TRANSPORTATION

Findings Summary

LOCATION/ACCESS

- The region benefits from nationally-connected highway, rail, and air networks.
- The highway network facilitates intraregional transportation but has resulted in dispersed development patterns.

TRANSPORTATION COSTS

- Rising transportation costs have outpaced regional household income growth.

REGIONAL COMMUTING

- A large percentage of the region’s workforce commutes to another county in the region for employment.
- The region has a high rate of single-occupancy vehicle use.

HIGHWAY CONGESTION

- Roadway congestion is approximately the same as that in other medium-sized metropolitan areas.
- Most of the region’s roadway congestion points are found in central and western Knox County.

TRANSPORTATION OPTIONS

- Development patterns of the late twentieth century have resulted in limited alternatives to vehicular transportation.
- The number of greenways in the PlanET region continues to grow.
- The City of Knoxville’s new transit center could function as a regional transit hub in the future.
- Opportunities exist for transit-oriented development in Knoxville and other parts of the region.
RAIL & TRUCK FREIGHT

- The region’s interstates see a high volume of truck traffic, and most of the truck freight is passing through the area.
- The vast majority of freight handled by the rail network in the PlanET region originates elsewhere.
- Existing patterns of logistics and industrial business locations in the region largely conform to “Cargo-Oriented Development” principles.

AIR TRAVEL & CARGO SERVICES

- Passenger trips through McGhee Tyson Airport are growing despite its average fares being among the highest in the United States.
- McGhee Tyson Airport also has important air freight and military aviation operations.

TRANSPORTATION FUNDING

- Transportation funding sources are less certain in today’s economic environment.

The PlanET region’s transportation system includes facilities that support multiple modes of transport: highways, airports, freight railways, waterways, bicycle paths, and pedestrian walkways and trails. This system is structured around major corridors that link the region’s larger communities and connect the region itself to other major metropolitan areas, such as Atlanta, GA; Charlotte, NC; Washington, DC; and Detroit, MI.

The primary means of movement within the region is the single-occupant automobile, and the roadway network includes federal interstates and arterials (e.g., I-75, I-40/I-81, U.S. 129 [Alcoa Highway], and U.S. 11 [Kingston Pike]) and smaller state and local roads that provide access to rural areas of the region. Other transportation options serve the region, including Knoxville Area Transit (KAT), the only fixed-route transit system in the region, and paratransit service provided by the Knoxville – Knox County Community Action Committee and the East Tennessee Human Resource Agency. KAT service is primarily limited to the City of Knoxville, but paratransit service extends into rural areas across the region. Bicycle and pedestrian facilities, such as sidewalks and bicycle lanes, are generally found in and around the region’s traditional downtowns and urban centers (e.g., Knoxville and Maryville). Outside of these locations, the presence of such facilities varies. The region does have a growing system of greenways.
Key Findings

LOCATION/ACCESS

- **The region benefits from nationally-connected highway, rail, and air networks.** The PlanET region has a well-connected transportation network that lies at the crossroads of two of the nation’s most heavily travelled interstate corridors, I-75 and I-40, and along two Class I freight railroads, the Norfolk Southern and CSX railways. The region is within a day’s drive of several major population and commerce centers including Atlanta, GA; Charlotte, NC; Washington, DC; Nashville, TN; Indianapolis, IN; and Pittsburgh, PA. In addition, McGhee Tyson Airport, located in Blount County, offers passenger and cargo air service to a variety of national destinations. This connectivity is an asset for both interregional travel and commercial movement of goods.

- **The highway network facilitates intraregional transportation but has resulted in dispersed development patterns.** Locations within the region are well-connected by major transportation corridors including interstates, freeways, and multi-lane high-mobility arterials (see Map 7). (Union County is the only county in the PlanET region that is not served by an interstate highway or a major multi-lane arterial.) High levels of intraregional accessibility have contributed to dispersed, low-density growth across the region. This type of development forces many residents to travel long distances for daily needs, including work, shopping, education, entertainment, and so on.
TRANSPORTATION COSTS

- **Rising transportation costs have outpaced household income growth.** Between 2000 and 2007 the costs of auto ownership for the average Knoxville area household rose by 11.4 percent and the per-mile costs of operating a car doubled from 9.6 cents per mile to 19.1 cents, largely due to increased gas prices. Nearly 23 percent of the region’s neighborhoods faced transportation costs of more than 35 percent in 2007. Increases in transportation costs have outpaced growth in income, contributing to the decline in transportation affordability. (See the “Housing & Neighborhoods” section for more detail on affordability when housing and transportation costs are combined).

REGIONAL COMMUTING

- **A large percentage of the region’s workforce commutes to another county in the region for employment.** In 2009, the U.S. Census Bureau estimated that approximately 215,000 workers both lived and worked in the region, and more than a third commuted from their counties of residence to another county in the PlanET region. Almost 44 percent of all work trips from Anderson, Blount, Loudon, and Union counties in 2009 were to Knox County, while only 16 percent of the work trips from Knox County were to the four adjacent counties (see Table 8). Union County had the highest rate of commuting out-of-county: nearly 80 percent of its workers left the county each workday for jobs primarily in Knox County. Approximately 70 percent of the region’s jobs were located in Knox County; however, Anderson County has the highest percentages of employees who commute in from other counties (about 69 percent, including workers from non-PlanET counties). The distance between employment centers and residences creates longer commutes for many residents. The average commute time for workers within the region was 22 minutes.

Table 8: Regional Commuting Patterns, 2009

<table>
<thead>
<tr>
<th>COUNTY OF RESIDENCE</th>
<th>COUNTY IN WHICH EMPLOYED</th>
<th>Knox</th>
<th>Anderson</th>
<th>Blount</th>
<th>Loudon</th>
<th>Union</th>
<th>Total Workers</th>
<th>% of Residents Commuting to Other Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knox</td>
<td></td>
<td>115,859</td>
<td>12,249</td>
<td>7,822</td>
<td>1,923</td>
<td>491</td>
<td>138,344</td>
<td>16.3%</td>
</tr>
<tr>
<td>Anderson</td>
<td></td>
<td>9,726</td>
<td>12,690</td>
<td>724</td>
<td>332</td>
<td>87</td>
<td>23,559</td>
<td>46.1%</td>
</tr>
<tr>
<td>Blount</td>
<td></td>
<td>16,079</td>
<td>1,262</td>
<td>19,214</td>
<td>996</td>
<td>33</td>
<td>37,584</td>
<td>48.9%</td>
</tr>
<tr>
<td>Loudon</td>
<td></td>
<td>5,703</td>
<td>1,139</td>
<td>1,096</td>
<td>5,413</td>
<td>8</td>
<td>13,359</td>
<td>59.5%</td>
</tr>
<tr>
<td>Union</td>
<td></td>
<td>3,380</td>
<td>361</td>
<td>161</td>
<td>39</td>
<td>1,023</td>
<td>4,964</td>
<td>79.4%</td>
</tr>
<tr>
<td>Other County</td>
<td></td>
<td>63,554</td>
<td>12,922</td>
<td>8,722</td>
<td>4,566</td>
<td>593</td>
<td>90,357</td>
<td>NA</td>
</tr>
<tr>
<td>Total Jobs</td>
<td></td>
<td>214,301</td>
<td>40,623</td>
<td>37,739</td>
<td>13,269</td>
<td>2,235</td>
<td>308,167</td>
<td>29.2%</td>
</tr>
<tr>
<td>% of Workers from Another County</td>
<td></td>
<td>45.9%</td>
<td>68.8%</td>
<td>49.1%</td>
<td>59.2%</td>
<td>54.2%</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, Local Employment Dynamics Data
• **The region has a high rate of single-occupancy vehicle use.** In 2010, nearly eighty-six percent of the region’s commuters drove to work alone. This is significantly higher than the national average of 76 percent and slightly higher than the state average of 84 percent. The high rates of single-occupancy vehicle use are, to a large extent, the product of region-wide patterns of low-density development that segregates uses and the absence of an extensive transit system (see below).

**HIGHWAY CONGESTION**

• **Roadway congestion is approximately the same as that in other medium-sized metropolitan areas.** Congestion-induced travel-time delays continue to occur in the PlanET region. According to the Texas Transportation Institute’s (TTI) Urban Mobility Report, in 2010, commuters lost over 7.5 million hours and $151 million due to traffic congestion in the Knoxville urbanized area. The average traveler in this urbanized area experienced about 21 total hours per year of delay due to highway congestion, which is down from 26 hours per year in 2000 but an increase over 1990 (17 hours per year). This value is congruent with the national average for medium-sized urban areas (500,000 to one million residents), and comparable to the yearly delay experienced in El Paso, Texas; Cincinnati, Ohio; and Salem, Oregon. By comparison, the Memphis Tri-State region and Metropolitan Nashville-Davidson County experience 23 and 32 total hours per year of delay, respectively. While roadway congestion is not as significant as in other urban areas across the nation, it still has the potential to affect economic development, contribute to air quality problems, and negatively impact the region’s livability.

• **Most of the region’s roadway congestion points are found in central and western Knox County.** Roadway congestion can be measured by examining roadway level of service (LOS) at peak hours of the day. A roadway segment with an LOS of E or F generally has more traffic than can be handled, leading to long queues at intersections or slow traffic on freeways/interstates. Despite the region’s average amount of congestion, many small segments of its roadways routinely operate at LOS E or F. Map 8 shows these areas, which are concentrated in central and western Knox County. Unsurprisingly, significant areas of congestion occur along I-40, I-75, and U.S. 11 (Kingston Pike). Other congested areas include Downtown and South Knoxville, Maryville, U.S. 129 (Alcoa Highway), TN 62 near I-640, and portions of TN 61 near Oak Ridge.
Map 8:
Capacity and Congestion Issues in the PlanET Region

Legend
- Low LOS Roadway Segments
- LOS E
- LOS F
- Primary Limited Access or Interstate
- Primary US or State Highway
- PlanET Counties
- Tennessee Counties

Map showing capacity and congestion issues in the PlanET Region.
TRANSPORTATION OPTIONS

- Development patterns of the late twentieth century have resulted in limited alternatives to vehicular transportation. The PlanET region has minimal transit service, and low-density development and separation between trip origins and destinations add to the challenge of providing service. Fixed-route transit service is limited to the City of Knoxville and Knox County, where approximately 54,100 occupied housing units are within one-quarter mile of a KAT fixed route (see Map 10). This equates to approximately 19 percent of the total occupied housing units in the PlanET region. As a result, the average citizen has very few transportation options beyond the private automobile. In addition, fewer than one in five streets (estimated) include sidewalks, and dedicated bicycle lanes cover only 21 miles of streets in the entire five-county region (see Table 9). In 2010, less than two percent of residents in the region commuted via walking, cycling, or transit.

Table 9: Sidewalk Coverage

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Street Miles</th>
<th>Sidewalk Miles</th>
<th>% of Streets with Sidewalks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knox County*</td>
<td>1,993</td>
<td>48</td>
<td>2.4</td>
</tr>
<tr>
<td>City of Knoxville</td>
<td>1,171</td>
<td>319</td>
<td>27</td>
</tr>
<tr>
<td>City of Farragut</td>
<td>147</td>
<td>39</td>
<td>27</td>
</tr>
<tr>
<td>Blount County*</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>City of Alcoa</td>
<td>110</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>City of Maryville</td>
<td>174</td>
<td>44</td>
<td>25</td>
</tr>
<tr>
<td>Loudon County*</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Lenoir City</td>
<td>106</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Loudon</td>
<td>62</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>Anderson County*</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Oak Ridge</td>
<td>230</td>
<td>103</td>
<td>46</td>
</tr>
<tr>
<td>Clinton</td>
<td>80</td>
<td>35</td>
<td>44</td>
</tr>
<tr>
<td>Norris</td>
<td>13</td>
<td>7</td>
<td>54</td>
</tr>
<tr>
<td>Lake City</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Oliver Springs</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>
* Unincorporated areas only

Source: Knoxville – Knox County Metropolitan Planning Commission

- The number of greenways in the PlanET region continues to grow. Designed for use by pedestrians and cyclists, greenways serve both transportation and recreational purposes. They complement the on-street pedestrian and bicycle network provided by sidewalks and bicycle lanes, and provide important linkages to transit lines and many other destinations. To date, almost 100 miles of off-road greenways and trails have been built in the PlanET region (see Map 9). While this number is modest by road network standards, it signals a growing trend toward providing PlanET residents with a viable alternative for mobility and physical activity. Knox County and Blount County currently have the largest greenway systems, with 58 miles and 28 miles of trails, respectively. Union County, however, has no greenways.
Map 9:
Transit and Greenway Network
• The City of Knoxville’s new transit center could function as a regional transit hub in the future. In 2010 the City of Knoxville completed a new $27 million transit center on Church Street on the eastern end of downtown Knoxville. The new station streamlines the bus transfer process downtown, which had previously been a less formal arrangement on West Main Street in front of the City County Building. The new center boasts satellite tracking systems for its buses, which keep riders apprised of exactly when their desired bus will arrive. The Public Building Authority predicts that the new Silver LEED-certified facility will function for 20 to 30 years. The facility currently is adequate to operate as a regional transit center, should fixed-route transit service be extended to the surrounding counties and/or municipalities.

• Opportunities exist for transit-oriented development in Knoxville and other parts of the region. Several areas within the region have strong potential for transit-oriented development (new residential and mixed-use development), even in suburban locations that currently have no transit service. These areas include the University of Tennessee campus and Market Street areas, the Cumberland and Martin Luther King corridors, and suburban locations like Maryville and Jackson Square in Oak Ridge.

RAIL & TRUCK FREIGHT

• The region’s interstates see a high volume of truck traffic, and most of the truck freight is passing through the area. A large volume of truck traffic uses the region’s interstate system to transport freight to or from various parts of the country. Almost 338 million tons of freight moves across highways in the PlanET region each year, resulting in nearly 22 million truck trips. Only 44 million tons of freight and 4.1 million truck trips have either an origin or destination in the PlanET region, meaning that 76.8 percent of the truck tonnage and 67.6 percent of the trucks that enter the PlanET region are passing through.

• The vast majority of freight handled by the rail network in the PlanET region originates elsewhere. Approximately 310 miles of railroad track in the PlanET region is operated by two major Class I railroads, the Norfolk Southern (NS) and CSX. The region also has one short line railroad, the Knoxville and Holston River Railroad, which is owned and operated by the Gulf and Ohio Railways. This railroad connects to both the NS and the CSX rail systems. In the PlanET region, nearly 370 million tons of freight is moved by railroad each year. However, only 8.7 million tons of this freight has an origin or destination in the region; thus, 97.6 percent of the freight traveling on railroads throughout the region is passing through from other origination points.

• Existing patterns of logistics and industrial business locations in the region largely conform to “Cargo-Oriented Development” principles. “Cargo-Oriented Development” refers to compact development around major freight transportation assets that usually contains clusters of complementary businesses. The PlanET region’s basic pattern of logistics and industrial development is a “T” access extending from the eastern
side of Knoxville west along I-40/I-75 to its intersection with I-140, which connects nodes of development in the Oak Ridge area to the north and the Alcoa-Maryville-McGhee Tyson Airport district to the south. In addition to existing businesses, a large inventory of vacant properties that meet Cargo-Oriented Development threshold criteria is located in this area.

**AIR TRAVEL & CARGO SERVICES**

- **Passenger trips through McGhee Tyson Airport are growing despite its average fares being among the highest in the United States.** Served by eight commercial airlines, McGhee Tyson Airport (TYS) is the primary passenger air facility in East Tennessee. In the twelve-month period from August 2010 to August 2011, the airport saw approximately 870,000 passenger boardings and approximately 840,000 passenger arrivals, a 3.53 percent and 3.81 percent increase, respectively, over the same period in August from 2009 to 2010. Air travel is growing despite above-average ticket prices at McGhee Tyson. According to the U.S. Bureau of Transportation Statistics, average commercial passenger airfares at McGhee Tyson for the first quarter of 2011 were $449. This was the eighth-highest average ticket price in the nation (although down from the third-highest average price in 2010). The high ticket prices are attributable in part to the fact that McGhee Tyson is not a carrier hub and also has little low-cost carrier competition.

- **McGhee Tyson Airport also has important air freight and military aviation operations.** About 4,000 arrival or departure operations annually at McGhee Tyson Airport are planes dedicated to freight. Nearly 40,000 tons of air freight is handled at the airport, including mail services. United Parcel Service (UPS), FedEx, and DHL Express control the majority of the air freight market at the 21-acre Air Cargo complex at McGhee Tyson Airport. The airport also hosts the Tennessee Air National Guard’s 134th Air Refueling Group, which provides refueling to military aircraft. The United States Army also operates an Aviation Support Facility, the 110th and 119th Tactical Control Squadrons, and the 228th Combat Communications Squadron at McGhee Tyson Airport.

**TRANSPORTATION FUNDING**

- **Transportation funding sources are less certain in today’s economic environment.** Today federal sources provide the vast majority of funding for transportation projects. In the PlanET region, nearly nine of every ten transportation dollars for TPO transportation projects is derived from federal sources. The coming age of fiscal austerity, particularly at the federal level, may require the PlanET region to seek out new long-term revenue sources for transportation projects.