

LAND USE AND SOCIOECONOMIC ASSUMPTIONS

Impact of Land Use on Transportation

The relationship between land use and transportation is such that changes in land use produce impacts on the transportation system in terms of traffic volumes, patterns, congestion levels and travel modes; while changes to the transportation system can have a profound effect on land development and use patterns. As part of the development of the *Thornton Transportation Plan*, this relationship was examined, beginning with the estimation of current and future land uses and socioeconomic data.

Land use refers to the activity associated with a given area of land at a particular time. Categories include commercial, industrial, residential, parks/open space, and many other uses. Land uses can change over time particularly when vacant land is developed or when developed land is redeveloped. The City of Thornton defines current land uses in parcel data, which is updated on an ongoing basis as development proposals are approved and implemented. Parcel data refers to the detailed information maintained by the City for each building lot within the City limits. Anticipated future land uses are identified in the 2007 *Thornton Comprehensive Plan*.



Socioeconomic data includes the specific population, household, and employment information associated with the land use activities on each parcel of land in the City. It is used in the planning process as the basis for trip-making within the City and beyond. Current socioeconomic data was derived from current land use data applied to the Denver Regional Council of Governments (DRCOG) land use model. Similarly, 2035 socioeconomic data is sourced from the official dataset of DRCOG, to provide continuity with the regional transportation planning process.

STUDY AREA

Thornton's Planning Area includes the current City limits and additional undeveloped land that is anticipated to be part of the City through annexation at some point in the future. In addition, DRCOG has a defined regional boundary that is used as the basis for the City's travel demand model in order to include regional travel impacts within the City. It is important to consider current and future activity assumptions in this larger area. The Thornton Planning Area, City limits, and regional model boundary are shown on the maps in Figures 1 and 2.

EXISTING SOCIOECONOMIC CONDITIONS

Before projections could be made for future conditions, it was necessary to establish current land use and socioeconomic conditions in Thornton and the Denver region. This process started with the socioeconomic data contained in DRCOG's 2007 regional and Thornton specific datasets of population, households, and employment. Demographic activity in the form of socioeconomic data is estimated for small geographic areas called traffic analysis zones (TAZ).

Three employment types are used in the City's travel demand model to represent the activity and travel variations associated with each. They are defined as follows:

- **Basic** – also known as production-distribution, basic jobs are often described as core industries that support retail and service sectors and bring outside dollars into the local economy. They include manufacturing, mining, utilities, transportation, warehousing, agriculture, and other related industries.
- **Retail** – includes jobs associated with retail trade.
- **Service** – includes finance, insurance, real estate, legal, public administration, and other service-oriented jobs.

Employment figures for each category were estimated for each TAZ in the Thornton Planning Area based on the amount and location of land uses specified in DRCOG's land use model. Base year socioeconomic data estimates are shown in Table 1 for the Thornton Planning Area and the DRCOG region.

Table 1
2007/2035 Socioeconomic Data

	Population	Households	Employment			
			Basic	Retail	Service	Total
Thornton Planning Area						
2003	107,720	38,170	3,414	10,765	10,699	24,875
2007	117,728	40,920	2,552	7,912	13,545	24,009
Difference	34,517	2,750	-862	-2,853	2,846	-866
Growth Rate (%/yr.)	2.3%	1.8%	-6.3%	-6.6%	6.7%	-0.9%
DRCOG Region						
2001	2,444,247	969,235	447,448	246,310	676,820	1,370,578

As the data in the table indicates, the demographic activity in Thornton grew between 2003 and 2007. These development pressures, although lessening with time, provide the motivation for developing the *Thornton Transportation Plan* and preserving right-of-way to accommodate long-term transportation needs.

SOCIOECONOMIC FORECASTS FOR 2035 AND BUILDOUT

One of the main objectives of this Plan is to identify ultimate, as opposed to short-term or interim, right-of-way needs for transportation facilities. The analysis, therefore, calls for an evaluation of Buildout conditions. Buildout conditions, which have required alteration due to the downturn in the economy, are defined by the City as approximately 242,000 people in 86,200 households, with a forecast total of about 70,000 jobs within the Thornton Planning Area. These Buildout projections are based on proposed densities and conservative employment growth rates derived from existing and historical conditions and trends.

Socioeconomic projections were required outside of the Thornton Planning Area in the remainder of the DRCOG region so that a Buildout condition could be modeled and analyzed for the entire region. The year 2058 was used to grow the regional data to represent Buildout in the remainder of the Denver region outside of Thornton based on preliminary estimates of Buildout. However, the City has not specified a year in which Buildout will occur.

In addition to the Buildout scenario, projections for the year 2035 were also necessary in the analysis to identify transportation needs and solutions for that year, which is consistent with DRCOG's 2035 regional planning horizon. Based upon a review of land uses and other available data by the City, it was determined that DRCOG's official 2035 socioeconomic dataset was sufficiently representative of 2035 conditions in Thornton and acceptable for use in this analysis.



Table 2 contains the 2035 and Buildout projections. For comparison purposes, 2007 data is included in the table. The data in Table 2 represents several years of socioeconomic estimates – 2007, 2035, and Buildout. Data is comparable among years, although there are some consistency issues to keep in mind. The 2007 and 2035 datasets are based on DRCOG's official land use model. No modifications have been made by City Staff. Finally, the development of the Buildout dataset was guided by City staff and based on the City's Buildout Land Uses. Differences between the 2035 and Buildout datasets will occur because the 2035 data is constrained by regional

demographic allocation and balancing activities, whereas Buildout data is not constrained in the same manner.

Table 2
Socioeconomic Data Forecasts

	Population	Households	Employment			
			Basic	Retail	Service	Total
Thornton Planning Area						
2007	117,728	40,920	2,552	7,912	13,545	24,009
2035	152,245	54,987	15,747	16,608	39,865	72,220
Buildout*	242,000	86,200	15,263	16,098	38,639	70,000
Difference (2007 – 2035)	34,517	14,067	13,195	8,696	26,320	48,211
Growth Rate (%/yr., 2007 – 2035)	1.0%	1.23%	517.0%	109.9%	194.3%	200.8%
Difference (2035 – Buildout*)	89,755	31,213	-484	-510	-1226	-2,220
Growth Rate (%/yr., 2035 – Buildout*)	3.9%	3.8%	-.20%	-.21%	-.21%	-.21%
DRCOG Region						
2007	2,777,497	1,088,397	326,831	255,150	779,858	1,361,839
2035	4,388,529	1,798,578	589,174	414,744	1,212,658	2,216,576
Buildout	5,001,759	2,019,659	889,335	578,956	1,488,759	2,957,050
Difference (2007 – 2035)	1,611,032	710,181	262,343	159,594	432,800	854,737
Growth Rate (%/yr., 2007 – 2035)	2.1%	2.3%	2.9%	2.2%	2.0%	2.2%
Difference (2035 – Buildout)	613,230	221,081	300,161	164,212	276,101	740,474
Growth Rate (%/yr., 2035 – Buildout)	.93%	.82%	3.4%	2.6%	1.5%	2.2%

*Assumptions provided by Policy Planning Division, City of Thornton Development Department.

Figures 6 through 11 in the appendix show graphically the population and employment densities in the Thornton Planning Area for 2007, 2035, and Buildout.