

Section 4 – Future Conditions: Year 2035

2009-2035 Ashland Area Metropolitan Transportation Plan (MTP)

The development of a transportation improvement plan requires an estimate of future travel demands on the existing and planned transportation system. To accomplish this, a mathematical association is developed between the existing travel within the area and certain socioeconomic variables. Future travel demands can then be estimated based on an assumption of the constancy of these relationships and projections of these variables. The socioeconomic variables used to formulate this relationship were population, employment, and land-use.

The following section outlines the procedures used to develop target year projections of these variables. For further details on future conditions (forecasting) procedures, refer to the *Ashland Travel Model Report, December 2002* and the *Ashland Travel Model Update, December 2007*.

A. Household

A basic measure of transportation demand is the household, which can be directly related to population by a person-per-household factor. As a method to forecast the number of households, the percentage increase in households for 30 years was estimated at 3.0 times the 10-year growth from 1990 to 2000. This assumes a linear growth factor over the 30-year timeframe. The U.S. Census reports that the number of total housing units in both counties increased in total from 36,005 in 1990 to 37,953 in 2000. Using the linear growth forecast, a total number of households in 2035 were estimated at 35,854. (Note: Increases in the number of households vary in different parts of the study area).

B. Population

External sources, such as the Kentucky State Data Center (KSDC) are utilized to provide future year population forecasts. However, as stated on page 38 and 39 in the *Ashland Travel Model Report, December 2002*, “In the case of the Ashland Area, the KSDC has made population forecasts from Boyd and Greenup counties through 2030....The KSDC forecast population decreases in both counties....Population decreases are unusual for most areas in Kentucky. While it may be a policy decision whether to plan for population growth, the consultant recommends planning for some level of growth”. Therefore, the population forecast was compiled with the Ashland Area’s growth in mind. This holds true with the *Ashland Traffic Model Update, December 2007*.

To estimate population, the number of persons per household as reported in the 1990 and 2000 U.S. Census was used with the previously forecasted number of households. The U.S. Census reported decreases in the persons per household ratios for both counties (2.604 in 1990 to 2.508 in 2000). Most areas in the U. S. have experienced a similar decrease. This trend is expected to continue but at a slower rate. Therefore, it was

assumed that the rate of decrease in household size (persons per household) between 2000 and 2035 would be the same as the decrease between 1990 and 2000. Combining the growth in households with the estimated change in household size, the *Ashland Travel Model Report, December 2007*, calculated the Boyd County annual population growth rate of 0.14 percent and the Greenup County rate of -1.82 percent. Thus, the resulting estimated 2035 populations for the counties of Boyd and Greenup are 49,821 and 36,218, respectively.

C. Vehicles

At the time of the *Ashland Travel Model, December 2002*, the 2000 U.S. Census vehicle data were not available. Therefore, vehicle data were taken from the 1990 U.S. Census and adjusted to match estimated 2000 control totals from state vehicle registration records (Kentucky Motor Vehicle Licensing, Statistical Report). The 2000 U.S. Census data closely matched the estimated 2000 control totals. The 2000 vehicle/household data were used to estimate 2035 vehicles for each sub area (or Traffic Analysis Zone – TAZ) of the planning area. Similarly, the process to determine the 2025 totals was extended to estimate 2035 vehicles. The combined total number of vehicles was estimated to be 63,705 in the 2035 model update.

D. Employment

By 2035, Boyd County is estimated to have an employed population of 52,806. Greenup County is estimated to have an employed population of 21,289. The initial estimate of employment forecasts were based on maintaining a constant ratio of jobs to populations for each county. This method proves some guidelines for the developing control totals but does not address the location of employment growth. Awareness of potential development areas identified the most probable employment locations. The Industrial Parkway (KY-67) and the adjacent planned developments accounted for nearly all of the region's employment growth.

E. Land-Use

Comprehensive land-use planning is currently implemented for the cities of Ashland and Catlettsburg in Boyd County and for both the urban and rural areas of Greenup County. The land-use plans were developed by the respective planning agencies under *Kentucky Revised Statute 100.183*.

The plans serve as a guide for both public and private actions and decisions to insure the development of public and private property in the most appropriate relationships. Included in the comprehensive plan is a transportation plan element that shows proposals for the most desirable, appropriate, economic and feasible pattern for the general location, character, and the extent of the channels, routes, and terminals for transportation facilities for the circulation of persons and goods. The plan is required to cover a period not to exceed twenty years. The channels, routes, and terminals include, without being limited to all classes of streets and highways, railways, airways, waterways. The plan makes provisions for routing of commercial trucking operations and terminals for people, goods, or vehicle related to highways, airways, waterways, and railways. The comprehensive plan

includes other elements such as land-use management; which shows the most appropriate desirable and feasible pattern for the general location, character, extent and interrelationship of the matter in which the community should use private and public lands in the future. Also included is a community facilities element providing a feasible pattern for the general location, character, and the extent of public and semipublic buildings, land and facilities. Additional elements to the local comprehensive plans include community renewal, water and wastewater requirements, flood control, housing pollution, conservation, and other regional impacts upon the area.

Boyd County does not have a land-use plan. As the region's planning agency, FIVCO Area Development District will encourage them to consider implementing a comprehensive land-use plan.

F. Travel

In order to determine future transportation system requirements, it is necessary to develop an accurate method of forecasting future travel patterns and traffic volumes. The method used for this purpose is a computerized technique, referred to as a travel demand model. This model provides decision-makers with a tool whereby alternative transportation systems can be tested and evaluated. The model also provides a means for continued evaluation of the highway system as new or unforeseen development occurs in the study area.

The travel demand model is a sequence of computer programs that uses zonal population and employment data and the physical characteristics of the street system as input. The model is calibrated by developing mathematical relationships between these variables and the existing traffic volumes on the major streets in the highway system. Once the model is calibrated, it can be used to forecast future traffic under the premise that future travel demands will be related to the same factors that influence existing travel demands.

Traffic volume projections for the Ashland study area were created using the traffic model developed for existing traffic and the target level of the socioeconomic variables involved. The result of this procedure was a traffic volume projection for each link in the highway network. As described in **Section 8**, these projections were used to determine where and when deficiencies in the existing system would likely occur. The forecasted target year traffic volumes reflect future-year daily volumes on the base (existing and committed) roadway network.