

## Chapter 5: Land Use and Transportation

### Relationship between Land Use and Transportation Planning

One of the most discussed topics in planning is the relationship between land use and transportation. Often equated to the “chicken or the egg” debate, the discussion most often centers on whether transportation is the driving force behind land use and development patterns or whether land use holds the influence over how transportation facilities and services are developed and used.

Rather than thinking of this relationship in terms of the “chicken or the egg,” perhaps it makes more sense to view it in terms of the “chicken and the egg.” Doing so emphasizes the interrelationship between the two instead viewing it in terms of a competition for dominance. It also recognizes that the relationship will vary from case to case and according to context. There are clearly cases or situations when investments in transportation facilities and services take the lead toward implementing a very specific and much focused land use and development plan, supporting economic development efforts, or to support another type of community based program or initiative. There are other situations, however, when evolving land use and development patterns affect how transportation facilities and services grow and are used. Providing transportation facilities and services for low density, widely spread development is much different than for more compact, mixed use development. A low density pattern of development inefficiently uses available land and increases dependency on automobile travel, while a compact, mixed use pattern encourages efficient travel with transit, walking, and bicycling as viable options.

Within the context of the long range transportation plan, effectively integrating land use and transportation helps to define and shape priorities for transportation investments, and the policies and programs needed to make and direct those investments. More importantly though, it helps to ensure that land use and development patterns, and transportation facilities and services support and reinforce each other to the greatest extent possible. Being able to assess project and associated financial needs based on current land use and demographic trends, as well as on desired future development trends, is critical to being able to develop and implement a long range plan as an effective tool for decision making. In this regard, this section describes the future land use and development patterns as well as the expected demographic trends that were used to assess future travel demand and as such for the basis of this plan.

#### What we've heard...

*Transportation and land use planning should go hand-in-hand.*



## Future Land Use

The region's comprehensive plan, *Horizon 2020*, provides a vision for the amount of growth, location of new development, and types of new development and redevelopment expected to occur in the Lawrence/Douglas County planning area.

The Lawrence/Douglas County Planning Commission updated the future land use information and estimates of socioeconomic activity that were made in *Horizon 2020* for the year 2030. This updated information was used in the region's Travel Demand Model to estimate future levels of travel on the region's major roadways. Estimates of future travel demand are based on established travel patterns, travel and demographic trends, and expected future land uses and their associated levels of activity.

One of the considerations in developing a T2030 Future Land Use Scenario is that the City of Lawrence may approve in 2008 an optional development code (Lawrence SmartCode) that will allow the creation of new neighborhoods based on Traditional Neighborhood Design (TND). TND developments built under the Lawrence SmartCode will take on characteristics more similar to the core neighborhoods of the city instead of the suburban areas on the fringe. These characteristics include higher densities, increased connectivity, mixed land uses, and more compact development. The sum total of these characteristics will help contribute to greater walkability and reduced vehicle trips within the neighborhoods.

Based on T2030 Future Land Use Scenario, TND developments are forecasted to be built south of Wakarusa River, east and west of US 59 and west of K-10 along 15<sup>th</sup> Street instead of traditional suburban development. One effect of TND is to reduce automobile dependency. If one lives in a highly automobile dependent neighborhood, virtually every trip one makes requires driving due to poor pedestrian and bicycle network connectivity and a longer distance to travel. If one lives in a TND development, one can conveniently go shopping and perform other personal trips by walking or cycling, and children can walk or bike to school and parks. Common destinations such as stores, schools, recreation centers and commercial centers are located closer together, so the trip lengths are shorter even if one has to drive. The result is an increase in transportation options and a reduction in total vehicle mileage and usage. Higher land use density would generally encourage a higher transit use.



## Travel Demand Model

The region's Travel Demand Model estimates traffic volumes using two socioeconomic variables: households and employment. Employment data is further divided into retail and non-retail categories to account for the differences in the amounts and types of trip making associated with these employment types. Household and employment forecasts were estimated for the year 2030 by applying conversion equations to the 2030 land use map shown in Figure 5.1. For the employment categories, control totals were developed at the county level to restrain future employment estimates to reasonable levels. The current and forecasted socioeconomic data used by the Travel Demand Model is shown in Table 5.1 on page 72. As this data is reviewed, it is important to note that the Travel Demand Model roughly covers the current Urban Growth Area, which is an area smaller than the county but larger than the City of Lawrence; Lawrence figures are estimates based on the model's traffic analysis zones that approximate the city limits. No household data was available at the county level.

More information on the Travel Demand Model can be found in the sidebar in Chapter 6.

Figure 5.1  
Future Land Use

Source: Lawrence/Douglas County Metropolitan Planning Office GIS Data

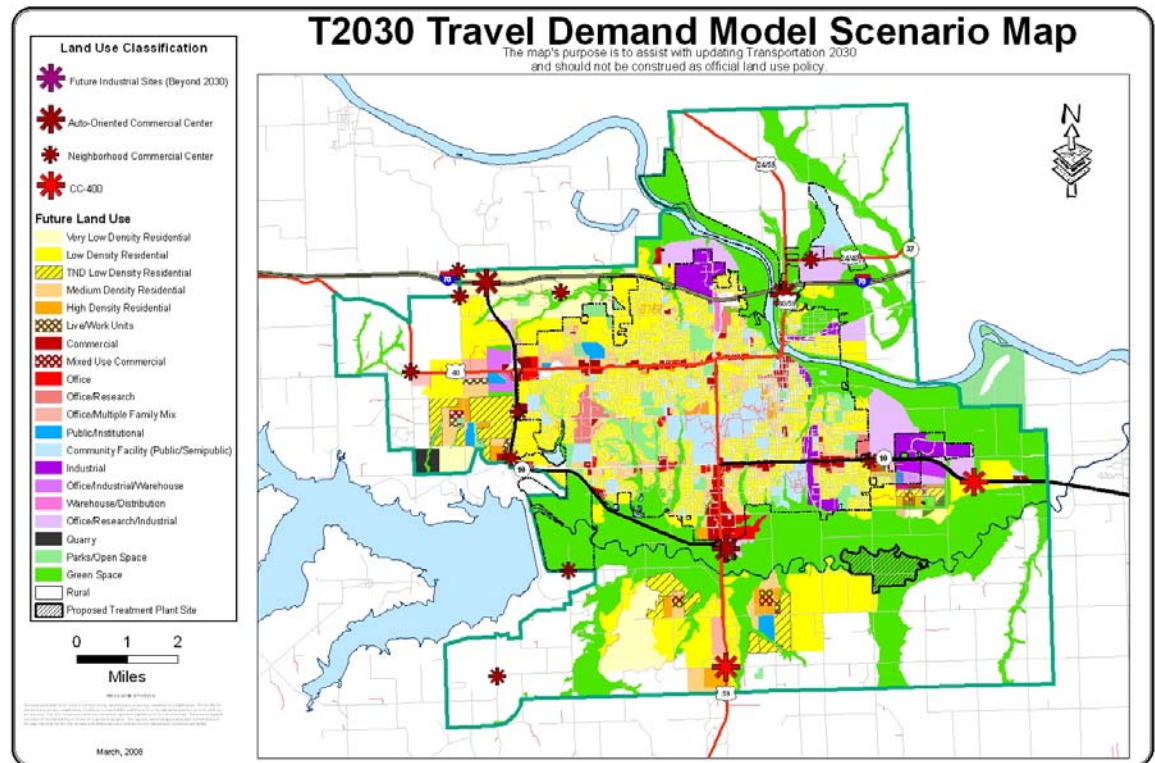


Table 5.1  
**Current and Forecasted Socioeconomic Data\*\***

		<b>Lawrence</b>	<b>Model Area*</b>
<b>Population</b>	2005	79,409	86,453
	2030	108,242	150,302
	Annual Growth Rate	1.4%	2.8%
<b>Households</b>	2005	36,095	39,297
	2030	49,201	68,319
	Annual Growth Rate	1.4%	2.8%
<b>Retail Employment</b>	2005	12,501	12,762
	2030	18,786	20,017
	Annual Growth Rate	1.9%	2.2%
<b>Non-Retail Employment</b>	2005	32,108	33,187
	2030	46,927	51,204
	Annual Growth Rate	1.8%	2.1%
<b>Total Employment</b>	2005	44,609	45,949
	2030	65,713	71,221
	Annual Growth Rate	1.8%	2.1%

Sources: Lawrence/Douglas County Metropolitan Planning Office; U.S. Census; Lawrence Travel Demand Model

\* Model Area is represented by the City of Lawrence and the surrounding areas

\*\* Values in the table above are estimates

Land Use Action 1: *Combine Planning Cycles*

Combine the development cycles of the region's Comprehensive Plan and Long-Range Transportation Plan into a maximum 5-year process that allows for the analysis of land use, transportation, and environmental interactions.

Land Use Action 2: *Encourage Land Development Patterns to Promote Transportation Efficiency*

Encourage location and concentration of land uses through Traditional Neighborhood Design, which will promote and facilitate transportation options such as walking, bicycling, and transit. Encourage subdivision design that maximizes connectivity.

Land Use Action 3: *Encourage Access Management Standards*

Access Management Standards for major collector and arterial streets should be implemented to preserve the capability of a roadway to move traffic, delay the need to add lanes, minimize vehicle conflicts, and improve safety. Access Management is not only important for streets in urban areas, but also in rural areas where development is expected.

Land Use Action 4: *Enhance Streetscapes and Gateways*

Streetscapes should be utilized to provide visually attractive and physically comfortable environments that are integrated with similar environments of adjacent private property. Cultural, environmental, and historical considerations should be acknowledged when developing streetscapes and gateways.

Land Use Action 5: *Consider Street-Land Use Relationship in the Planning of Developments*

Buildings should be set back a sufficient distance from arterial and section line roads to accommodate future road improvements. Along transit routes in urban areas, new buildings should be located within a reasonable walking distance from the right of way line to allow easy access for transit users.

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