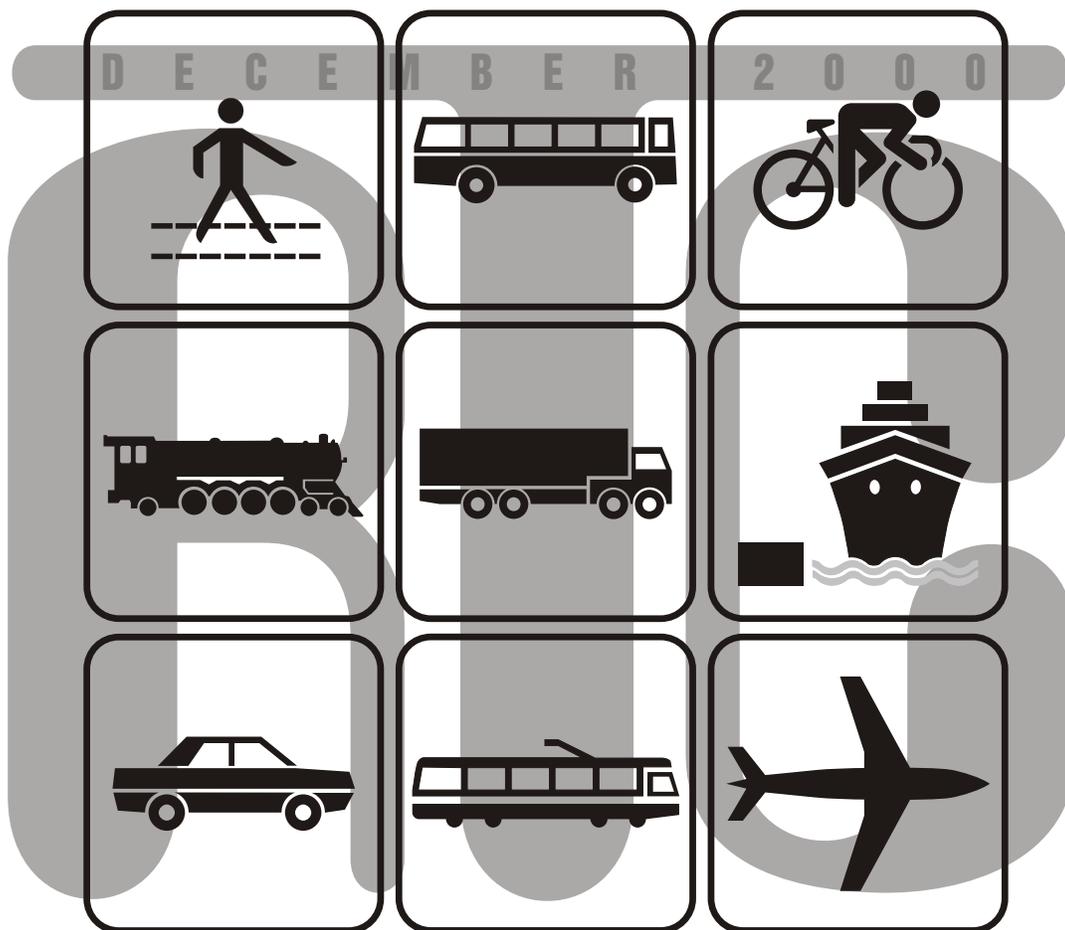


Metropolitan Transportation Plan for Clark County



Southwest Washington Regional Transportation Council

CHAPTER 2

LAND USE, GROWTH AND TRANSPORTATION

LAND USE AND TRANSPORTATION

In developing a metropolitan transportation plan the fundamental relationship between transportation and land use should be recognized and the effect that land use and growth have on transportation considered.

The linkage between land use and transportation is a complex issue but on a simple level the linkage can be thought of as working in two ways:

- 1) The spatial distribution and type of land use activity influences both the demand for travel and travel characteristics.

Different types of land use generate and attract differing traffic rates, for example, retail land uses will generate more trips than residential land uses.

- 2) Improving access by expanding the transportation system allows for the development of land that was formerly inaccessible.

The Land Use/Transportation cycle is illustrated in Figure 2-1.

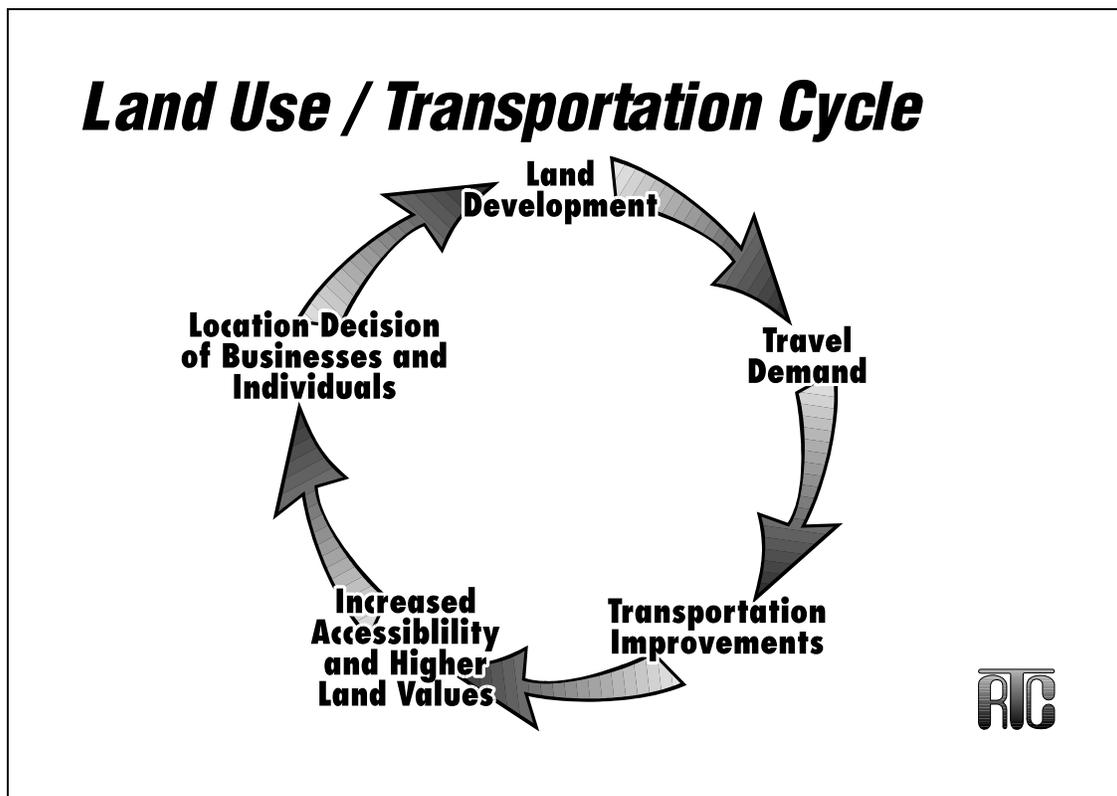


Figure 2-1: Land Use/Transportation Cycle

The Washington State 1990 Growth Management Act (GMA) recognized the importance of the linkage between land use and transportation and included in the Act were requirements that local comprehensive plans include a transportation element. Under the GMA, RTPOs were established to extend transportation planning. RTC was designated as RTPO for a three-county region which includes Clark, Skamania and Klickitat counties. The RTPOs were authorized to review the transportation elements of local comprehensive plans and certify that they comply with GMA requirements which included a requirements for consistency between the land use and transportation elements.

Land use and transportation are inter-linked; land use activities largely determine travel demand and desire. When different land uses are segregated, length of trips tends to increase. These longer trips are usually served more conveniently by the automobile, thus reducing the use of transportation alternatives, such as walking or transit, to meet mobility needs.

GROWTH AND DEVELOPMENT

Sustained economic development and growth within a region is desirable because of the economic benefits that increased employment and a larger tax base can bring. However, while growth can contribute to the health of a region's economy it can also have adverse impacts. Unmanaged, fast rates of growth can have a severe impact on the ability of a community to provide needed infrastructure and services. The costs of growth can include worsening levels of traffic congestion, decline in air quality, and overall degradation of the quality of life.

The need to maintain economic viability and, at the same time, quality of life is a challenge. Components which contribute to a desirable quality of life include job opportunities, affordable housing, a healthy environment with clean air and recreational opportunities. An efficient, safe transportation system contributes to the quality of life for residents of a region and can act as an attractor for economic development.

GROWTH IN CLARK COUNTY

Clark County has seen significant rates of growth in the last two decades. Between 1970 and 1999 the population of the county increased by 162% from 128,454 in 1970 to 337,000 in 1999 while the number of households increased by 206% from 42,816 in 1970 to an estimated 131,000 in 1999 (see Figure 2-2). The increase in total employment (all full- and part-time jobs) in the county was 245% from 42,977 in 1970 to over 148,100 in 1999. Washington State's Office of Financial Management (OFM) estimates that Clark County's 2000 population is at 345,000. The rapid growth seen in the County in the last two decades has increased demands on the regional transportation system.

Development of a transportation policy plan to provide for mobility of people and goods has to consider how to plan for a transportation system which can support increases in travel demand caused by growth in population and employment. At the same time this system has to be affordable and minimize environmental impacts to maintain the quality of life. A safe, efficient transportation system can work to enhance economic development within a region and

development of the transportation system in conjunction with land use plans can contribute to positive growth management.

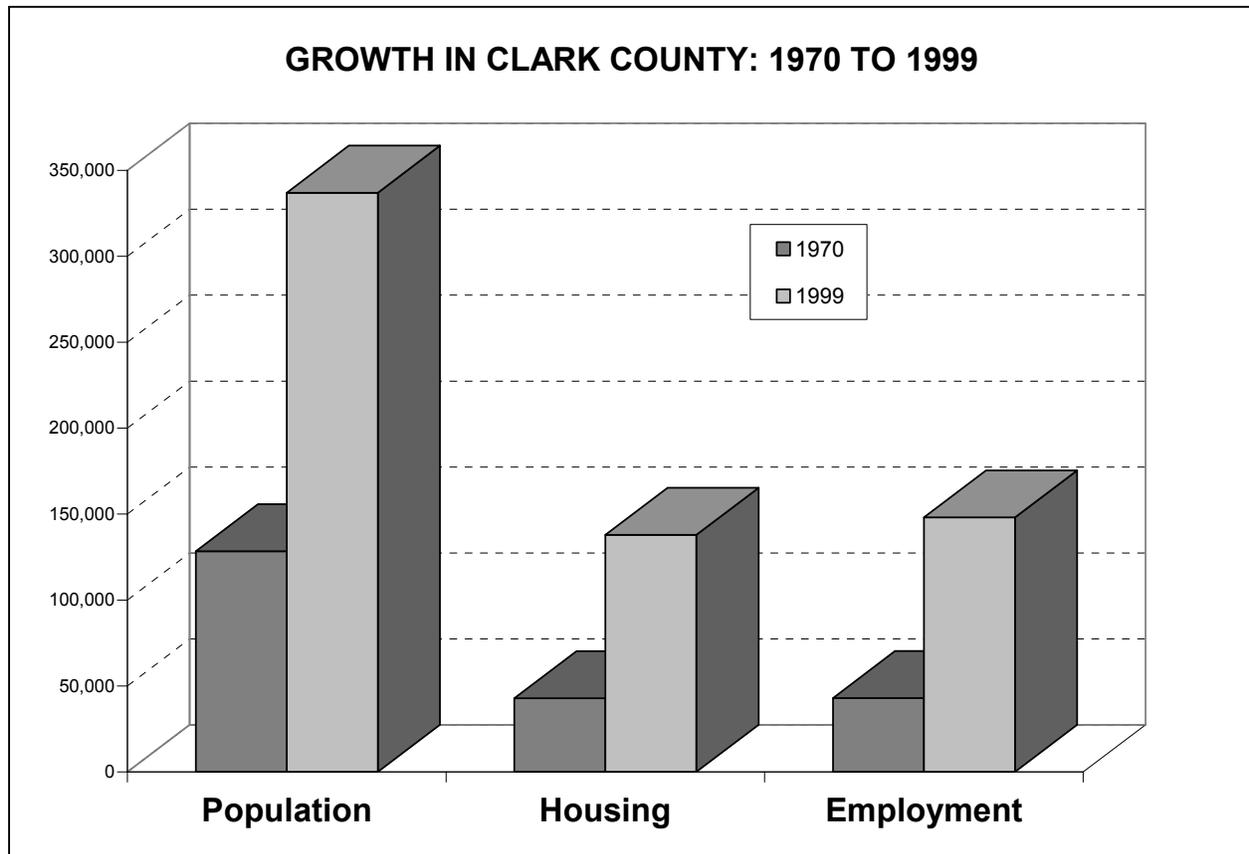


Figure 2-2: Growth in Clark County, 1970-1999

EXISTING LAND USES IN CLARK COUNTY

From the City of Vancouver, the urban hub of the county on the banks of the Columbia River, Clark County spreads through a rapidly growing suburban band, across agricultural lands and a network of smaller cities and towns to the slopes of the Cascade Mountain Range. The county is compact, measuring approximately 25 miles across in either direction and has an area of 405,760 acres (627 square miles).

Clark County's growth was stimulated by the development of "traditional" industries such as pulp and paper manufacturing, aluminum production and, during the wartime years, shipbuilding activities. In recent years the county has proved to be attractive to new manufacturing activities; the region is able to offer reasonably priced land for development in an attractive setting within a metropolitan area. Power is affordable and the region's location on the Pacific Rim, with easy access to Portland International Airport, has contributed to its growth and development. With the establishment of "new" high technology industries the region has been successful in diversifying its economic base. Major employers include Hewlett-Packard, SEH America, Georgia-Pacific Corporation, Fred Meyer, Southwest Washington Medical Center, Frito-Lay,

Burlington Northern Railroad, Wafertech, Columbia Machine, AVX Vancouver Corporation, American Kotobuki Electronics, the Vancouver Clinic, Sharp Microelectronics, and Underwriters' Laboratory.

Clark County's location on the northern periphery of the Portland metropolitan area has contributed to the significant growth in residential developments and employment activities within the county in recent years. The nationwide trend toward development of the suburbs of metropolitan areas for residential developments, as well as employment activities, is apparent in this region. This development trend has implications for the provision of transportation infrastructure and services.

In Clark County the past two decades has seen rapid population growth with most of the growth occurring in the unincorporated areas. Between 1970 and 2000 the incorporated areas saw a growth in population of 216% (54,267 population in 1970 to 171,525 in 2000) while the growth in the unincorporated areas was 134% (from 74,187 population in 1970 to 173,475 in 2000). The proportion of the population living in the unincorporated areas increased from 58% in 1970 to a high of 74% in 1992 and is 50% in 2000 while the proportion living in the incorporated areas changed from 42% in 1970 to a low of 26% in 1992 and the proportion is 50% in 2000 (see Figure 2-3). Recent annexations by the City of Vancouver and the County's smaller cities have produced this trend. A large annexation of the Cascade Park area to Vancouver took place in 1997; Vancouver became the State's fourth largest city and in 2000 Vancouver has a population of 137,500.

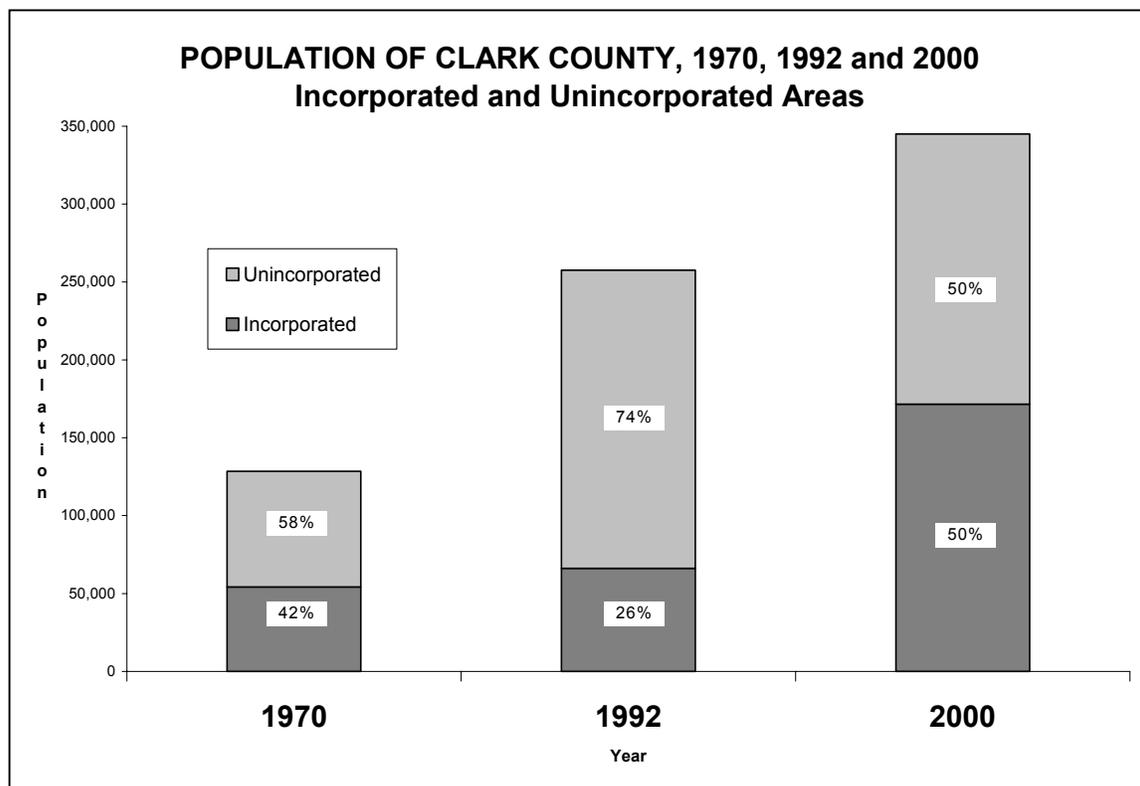


Figure 2-3: Incorporated and Unincorporated Population, 1970, 1992 and 2000

The provision of public facilities and services, including transportation, is a principal determinant of land use patterns. In relating land use patterns to the transportation system it is evident that contemporary land use patterns in Clark County have evolved largely as a result of dependence on the automobile for mobility of its residents. An examination of the existing combined land use maps of all the County's jurisdictions indicates that, within the urban area, residential and commercial activities have spread out along Highway 99, Fourth Plain, Mill Plain and SR-14. Late 1980's and 1990s growth in the Vancouver Mall area and Cascade Park/East County areas has resulted from the opening of SR-500 and I-205.

The City of Vancouver had seen relatively small growth in its population in the 1970's and 1980's. However, several recent annexations of land into the City have boosted its population from 65,360 in 1995 to 127,900 in 1997. In 2000, Vancouver's population is estimated at 137,500. Several new office buildings have opened in downtown Vancouver and great efforts are underway to revitalize the downtown area with apartments under construction, plans for new office buildings and events center. However, the focus for retail activity has shifted to the Vancouver Mall area. The Vancouver Mall area was annexed to the City of Vancouver in 1992. Significant residential development has occurred in the Cascade Park and east County area. Making the development of the Vancouver Mall and Cascade Park/east county areas possible was the opening of new highway facilities, I-205 and SR-500, offering increased accessibility to the two areas.

The Vancouver Mall area was a relatively isolated and undeveloped tract of the unincorporated County when the 918,000 square foot shopping mall was constructed in two phases in 1977 and 1980. However, the improved access provided by the completion of the I-205 Glenn Jackson Bridge in 1982 and SR-500 in 1984, contributed to the area's rapid development in recent years. New commercial, retail, and residential developments have been attracted to the area, including offices, shops, restaurants, hotel units and apartments. The first phase (over 440,000 square feet) of Vancouver Plaza, a retail development on 45 acres to the south-west of Vancouver Mall, opened in fall 1988 and the Parkway Plaza office development to the west of the Mall has seen the completion of three large office buildings.

The Glenn-Jackson Bridge carrying I-205 across the Columbia opened in 1982. This relieved the bottleneck on I-5 and opened up access to the Portland region from east Clark County, including access to Portland International Airport. Rapid development of the area to the east of I-205 followed. A lot of the County's recent growth has focused on the 4-lane Mill Plain corridor, between 112th and 164th Avenues. A mix of residential development has taken place ranging from the adult community at Fairway Village to numerous large apartment developments and the Fisher's Landing development. Commercial development began in the area in 1978 when Fred Meyer opened a shopping center at Chkalov and Mill Plain. Others were quick to realize the area's commercial potential. Recent commercial developments have included Columbia Square, Fisher's Mercantile and Mountain View Village.

Provision of public facilities and services, including transportation, has shaped the development of land uses in Clark County up to the present and will continue to do so in the future.

LAND USE: PLANS FOR THE FUTURE

Comprehensive plans are the means by which local jurisdictions plan for their future growth and development; they can provide a process for anticipating and influencing the orderly and coordinated development of land. Within Washington State planning authority is delegated by the state to local governments in RCW 36.70A, 35.63 and 35A.63. Before passage of the Growth Management Act, comprehensive plans were required to have a land use element showing the general distribution and location of land for various uses, as well as a circulation element showing the street system and transportation routes. Under planning provisions contained in the 1990 Growth Management Act, now contained in RCW 36.70a and RCW 47.80, local comprehensive plans become the basis for defining and integrating land use, transportation, capital facilities, public utilities and environmental protection elements. Within the comprehensive planning process these elements have to be inter-related and there has to be consistency between them. The GMA legislation requires that land use decisions should not be made without consideration of transportation needs and impacts.

CLARK COUNTY JURISDICTIONS' COMPREHENSIVE LAND USE PLANS AND ZONING - THEIR USE IN THE REGIONAL TRANSPORTATION PLANNING PROCESS

As part of the Growth Management planning process, Clark County adopted a *Community Framework Plan* in April 1993 to serve as a guide for the County's long-term growth over a period of fifty plus years. The *Framework Plan* envisions a collection of distinct communities; a hierarchy of growth and activity centers. Land outside the population centers is to be dedicated to farms, forests, rural development and open space. The twenty-year comprehensive plan is to guide the growth of the County toward the future vision. Growth Management plans for the urban areas of Clark County were developed by Clark County and the cities and town of the region through a Partnership Planning process. Plans for the rural and natural resource lands are handled by Clark County. GMA plans for the County and urban areas were subject to review under the State Environmental Policy Act (SEPA). In September, 1994, the *Final Supplemental Environmental Impact Statement for the Comprehensive Growth Management Plans of Clark County, Battle Ground, Camas, La Center, Ridgefield, Vancouver, Washougal, Yacolt, Volume I and Public Comments, Volume II* was published by Clark County. The public was given many opportunities to get involved in the planning process. In December of 1994 the GMA plans for Clark County were adopted and in May of 1996 revisions were adopted. The twenty year plans include urban area boundaries.

Comprehensive land use plans are used in the regional transportation planning process as the basis for determining future land uses and identifying where future development is likely to occur. The visionary development strategy presented in the *Community Framework Plan* and GMA plans were used as the basis for determining the future demographic distribution throughout Clark County.

POPULATION AND EMPLOYMENT FORECAST

For the Portland-Vancouver metropolitan region as a whole, demographic forecasts are usually formulated through a cooperative planning process by the Metropolitan Service District (Metro),

Portland, Oregon. The forecast region includes Clark County in Washington State, as well as Multnomah, Clackamas and Washington counties in Oregon. The MTP population forecast is a regional forecast developed by Washington Office of Financial Management (OFM) who worked with Metro and local jurisdictions in determining the forecast. Clark County's 2020 population is forecast to exceed 473,000, the number of households is forecast to be over 192,000, and total employment is forecast to exceed 227,000. The 2020 forecasts represent a 41% increase in population from a 1999 population of 337,000, a 47% increase in households, and a 54% increase in employment from 148,100 total full- and part-time jobs in Clark County in 1999.

TRANSPORTATION ANALYSIS ZONES

In the regional transportation planning process the forecast growth in housing and employment for the year 2020 is converted into projections of future travel demand. For the purpose of analyzing future travel demand, a "Transportation Analysis Zone" (TAZ) System is used. The Portland metropolitan area is divided into TAZs; there are 459 zones in Clark County and 2 Clark County external zones. For each Clark County TAZ, the comprehensive plan land use designations and existing zoning are used as a basis for distributing 2020 forecasts for housing and employment. The demographic distributions are based on the County's assessor's data, building permit data and on vacant, buildable lands analysis.

DISTRIBUTION OF FUTURE GROWTH

As described above, the population of Clark County is forecast to grow by over 136,000 during the planning period from 1999 to 2020 and employment is set to grow by more than 79,000. GMA plans call for the focus of development within the Vancouver UGA to be in three growth centers: Downtown Vancouver, Vancouver Mall and the Salmon Creek/Washington State University vicinity. Denser patterns of development are to be encouraged along the main transportation corridors where transit service expansion is planned. In the I-5 corridor, densities and appropriate urban designs are to be encouraged to maximize the efficiencies of land use and allow for High Capacity Transit development. The smaller cities of Clark County are planning for denser development and expansion of their urban boundaries as they become focuses for growth outside of the core urban area of Vancouver.

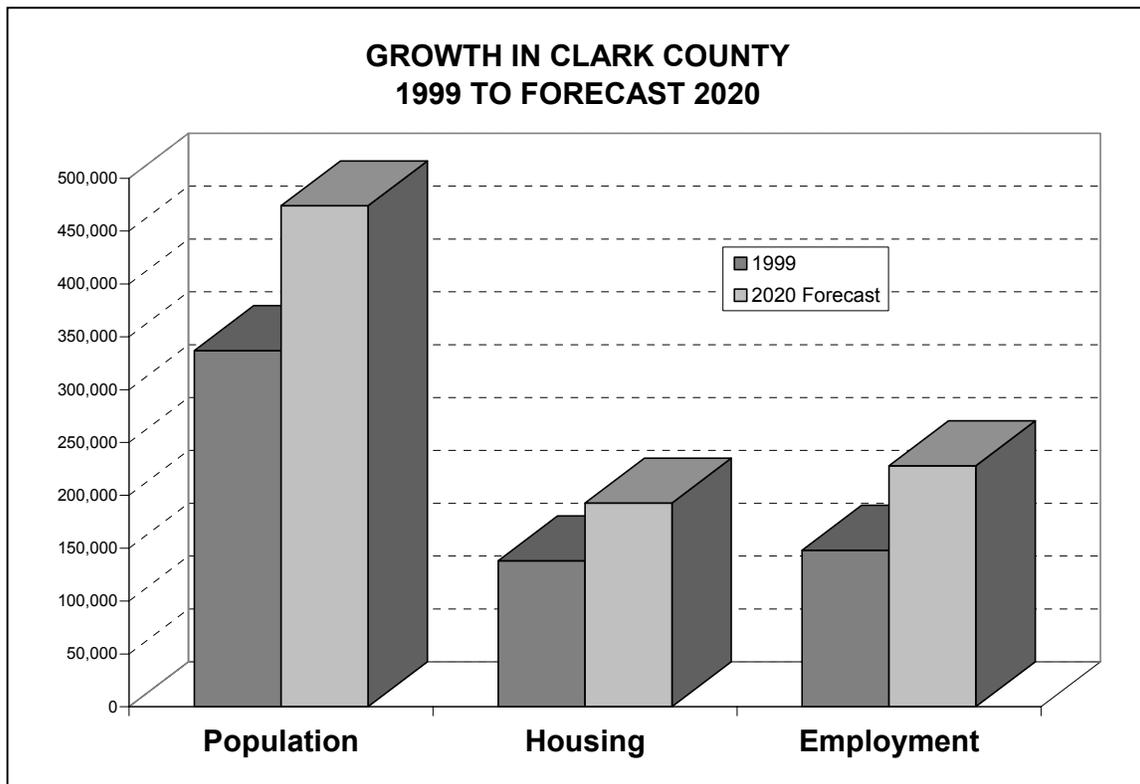


Figure 2-4: Growth in Clark County, 1999 to Forecast 2020

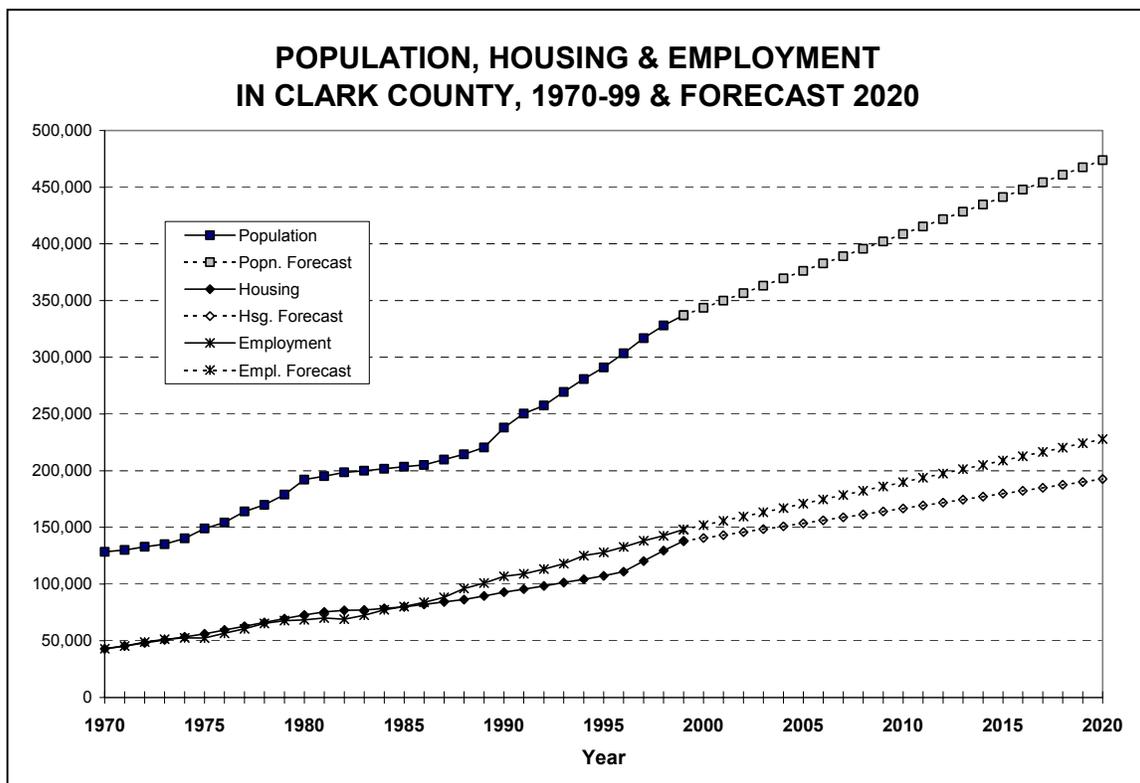


Figure 2-5: Population, Housing and Employment in Clark County, 1970-99 & Forecast 2020

DEMOGRAPHIC TRENDS

Not only does development and resulting land use patterns, together with growth in population and employment and its distribution, affect travel demand but current demographic trends are also tending to cause an increase in travel demand.

One of the most significant demographic trends in terms of land use and provision of transportation services is the trend toward smaller household size due to more single-person households and smaller family size. In 1980 the average number of persons per household in Clark County was 2.76, in 1990 it had fallen to 2.69 and, in future, is expected to decrease further. The 20-year forecast of population and housing for Clark County estimates an average of 2.5 people per household in future. Forecast population growth, combined with these demographic trends, results in significant development pressures for more housing and expansion of land devoted to residential uses. Smaller household size can lead to increased travel demand and the expansion of residential land uses necessitates improvements to the transportation system to access new and developing residential areas.

Another demographic trend that affects travel demand is the increase seen in female participation in the work force with a resulting increase in two-worker households. Typically, the two workers in the household each use an auto to get to work, use the auto for work purposes while at work, use it to run errands at lunch time and before or after work and, if they have a family, to take their children to daycare facilities. All result in people's increased reliance on the automobile that they consider their most convenient transportation mode.

Employment patterns have also been changing, with a relative decline seen in the traditional, blue-collar, industrial jobs and an increase in service sector employment. Clark County has seen this change in employment structure and has seen growth in "high-tech" employment and a large increase in the retail sector in recent years. The number of jobs is increasing in suburban areas such as Clark County and employment is dispersing throughout the region. The "new" suburban places of employment have also tended to add to travel demand because of their dispersal, because they have been designed for auto-commuters and are not so easily served by transit service.

Travel demand has also grown as the number of registered passenger cars in Clark County has increased dramatically over the last three decades (see Figures 2-6 and 2-7). 1960 to 2000 saw a 268% increase in population in Clark County but at the same time there was a 392% increase in registered passenger cars. Table 2-1 shows the 1970 to 2000 increase in registered passenger cars and registered vehicles (includes all trucks, commercial and recreational vehicles plus passenger cars) in Clark County. The number of passenger cars per household has increased at the same time as household size has decreased resulting in even more autos on Clark County highways.

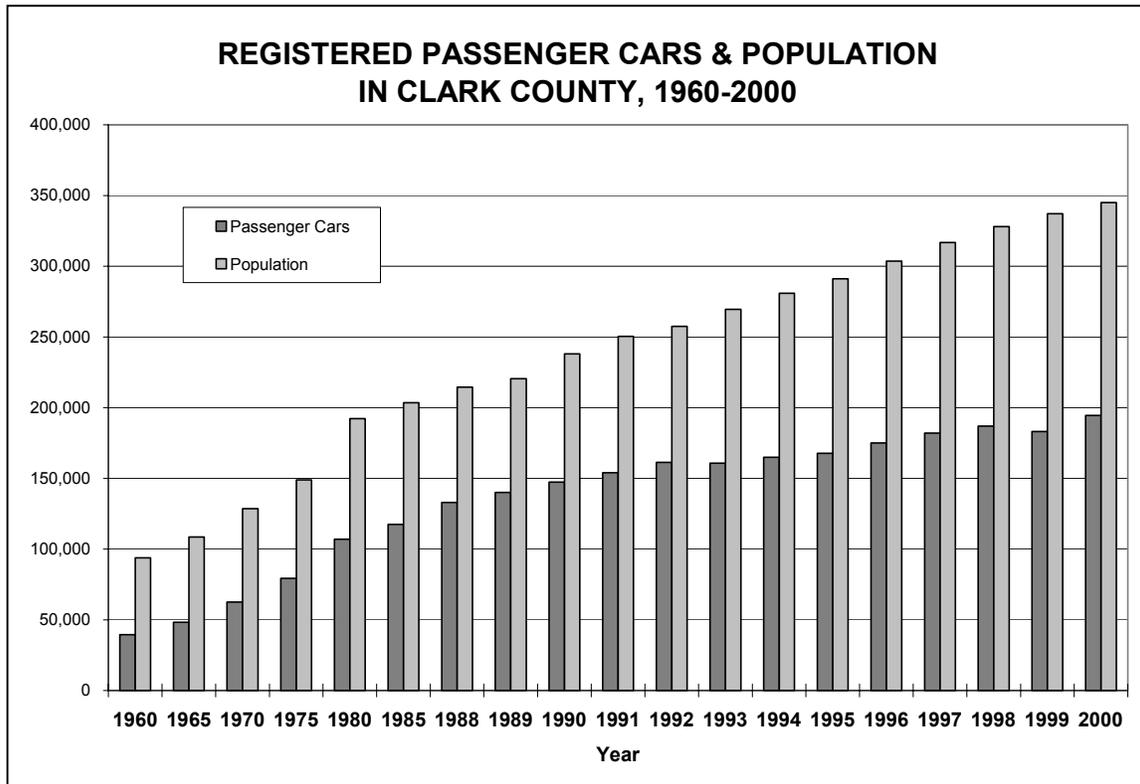


Figure 2-6: Registered Passenger Cars & Population in Clark County, 1960-2000

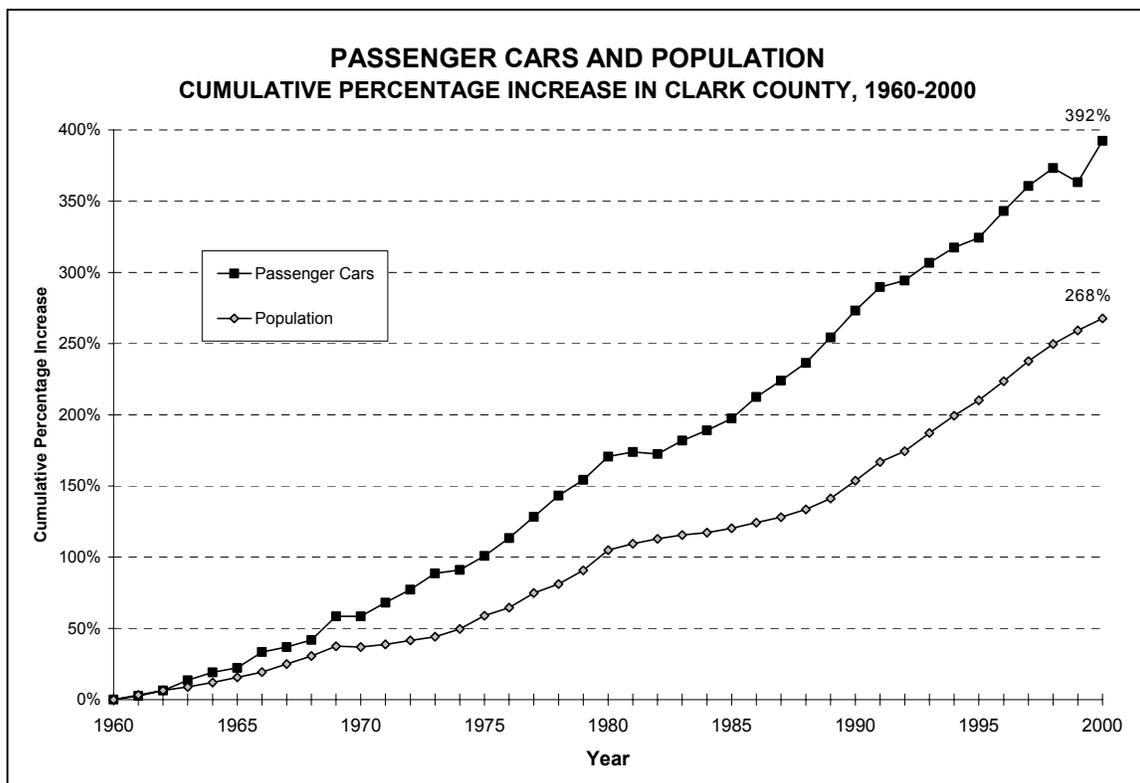


Figure 2-7: Passenger Cars and Population, Cumulative Increase in Clark County, 1960-2000

CLARK COUNTY GROWTH TRENDS										
Year	Popn.	Housing Units	Households	Persons per Household	Registered Passenger Cars	Registered Passenger Cars Per Head of Popn.	Registered Passenger Cars Per Household	Registered Vehicles	Registered Vehicles Per Head of Popn.	Registered Vehicles Per Household
1970	128,454	42,816	41,064	3.10	62,586	0.49	1.52	95,788	0.75	2.33
1980	192,227	72,806	68,750	2.76	106,889	0.56	1.55	171,474	0.89	2.49
1990	238,053	92,849	88,440	2.69	147,401	0.62	1.67	238,629	1.00	2.70
1999	337,000	134,063	131,000	2.57	183,053	0.54	1.40	302,754	0.85	2.18

Source: U.S. Bureau of the Census, Washington State Department of Licensing and Washington Office of Financial Management (April 1, 1999 Estimates). 1999 registered vehicles and passenger car numbers are skewed because of the influence of Initiative-695; many deferred registration of vehicles until 2000. 2000 numbers for Registered Passenger Cars is 194,492 and for Registered Vehicles is 316,958.

Table 2-1: Clark County Demographic Data

CLARK COUNTY 1999 TO 2020 GROWTH FORECASTS: MTP			
	1999	MTP 2020	% Change 1999 to 2020
Population	337,000	473,898	41%
Households	131,000	192,716	47%
Employment	142,500	227,910	60%

Table 2-2: Summary of Clark County Growth Forecasts

Clark County has seen a large growth in its population over the past two decades and the growth trend is likely to continue. At the same time, there has been a larger increase in the number of vehicles registered in the County, adding to the demands put on the County's transportation system. Development of land, growth in population and travel demand requires a combination of expansion of public facilities and service provision and a revision to land use plans to ensure mixed use developments and better balance of jobs and housing throughout the region. The comprehensive plans for the Clark County region, developed under the Growth Management Act (GMA), intends to reverse the trend of increased dependence on the automobile. Land uses and transportation have been linked in the planning process and their inter-relationships considered in developing a vision for future growth and future growth patterns. In assessing future transportation needs for the Clark County region the comprehensive plans of its jurisdictions are used as a basis for analysis of the transportation system. The GMA requires that transportation system improvements be put in place 'concurrent' with land development. This is essential if growth is to occur in an orderly manner.