). Issues related to these concerns have also been noted in research of other construction projects (B. H. Bronfman, A Study of Community Leaders in a Nuclear Host Community; Local Issues, Expectations and Support and Opposition, ERDA, 1977, and John Gordon and David Darling The Economic Impact of the Hoosier Energy Plant on Sullivan County, Purdue University).

The close relationship between criminal activity and significant social change and stress should also be noted. A National Strategy to Reduce Crime, National Advisory Commission on Criminal Justice Standards and Goals, 1973, observes tendencies for a positive relationship between the proportion of young adults in a population, population mobility, and family instability, and crime rates. Community Crime Prevention, National Advisory Committee on Criminal Justice Standards and Goals, 1973, further indicates that a strong sense of community is a key feature in maintaining a low crime rate. From this it may be inferred that a rising crime rate may signify a weak sense of "community" among at least some segments of the population.

2. For crime classification definitions and for national crime trends refer to Webster, Crime in the United States, 1979, FBI Uniform Crime Reports, United States Department of Justice.

3. The Elma Police Department had significant personnel changes in 1980. Further, their Uniform Crime Reports and monitoring reports were not completed on a monthly basis. This necessitated a new employee having to go back through available records to try to reconstruct data. Because of these problems, 1980 data might not be comparable with earlier periods and is not used when patterns appear significantly skewed from historical trends.

4. For greater information regarding crime related concerns refer to the region's Annual Law and Justice Plans.

5. Ibid.

6. Because of major changes in State law in July 1978, other Part II offense classifications are not comparable over time. Thus, they are not reported on this table.

7. For the purposes of the Monitoring Project a WPPSS or site-related law enforcement contact will be:

> Any contact made where the individual is currently working or is employed and has worked during the preceding six months for any contractor or subcontractor working for the Satsop Construction Project. Any contact made which identifies that family members of contacted individuals are working on the Project (such as a juvenile and the father is employed on Site) should be counted as WPPSS Project related. Informational contacts (i.e. directions to the Site for material deliveries, siteseers, persons seeking employment at the Site, etc.) should also be counted as a WPPSS project related law enforcement contact.

It is not expected that all Site-related contacts will be able to be counted. However, because of the broad nature of the above definition, some contacts counted as Site-related may be of families or persons who are long-time residents of the area but who are now employed on the Project. However, it is hoped that over-weighing some Site-related contacts will balance out the contacts in which Site-relatedness cannot be identified, such as traffic problems or when the individual does not reveal his employer.

8. The potential impact of the Construction Project on police needs was identified early by the affected cities. As a result of discussion between the Power System and the cities, the Power System agreed to provide $1,543,000 to five cities to offset the anticipated increased police costs during the Project period.

9. Indeed, traffic issues have been perhaps one of the most frequent news issues related to the Construction Project. This problem is also highlighted in research; see B. H. Bronfman, op. cit.

10. Monitoring report, July 1978, page II-160.

11. Gravel truck movement in the City of Elma has resulted in financial assistance ($109,000) to the City from the Power System. Also, agreements between the Power System, the State Department of Transportation, and the County have resulted in substantial payments by the Power System for new road construction.

12. See Note 3 of this Chapter.

13. The Washington State Department of Licensing reports that during 1979, 7½% of all new registrations of vehicles were out-of-state. This figure includes both persons in-migrating with vehicles and out-of-state new car sales to in-state residents. It is estimated that new car sales probably account for only 2 to 3% of the total new registrations.

14. To be counted as eligible, the parent must have moved to the school district after May 1, 1976 and be employed by one of the construction contractors during the pay period which included May 1 of each annual survey. All returns are validated by Washington Public Power Supply System by checking with the contractor. Only school districts covered by agreement with WPPSS are included in this table.

15. Urban school districts include Aberdeen, Hoquiam, Cosmopolis, and Wishkah Valley. Other includes North Beach, Taholah, Quinault, and Ocosta School Districts.

16. Office of Financial Management, State of Washington, Population Trends, 1979; and Department of Social and Health Services, State of Washington, Vital Statistics, 1970-1978.

17. Ibid.

18. Except for a large jump in urban area students in the 9th grade when private school students enter the higher grades in public schools.

19. According to the Washington State Superintendent of Schools, data includes only dropouts reported who drop out of school during the school year and does not include those who failed to return after the summer. As a result, figures are lower than the true annual dropout rate.

20. Data is based only upon permanent buildings. The use of portable classrooms tends to mitigate some of these problems. See WAC 180-30-010 for definition of space allocation formula.

21. See Note 19 of this Chapter.

22. The criteria used to select these "major agencies" were:

    (a) Must have full-time professional staff;
    (b) Must have been in existence since 1972;
    (c) Must have an existing budget over $50,000;
    (d) Must offer at least six of the eleven major categories of service (juvenile assistance, education, counseling, etc.);
    (e) Must keep adequate records in order to allow monitoring;
    (f) Must have permanent and separate facility;
    (g) Must offer services to adults and juveniles;
    (h) Must offer services to all areas of Grays Harbor County;
    (i) Must have served at least 50 clients in 1976; and,
    (j) Must not be covered in another data element (e.g. job services would be covered within the employment data element).

23. See Note 1 of this Chapter.

24. See tables GH-T.32.10.28 and 29, 4/80.

25. See Title 35A RCW, the Optional Municipal Code, for description of provisions for cities electing this government form.