

EXISTING AND FUTURE POPULATION & EMPLOYMENT CONDITIONS

2.1) BACKGROUND

To effectively plan for the next 25 years it is essential that a determination of the area's base year demographics (population, household size, employment, household income, and land use) is firm. It is necessary to look at how the local economy is affected by periods of national recession. Does the local economy slow or decline during a national recession, or does it appear unaffected? This will ensure that the future projections based on the base year's demographics are focused and accurate. The MPO used 2008 as the base year for the Metropolitan Transportation Plan (MTP) update. Various federal and state government data sources were used for the population and employment forecast totals for the Farmington MPO region. All long-term trends in population, employment, and real personal income have been analyzed and adjusted for inflation.

When developing future travel patterns one needs to achieve a comfort level with the demographic totals used in the development process. The tendency is to be more comfortable with the recent trends. When the economy is doing well, the tendency is to select an optimistic forecast. The tendency to select a conservative forecast usually occurs if the current or most recent trend is decreasing or flat. However, economies are circular in nature and upturns and downturns tend to counteract each other over a 20 or 30-year time span. For the MTP update staff annualized growth rates over a 25 year window for long term demographic projections.



2.2) TRANSPORTATION and LAND USE CHARACTERISTICS

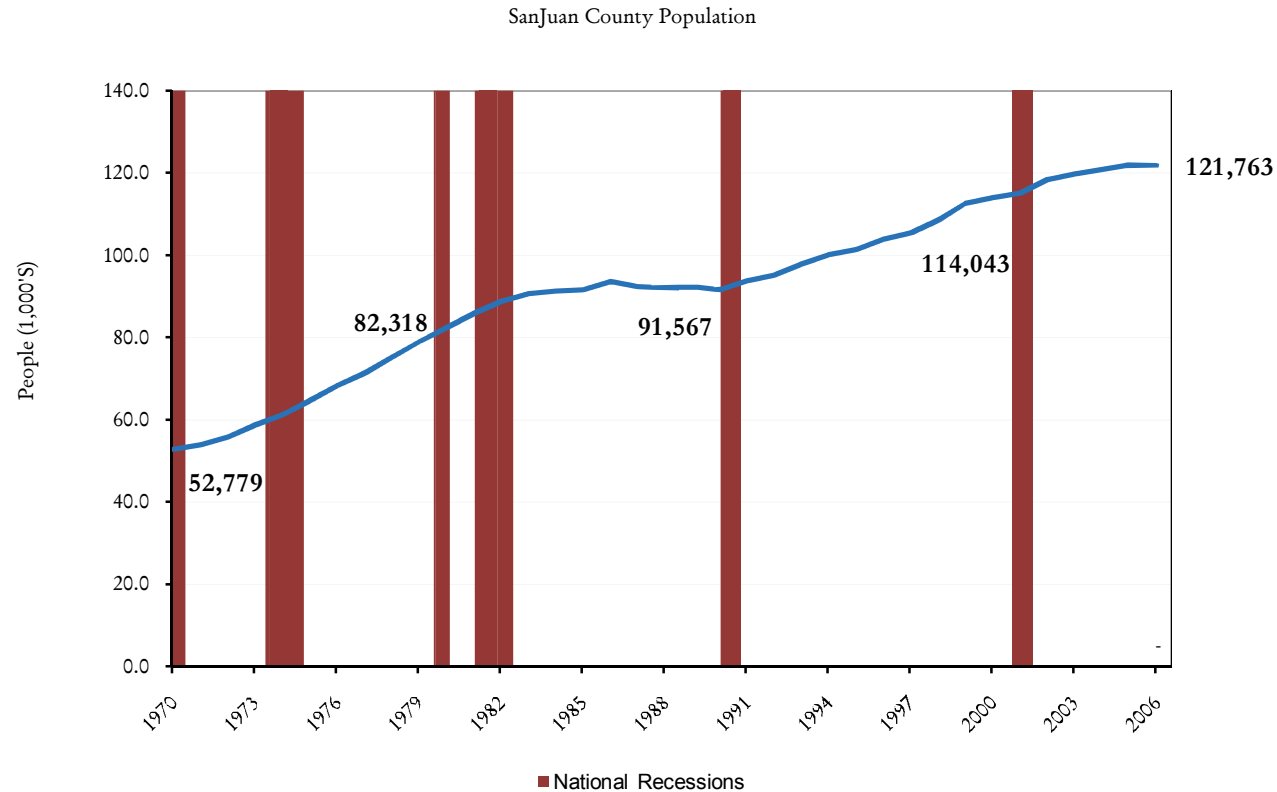
The interaction between transportation and land use go hand in hand. Whether the land use is residential, commercial, industrial, or other types, the activities that occur in each land use form the basis of trip making and travel demand. Typically, residential areas produce trips and employment areas will attract trips. To connect these areas, travel choice is influenced by several factors, such as distance, cost, and transportation modes that are available. Part of the update process requires estimates and assumptions about future land use developments and new transportation options that will best serve future travel demand.

2.3) HISTORICAL POPULATIONS

From 1970 to 2006 the San Juan County population grew by 68,984 people, a 131% increase in population over a 36 year span (Figure 2-1). This population increase translates into an annual rate of increase of 2.3%. When comparing San Juan County over the last 36 years to New Mexico and the United States, population growth in San Juan County outpaced that of the State and the nation, 131% vs. 90% and 47% respectively.

In 2008 the total population for the Farmington MPO was approximately 98,000. The population distribution by entity shows that Aztec and Bloomfield have approximately 8,100, and 7,500 respectively. The City of Farmington has approximately 45,000 and the urbanized areas (a group of census blocks which have a population density of at least 1,000 people per square mile) of San Juan County have 38,500 within the MPO Boundary. Population within the MPO boundary represents about 80% of the total population within the county.

Figure 2-1 – Historical Population in San Juan County from 1970 to 2006



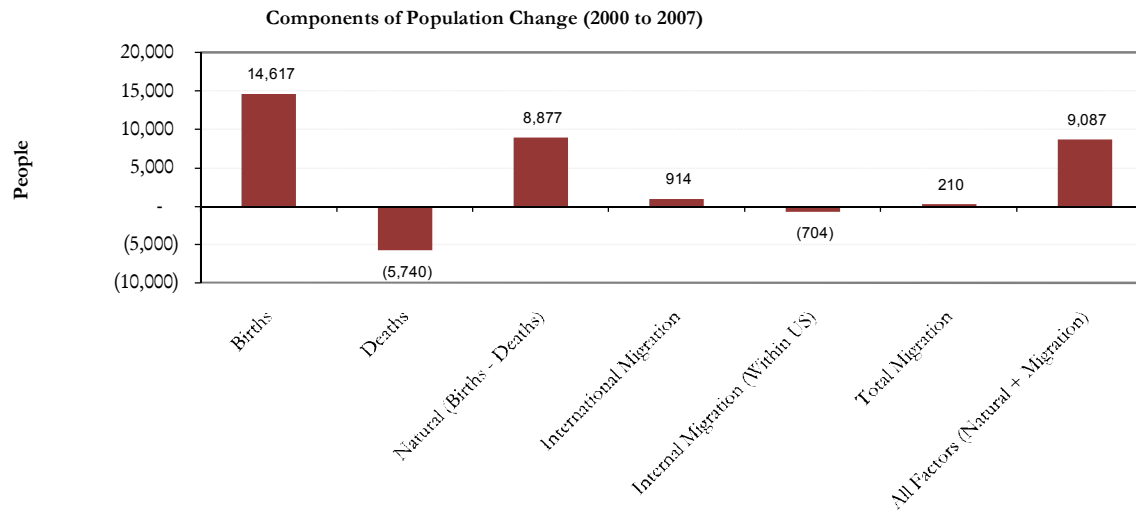
2.4) CURRENT and FUTURE POPULATION

The process for forecasting future growth in population and employment is not an exact science. To evaluate the population change within San Juan County and ultimately within the MPO region, various components of population change are taken into account. Total population growth is measured by the natural growth plus total migration. Natural growth is defined by the total number of births less total deaths, and total migration is defined as the change in international and domestic migration (Figure 2-2). By

understanding the components of population growth, insight can be gained into the cause of the growth (or decline). The total population within the Farmington MPO was derived from the total population of San Juan County.

Population numbers were originally obtained through data mining techniques that gathered San Juan County socio-economic information from 1970 to 2008. Once this information was gathered the information was graphically produced using the software program ArcGIS to visually display the growth patterns and then reviewed by each member entity. The information was also presented to other stakeholder groups and the numbers were then adjusted to reflect proposed annexation, future developments and other factors such as the lack of utilities and other inhibiting factors. The Farmington MPO population ranges from 80-85% of the total San Juan County Population (Table 2-1). This method ensures that the population is capped.

Figure 2-2 – Population Growth Components in San Juan County



Population numbers after the year 2015 were also furthered constrained by future assumed conditions which would limit the growth rate of the future population within the MPO boundary. Some of the assumed growth restrictions were the lack of developable land, the existing topography, archeological sites, current zoning and lack of transportation and utility infrastructure. An inhibiting growth factor was developed to reflect the constrained conditions, allowing the model to allocate the remaining population to the portions of San Juan County outside of the MPO boundary.

TABLE 2-1 – Future Population Growth

Jurisdiction	2008 Population	2015 Population	2020 Population	2030 Population	2035 Population
Aztec	7,600	8,127	8,473	9,083	9,367
Bloomfield	7,561	9,985	10,422	11,196	11,557
Farmington	45,038	51,929	54,147	58,072	59,900
San Juan County (within the MPO)	38,444	49,273	51,304	54,897	56,571
MPO Total	98,643	119,314	124,346*	133,248*	137,395*
San Juan County (whole county)	110,973	131,245	141,754	154,568	160,752

*Population growth was constrained within the MPO boundary due to available land, zoning, archaeological sites and natural topography.

While area-wide demographic control totals were readily available, these figures needed to be disaggregated to census tracts and eventually to the TAZ - Traffic Analysis Zone (a geographical cluster of similar land uses) level for use in the travel demand model. It should be noted that the disaggregation process will produce an estimate of what may happen in the future; there is no way to predict the occurrence of unforeseeable changes that would affect the future distribution of population.

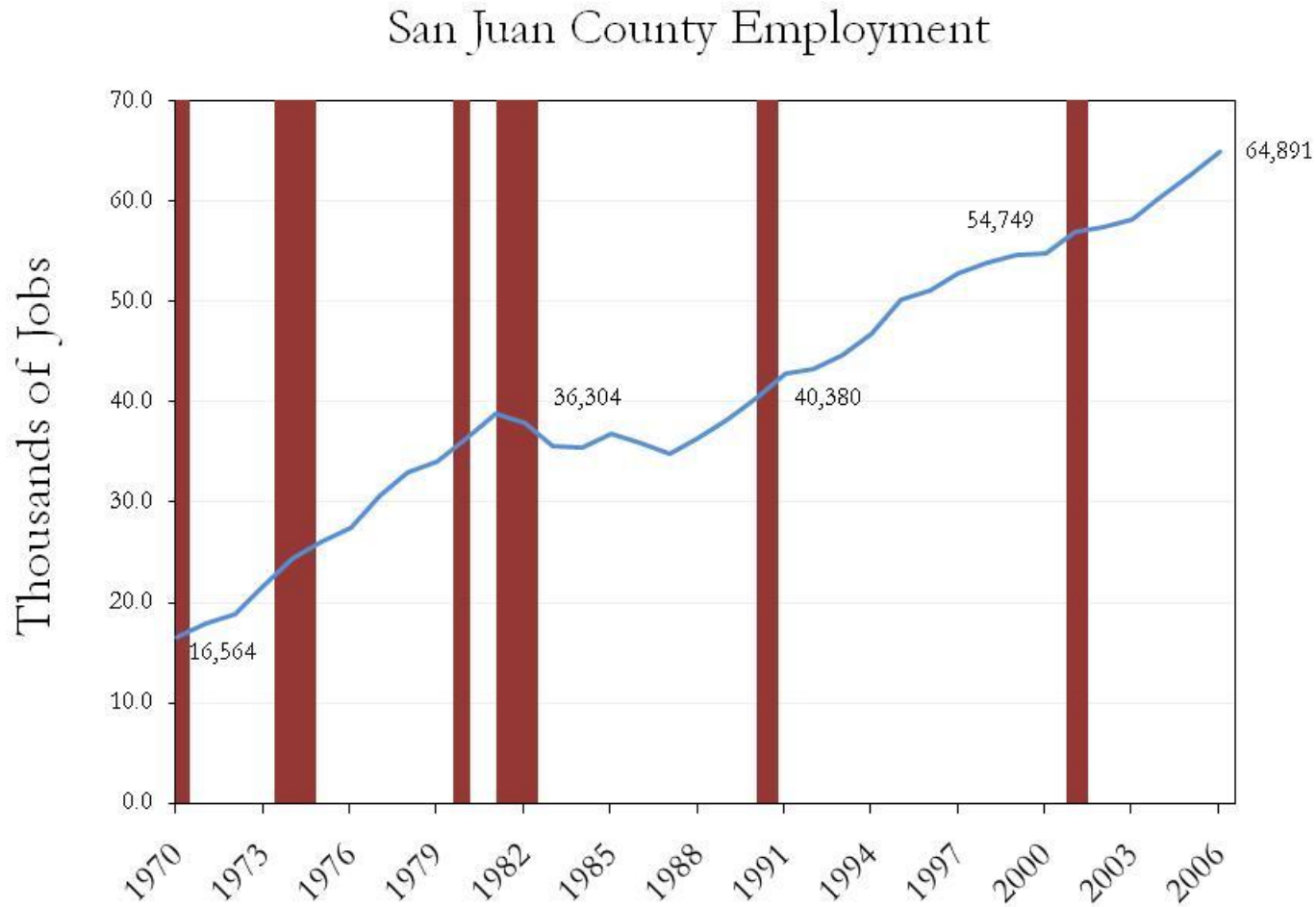
2.5) HISTORICAL EMPLOYMENT

To better understand the economic profile within the FMPO boundary, staff looked at two main economic components:

1. Industry employment and
2. Occupation employment within each industry (staffing patterns)

Staff then developed and evaluated historical employment trends, which were used in its employment projections. This was done by looking at the detailed Quarterly Census Employment and Wages Report (QCEW) for San Juan County and aggregating the data to each individual TAZ. The time series is the foundation for developing industry employment projections which reflect 25 years of historical data and a smaller 6 year window, from 2000-2006, of industrial trends (Figure 2-3). It illustrates what is likely to happen, excluding major changes from past trends.

Figure 2-3 – Historical Employment in San Juan County from 1970 to 2006



2.6) CURRENT and FUTURE EMPLOYMENT

The Farmington Metropolitan Planning Organization statistically accounts for approximately 85 percent of the County's economic production.

TABLE 2-2 – Future Employment Growth

Jurisdiction	2008 Employment	2015 Employment	2020 Employment	2030 Employment	2035 Employment
Aztec	4,254	4,517	4,963	5,909	6,522
Bloomfield	4,229	4,490	4,933	5,874	6,484
Farmington	36,324	38,566	42,374	50,452	55,691
San Juan County (within the MPO)	12,781	13,570	14,910	17,752	19,596
Total	57,588	61,143	67,180	79,987	88,293
San Juan County (whole county)	67,378	75,962	84,284	104,135	116,203

2.7) VISUM

VISUM is a travel demand modeling software that provides a reasonable and disaggregated forecast of travel patterns. VISUM combines employment, residence location, and transportation networks in a single comprehensive package embedded in a Geographic Information Systems (GIS) environment. The model allocates the total employment, households, and land use for an area into its sub-regional component zones. This allocation is made possible by using regional trends, transportation facility descriptions, and data on current locations of employment and households. This

model incorporates a connection between land use and the transportation system.

The required data for the VISUM model runs include current population and employment by place of work, travel times between zones and current land use information. In order to develop this data as input into the model, staff acquired a computerized parcel and database file from the San Juan County Assessor Office. The files were merged and the information grouped to reflect land use types throughout the

FMPO boundary. Land use checks were performed by aerial photos and windshield surveys by staff.

Staff then analyzed potential land use changes by meeting with local stakeholders and using local area knowledge of ongoing developments. Staff also collected data from the Cities of Aztec, Bloomfield and Farmington and the San Juan County to assess near term growth patterns in the area.

Since the travel demand model requires population and employment by traffic analysis zones (TAZs), the final forecasting output was at the TAZ level. The control totals for FMPO were approved by the MPO Policy Board in June 2009.

The model runs were performed for the 2008 base year and for the 2035 forecast year. Several scenarios were run to indicate potential change in traffic volumes and patterns if new, identified roadways were built. The demographic forecasting output at the traffic analysis zone level for each future year increment is the result of an evaluation process through the MPO Technical Committee. Concurrence by each member entity on future demographics was necessary prior to commencement of any subsequent model run. Concurrence ensures minimizing duplication of effort in data development and maximizes local confidence in demographic forecasts. Additionally as future population and economic trends progress attention to scenario planning activities will need to take place as each entity develops and grows to ensure support of the development of the Metropolitan Transportation Plan.

How do you forecast 2035 traffic volumes and evaluate improvements?

Forecasting traffic volumes typically involves three basic steps:

- **Trip Generation:** Based on existing and forecast socioeconomic data including the number of dwelling units and employment by category, the model estimates trips by trip type, such as work trips. The socioeconomic data is aggregated to the TAZ level. By comparing base year trip generation to forecast 2035 trip generation, one can see the estimated growth in trip activity within the area.
- **Trip Distribution:** The trip distribution process examines the relationship between where trips are produced or generated in relationship to where they are attracted or the destination end of the trip. As an example, a Home Based Work Trip begins at the residence and travels to the place of work..
- **Trip Assignment:** This is the process where the trip distribution patterns are assigned to various routes between where the trip originates and its destination. The model recognizes that as the roadways fill up, congestion might occur and that alternate routes might be more attractive for assignment.

In review of the various deficiencies and needs, several improvements were tested to determine which improvements best addressed future conditions. The model is designed to provide performance summaries of each improvement in terms of vehicle miles of travel, congestion, and delay. Using the model, various improvements were compared to one another to determine which improvements best addressed the region's future needs.