SECTION 3.0
DEMOGRAPHICS AND PHYSICAL ENVIROMENT

It is important to understand the makeup of a community when developing a general plan. There are two general areas that are important to understanding your community. The first area is the demographics of a community. The demographics are the people that live within the community. The second area is the physical environment of the community. Understanding these two areas will provide the community with a better feeling for the planning needs of the Community in the future. The following section provides an overview of the demographics and physical environment of the Town of Elwood.

3.1 Demographic Profile

Demographic analysis is fundamental in determining the future needs of a community. Elwood's population has been mathematically projected for the next twenty years. Although projections are never infallible, they are used as a general guideline for decision-making. Any number of non-quantifiable, subjective factors will directly influence the population growth of Elwood over the next two decades.

3.1.1 Population Growth

From the 1950's to 1970, the Town of Elwood experienced an out-migration of population. Since the 1970's, the population in Elwood stabilized and has experienced a steady rate of growth. The annualized growth rate for the Town of Elwood is about 3 percent. To a large extend, these trends are a reflection of population growth for Box Elder County. The Town of Elwood is expected to continue to experience an increase in population, at a projected modest rate.

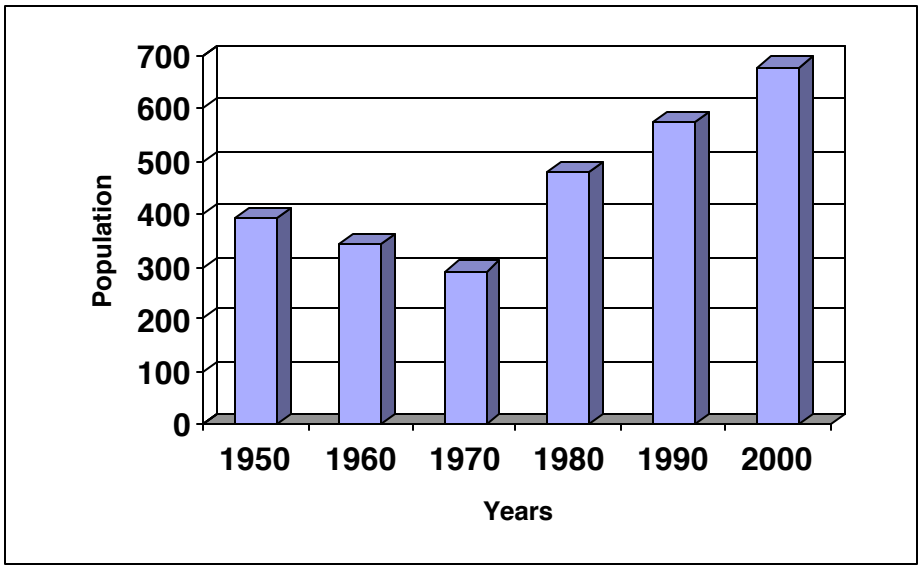
Annual Population Growth Comparison

Year	**Population**	**% Growth Elwood**	**% Growth County**
1950	393	--	2.0 %
1960	345	-1.3 %	1.4 %
1970	294	-1.6 %	1.0 %
1980	481	5.0 %	1.4 %
1990	575	1.7 %	1.4 %
2000	678	1.8 %	1.6 %

Source: U.S. Bureau of Census, Census, 1950, 1960, 1970, 1980, 1990 and 2000

Since the 1970's, the population growth of Elwood (2.8%) has grown at approximately double the rate of Box Elder County (1.4%). The steady growth of Elwood since 1970 is expected to continue. The figure on the next page illustrates population growth for the Town of Elwood since 1950.

Elwood Population Growth



Source: U.S. Bureau of Census

3.1.2 Community Profile

In 2000 there were 357 male and 324 female residents of Elwood. For this same period there were 678 persons living in 171 families, making an average family size of 3.79 persons. Family size for the State of Utah averages 3.57 persons, while Box Elder County is 3.63 persons. Approximately 94.1% of Elwood's residents are white, with 95.7% of non-hispanic origin. Roughly 41 persons of minority races, Black, American Indian, Asian or Pacific Islander or other, live within the City's boundaries. An average density of 3.20 persons per acre currently exists. Approximately, 37.9% of Elwood's population is between 1 and 17 years old, with another 40.8% between ages 18 and 49, and only 21.2% at age 50 or older. The Table below makes a simple demographic comparison of Elwood with three other, nearby cities.

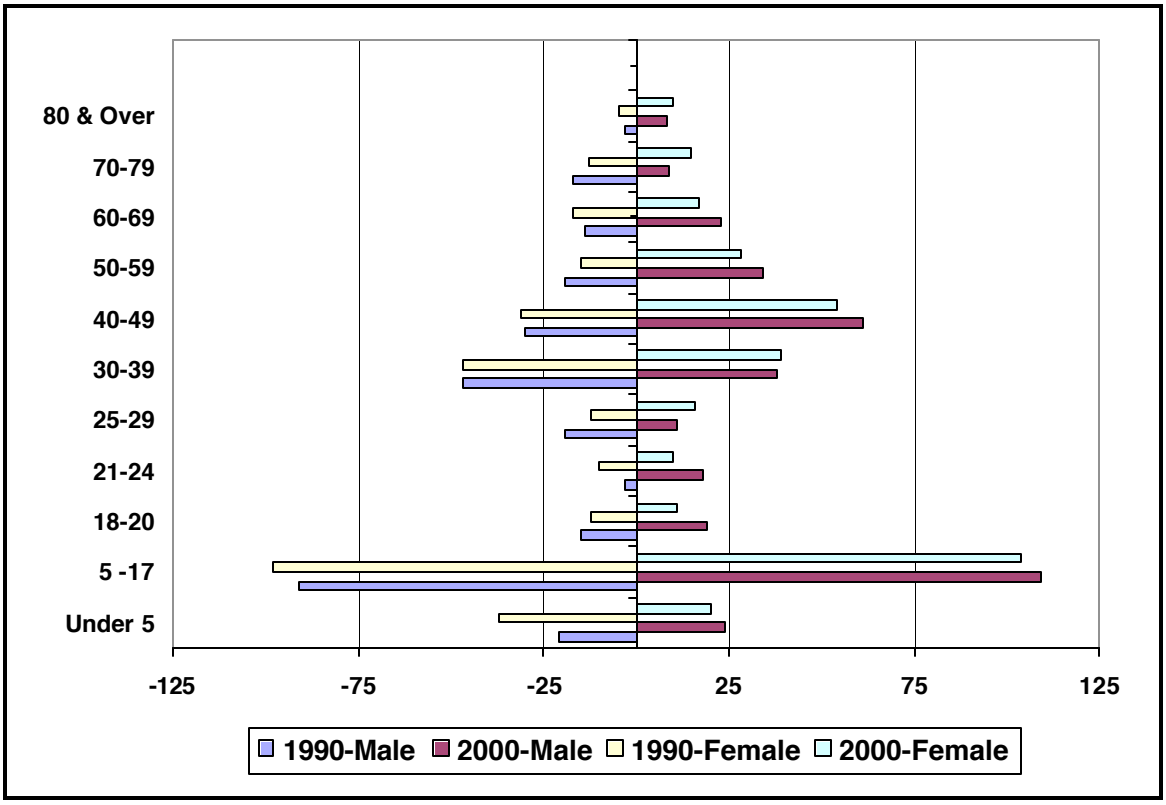
Of the 681 persons living in the Town of Elwood in 2000, 606 or 89.4 % own or are purchasing their own home. Approximately 75 persons within the City's boundaries are renters. Population density averages eighty eight persons per square mile. The population of the Town of Elwood is very stable with 63% of local residents having lived in the City for ten year or longer. Approximately, 91% expect to be living in the City five years from now.

Annual Population Growth Comparison

City	% Minority	Family Size	Median Age
Elwood	5.9	3.79	29.4
Tremonton	8.5	3.67	25.4
Bear River	3.7	3.64	29.7
Brigham City	8.7	3.53	28.8

Source: U.S. Bureau of Census, Census 2000

A standard method of population comparison is the use of an age cohort pyramid. When the age cohorts for 1990 and 2000 are combined in one composition, it is easy to recognize which age groups represent the largest proportion of the total population and which age groups have increased or decreased over the last ten years. The Figure below shows both the 1990 and 2000 population age cohort for the Town of Elwood



Source: U.S. Bureau of Census, Census 1990 & 2000

3.1.3 2000 Census

The population of Elwood can be broken down a number of ways in the publications of the census. The following table is derived from census tract data contained in Summary Table DP-1 from the 2000 census.

Subject	Number	Percent	Subject	Number	Percent
Total population	**678**	**100.0**	**HISPANIC OR LATINO AND RACE**		
			Total population	**678**	**100.0**
SEX AND AGE			Hispanic or Latino (of any race)	29	4.3
Male	354	52.2	Mexican	28	4.1
Female	324	47.8	Puerto Rican	-	-
			Cuban	-	-
Under 5 years	44	6.5	Other Hispanic or Latino	1	0.1
5 to 9 years	74	10.9	Not Hispanic or Latino	649	95.7
10 to 14 years	81	11.9	White alone	632	93.2
15 to 19 years	79	11.7			
20 to 24 years	37	5.5	**RELATIONSHIP**		
25 to 34 years	64	9.4	**Total population**	**678**	**100.0**
35 to 44 years	99	14.6	In households	678	100.0
45 to 54 years	88	13.0	Householder	194	28.6
55 to 59 years	30	4.4	Spouse	148	21.8
60 to 64 years	22	3.2	Child	305	45.0
65 to 74 years	33	2.4	Own child under 18 years	242	35.7
75 to 84 years	16	4.2	Other relatives	24	3.5
85 years and over	11	1.6	Under 18 years	12	1.8
			Nonrelatives	7	1.0
Median age (years)	29.4	(X)	Unmarried partner	1	0.1
			In group quarters	-	-
18 years and over	421	62.1	Institutionalized population	-	-
Male	221	32.6	Noninstitutionalized population	-	-
Female	200	29.5			
21 years and over	391	57.7	**HOUSEHOLD BY TYPE**		
62 years and over	77	11.4	**Total households**	**194**	**100.0**
65 years and over	60	8.8	Family households (families)	171	**88.1**
Male	29	4.3	With own children under 18 years	92	47.4
Female	31	4.6	Married-couple family	148	76.3
			With own children under 18 years	84	43.3
RACE			Female householder, no husband present	10	5.2
One race	670	98.8	With own children under 18 years	4	2.1
White	637	94.0	Non-family households	23	11.9
Black or African American	-	-	Householder living alone	23	11.9
American Indian and Alaska Native	3	0.4	Householder 65 years and over	13	6.7
Asian	9	1.3			
Asian Indian	-	-	Households with individuals under 18 years	97	50.0
Chinese	-	-	Households with individuals 65 years and over	42	21.6
Filipino	-	-			
Japanese	7	1.0	Average household size	349	(X)
Korean	-	-	Average family size	3.79	(X)
Vietnamese	-	-			
Other Asian 1	2	0.3	**HOUSING OCCUPANCY**		
Native Hawaiian and Other Pacific Islander	-	-	**Total housing units**	**198**	**100.0**
Native Hawaiian	-	-	Occupied housing units	194	98.0
Guamanian or Chamorro	-	-	Vacant housing units	4	**2.0**
Samoan	-	-	For seasonal, recreational, or occasional use	2	**1.0**
Other Pacific Islander 2	21	3.1			
Some other race	8	1.2	Homeowner vacancy rate (percent)	0.6	**(X)**
Two or more races			Rental vacancy rate (percent)	-	**(X)**
Race alone or in combination with one or more other races: 3	645	95.1	**HOUSING TENURE**		
White	-	-	**Occupied housing units**	**194**	**100.0**
Black or African American	6	0.9	Owner-occupied housing units	171	88.1
American Indian and Alaska Native	13	1.9	Renter-occupied housing units	23	11.9
Asian	-	-			
Native Hawaiian and Other Pacific Islander	22	3.2	Average household size of owner-occupied units	3.54	(X)
Some other race			Average household size of renter-occupied units	3.13	(X)

Source: U.S Census Bureau, Census 2000

3.1.4 Population Projections

The importance of an accurate population projection in the careful planning of a city's future cannot be underestimated. Virtually every important element of Elwood will be directly affected by the increase or decrease of its most important resource, people. A precise population forecast can aid local planners, engineers and administrators in determining the amount of land required for future housing, the increased demand for parks and recreational amenities, the location of new public facilities such as schools and libraries, increased public services such as police and fire protection, demand for commercial development and the likelihood of new employment

Annual Population Growth Comparison

City	**2010**	**2015**	**2020**	**2025**	**2030**
Population	869	992	1005	1080	1161
Housing Units	249	284	288	309	333

Source: Governor Office Planning & Budget

3.2 Physical Environment

The physical environment plays a very important part in the development of a community. The physical environment will shape and effect physical design of a community. The type of urban development that may take place on the land will be determined based on what physical constraints exist.

3.2.1 Water Resources

Water resources play an important role in nearly every community, as a source of drinking water, as a recreational resource, as a source of water for irrigation, and as a fishery. Water resources can be divided into two categories: ground water and surface water.

Surface water can range from very large rivers and lakes to small ponds and streams. Urban development can, however, have a serious negative impact on water quality. Surface waters, chiefly rivers and large lakes, frequently suffer from the effects of pollution generated by urban development, sewage systems, power plants, and agricultural runoff.

While most water quality problems are due to effluents from sewage treatment plants, sewer systems overflows, and industrial waste outfalls, new commercial and residential development can have an adverse effect on surface water quality. The source of such pollution is from urban runoff, chiefly from impervious surfaces such as streets, parking lots and sidewalks from which oil and gasoline is carried by rain into surface water.

The following questions should also be asked when conducting the wetland screening:

- Are there visual or indications of water problems on or near the site?
- Will the project involve a substantial increase in impervious surface area, and, if so, have runoff measures been included in the design?

3.1.2 Wetland Areas

"Wetlands" refers to those areas that are inundated by surface or groundwater with a frequency under normal circumstances that would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

Wetlands can assist man through groundwater filtering, storage, recharge, flood control, nurturing wildlife, including food sources such as water fowl and fish, water purification, oxygen production, recreational locations, and aesthetics. Urbanization has heavily impacted wetlands in the United States. It is estimated that from over a third to a half of the wetlands in the United States have been destroyed. In addition to filing, creation of pollution threatens additional wetlands. Federal policy recognizes that wetlands have unique and significant public values and calls for the protection of wetlands. The following should be taken into consideration:

- Avoid long and short-term adverse impacts associated with the destruction or modification of wetlands;
- Avoid direct or indirect support of new construction in wetlands;
- Minimize the destruction, loss or degradation of wetlands;
- Preserve and enhance the natural and beneficial values served by wetlands; and,
- Involve the public throughout the wetlands protection decision making process.
- Look for available alternatives to locating the project or activity in the wetland.
- Is the proposed project or activity in compliance with conditions set forth by the U.S. Army Corps of Engineers concerning permits for dredge and fill activity?

3.2.3 Flood Plain Areas

Federal policy defines high flood risk areas (flood plains) as those subject to a one percent or greater statistical chance of flooding in a given year. Areas identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards are defined in the Flood Hazard Boundary Maps or Flood Insurance Rate Maps. The Flood Zone A and V are referred to as the "100-year flood plain".

Such areas are expected to flood at least once every one hundred years and are normally dry areas subject to partial or complete inundation due to overflow of inland waterways or accumulation of other surface water. Typical flood plain areas include low land along rivers and streams, flat areas in which storm water accumulates due to clay soils, and ravine areas subject to flash floods.

Impacts of locating a transportation project in a flood plain may range from property damage to loss of life when a flood occurs. Even if a transportation project is not located in a flood plain, project construction may increase flood hazards elsewhere. For example, extensive paving may result in faster runoff and substantially increase water volumes being emptied in local rivers or lakes. The following questions should be asked when conducting the initial flood hazard screening:

- Will the project be located in the 100-year flood plain?

- Will the project change the 100-year flood plain, or affect the flood way? (The flood way is the portion of the flood plain that must be reserved in order to discharge the 100-year flood with cumulatively increasing the water surface elevation more than one foot at any point.)
- Are there available alternatives to locating the proposed project or activity in the flood plain?
- Is the proposed project or activity in compliance with conditions set forth by the U.S. Army Corps of Engineers concerning permits for dredge and fill activity?

Where these natural features cannot be avoided, the project or activity must be designed or modified so as to minimize the potential adverse impacts affecting water resources, wetland and flood plain areas. To restore and preserve the natural and beneficial values served by these natural features, use measures which mitigate or reduce the risk of decreased water quality, flood loss, and loss of wetland areas. Mitigation must achieve protection of life, property, and of the natural and beneficial values of the natural features.

3.2.4 Geology

Elwood is located in the drainage basin, which consists of approximately 730 square miles in North-Central Utah. Structurally, the drainage basin is a complex layer of faulted blocks modified by erosion. A thrust fault is on the south edge of the drainage basin, south of Perry, Utah. Thrust faults probably exist at depth under most of the drainage basin. Rocks exposed in the drainage basin are of the Precambrian, Paleozoic, and Cenozoic age. The Town of Elwood is located on the unconsolidated valley floor deposits, which are predominantly Holocene and Pleistocene aged cobbles, gravels, sands, and silts associated with high stands of Lake Bonneville and overlain with alluvial deposits.

3.2.5 Geology Hazards

Potential geologic hazards in the Wasatch Front area include seismic hazards (ground shaking, surface fault rupture, tectonic subsidence, liquefaction, seismically slope failure and/or flooding), slope failures, problems soils, flooding, and shallow ground water.

Elwood is in an active earthquake zone called the Intermountain Seismic Belt which runs from northwest Montana to southwest Utah. In the area of Elwood, the largest magnitude earthquake during historical time occurred in 1946 and was an estimated 5.0 on the Richter scale. Numerous smaller earthquakes have occurred in the Box Elder County within the last 120 years.

The Wasatch Fault, which runs north-south along the front of the mountains in eastern Box Elder County, is of the most concern because of the recent time frame of movement, potential for generating large earthquakes, and proximity to the Town of Elwood. It consists of a zone of faults and crustal deformation, sometimes as much as several thousand feet wide, and is considered capable of generating earthquakes of a magnitude of 7.0 to 7.5. Other fault zones, such as the Hansel Valley or East Cache Fault zones, are capable of generating earthquakes which could cause ground shaking damage within Elwood.

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3.2.6 Soils

The soils within the Town of Elwood, formed from the area's surficial geology, are generally lake bottom sedimentary types which remained behind the receding waters of ancient Lake Bonneville. The Lake breached to the Snake River Valley about 15,000 years ago. Between 14,000 and 12,000 years ago, Lake Bonneville evaporated to its present size leaving additional deposits of salt, mud, sand, silt and gravel exposed. The intervening years have seen a wide variety of soil types evolve from these residual lake sediments, ranging from soils strongly affected by their saline-alkali content to earth that is good for agriculture and building construction. The map on following page illustrates the location of Elwood's thirteen major soil types.

3.2.7 Construction Limitations

The thirteen different soil classes found in the Town of Elwood have innate characteristics that are compatible with the demands of building construction. They are easily compacted for building footings and foundations and can be used as road base, since they exhibit strong shear-strength and load-bearing capacity. Some local soils are only moderately to poorly drained, depending on depth to ground water. In these locations there is a tendency toward active shrink-swell cycles because of the high clay and silt composition of these soils. The engineering design of footing for heavy structures in these areas depends greatly on the moisture content of the ground and the permeability of the soil. The table below summarizes the limitations of Elwood's soils with regards to specific types of development and improvements.

Soil Limitations

Soil Type	Dwellings w/ Basements	Septic Tanks	Road Suitability	Recreation & Landscaping
Airport	severe	moderate	severe	moderate
Collett	severe	severe	severe	moderate
Fielding	moderate	moderate	severe	slight
Greenson	moderate	severe	severe	moderate
Honeyville	severe	severe	severe	moderate
Kearns	severe	mod to severe	severe	mod to severe
Kidman	mod to severe	mod to severe	mod to severe	slight to mod
Kirkham	severe	severe	severe	moderate
Martini	moderate	severe	moderate	moderate
Parleys	severe	severe	severe	moderate
Roshe Spring	severe	moderate	severe	moderate
Sunset	severe	severe	severe	slight
Timpanogos	severe	severe	severe	slight to mod

very slight - relatively free of limitations
slight - few existing limitations can be easily overcome
moderate - limitations can be overcome by careful planning and sound management
severe - limitations are serious enough to make use questionable and above average planning and management are required
very severe - limitations require extreme measures to overcome and the use of this soil is generally not recommended

Source: USDA Soil Survey, Box Elder County (Eastern Part), Utah, 1975.

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Front of Soils Map

Back of Soils Map