

## 6. LAND USE/TRANSIT/PEDESTRIAN CONSIDERATIONS

### A. Land Use & Transportation

While “quality of life” is one of the most commonly used and least quantified measures of livability, it is something defined and understood at the individual level. The infrastructure that connects jobs, homes, and recreation is a key element to the quality of life and for most, increased time spent in personal vehicles is equated with poorer quality of life. The link between land use and transportation is an increasingly important relationship as transportation networks are pushed to capacity and the detrimental environmental impacts of traffic congestion become reality. Land uses and development patterns that promote a mixture of retail, commercial, and even residential development and that offer alternative modes of transportation such as biking or walking, impact the transportation network by reducing vehicle miles traveled and vehicle trips.

The land use/transportation connection is not trivial, and needs to be considered at both the regional and local government level and in any site plan development process. While higher-density, walkable developments are often discussed in the context of transit and transit-oriented development, land use development patterns that address a mix of uses and scale are also important components of the land use transportation relationship.

One of the greatest strengths of Cache Valley is its vibrant and healthy mix of land use in the downtown Logan area. From a transportation standpoint, this strength is manifested in high transit ridership, more walk trips, and shorter drive trips. New development on the edge of the urban core area, often called “urban sprawl,” threatens the success of the success of the transportation network. Sprawl development is often characterized by larger lot sizes, gaps in street and sidewalk infrastructure, more expensive transit service, and more isolated residential and commercial development. This type of development will result in increased traffic congestion and longer travel times as explained in the following example.

#### i. Case Study

To better understand the relationship between land use and transportation and to quantify the vehicle trip reduction benefits of mixed-use, smaller-scale, walkable development, a case study of two development patterns is given here. The first is a development of 40 acres with a mix of land uses including housing, community and neighborhood retail, office, and open space. The second is a “big box” development of large-scale retail stores, also of 40 acres. Specific land uses and a trip generation summary for the mixed-use development are provided in Table 6-1 while a hypothetical rendering of the sample development is shown in Figure 6-1.

**Table 6-1: Trip Generation and Reduction for Mixed-Use Development**

Land Use	Acres	Units	National Ave. Trips	Gross Local Adj. Trips	Net Local Adj. Trips	Percent Mixed Use Reduction	Net External Trips
Single Family Residential	8	64	688	925	844	8.8%	633
Multi-Family Residential	5	100	734	860	727	15.5%	545
Condominium Residential	5	100	651	764	642	15.9%	482
Regional Retail	0	0	0	0	0	0.0%	0
Community Retail	6	87	6,237	6,237	5,811	6.8%	4,068
Neighborhood Retail	6	131	5,316	5,316	4,670	12.1%	2,802
Office	8	349	4,041	4,041	3,744	7.3%	3,183
Industrial	0	0	0	0	0	0.0%	0
Public Facilities	0	0	0	0	0	0.0%	0
Open Space	2	2	5	5	4	3.2%	0
<b>Total</b>	<b>40</b>		<b>17,671</b>	<b>18,148</b>	<b>16,442</b>	<b>9.4%</b>	<b>11,712</b>

**Figure 6-1: 40 Acre Mixed-Use Development**



The second development scenario includes only commercial development in regional and community retail. Trip generation details of that development scenario are provided in Table 6-2 while the development is characterized in Figure 6-2.

**Table 6-2: Trip Generation and Reduction for Big Box Development**

Land Use	Acres	Units	National Ave. Trips	Gross Local Adj. Trips	Net Local Adj. Trips	Percent Mixed Use Reduction	Net External Trips
Single Family Residential	0	0	0	0	0	0.0%	0
Multi-Family Residential	0	0	0	0	0	0.0%	0
Condominium Residential	0	0	0	0	0	0.0%	0
Regional Retail	28	244	12,093	12,093	12,093	0.0%	9,675
Community Retail	12	174	9,740	9,740	9,740	0.0%	6,818
Neighborhood Retail	0	0	0	0	0	0.0%	0
Office	0	0	0	0	0	0.0%	0
Industrial	0	0	0	0	0	0.0%	0
Public Facilities	0	0	0	0	0	0.0%	0
Open Space	0	0	0	0	0	0.0%	0
<b>Total of All Sub-Areas</b>	<b>40</b>		<b>21,833</b>	<b>21,833</b>	<b>21,833</b>	<b>0.0%</b>	<b>16,493</b>

**Figure 6-2: 40 Acre Big Box Development**



Vehicle trip generation for each of the development scenarios was calculated based on ITE trip generation rates with local adjustments made based on increased family size. 'Net Local Adjusted Trips' are based on estimated trip reductions due to the mixed use nature of the development. 'Net External Trips' are an estimation of the number of additional trips that the development will cause to be on the arterial and collector street network and account for the internal capture of trips within the development.

Results of the this trip generation analysis show an increase of about 40 percent in the number of trips on the surrounding transportation network that are generated by the big box commercial development over the mixed-use development. These results are supported by studies that have shown that people who live in mixed-use areas make fewer car trips and that the trips they

do make are shorter in length. Because most vehicle trips are made for reasons other than work such as shopping, school, and entertainment, walkable developments offer great potential in terms of reducing vehicle trips by providing easy transit, walk, or bicycle-access to other trip generators.

Much work has been done in the area of identifying and offering specific standards for mixed-use, walkable, and transit-oriented development. Envision Utah provides a good deal of guidance in terms of detailed standards for all elements of the development process. Sample standards that could be applied to the above examples include:

- Mixed-use blocks should comprise 15-25 percent of total development area and not less than three acres (*Model Codes & Analysis Tools for Quality Growth*, page 46).
- Maximum block size for residential blocks should not exceed three acres (MC&ATQG, page 47).
- Surface parking lots should not comprise more than 25 percent of any one-block segment of any street frontage (MC&ATQG, page 48).
- Generally, *minimum* residential densities to support transit use are 10-25 units/acre in suburban areas and 20-30 units/acre in more urbanized areas (Wasatch Front Transit Oriented Development Guidelines, page 66).

## **B. Alternative Modes**

### **i. Trails**

The Cache MPO adopted a trails plan in 1999, the *Cache Metropolitan Planning Organization Long Range Pedestrian/Bicycle Plan*. Since that time, the boundaries of the MPO have changed to include the portion of Nibley that was not previously included and the towns of Hyrum and Wellsville. The primary goal identified in the 1999 plan was to increase pedestrian use and bicycling as safe and efficient transportation modes. Objectives associated with that goal were:

- Encourage and facilitate pedestrian activity.
- Designate a network of transportation facilities for bicyclists.
- Support programs for bicycle, pedestrian and driver education.
- Pursue diverse funding sources for the implementation of facilities and programs.
- Encourage and promote cooperation among local entities to initiate and continue implementation of the plan.

Recommendations in the trails plan focused on short and long-term implementation activities for the region. Short term proposals included marketing and education efforts, designating on-street bicycle routes, providing bicycle racks at transit stops and on buses, incorporating sidewalk improvements and connectivity, and making bicycle and pedestrian improvements in the central business district (CBD). Longer term recommendations included such elements as exploring and enhancing off-street trail enhancements, designating recreational gateways, constructing CBD pedestrian and bicycle improvements, and improving sidewalk connectivity.

An updated trails map, including both bicycle and pedestrian facilities, has not been adopted by the Cache MPO. It is recommended in Chapter 8 of this document that the Cache MPO update the trails plan and incorporate the goals and objectives of this plan as well as the components they previously identified as important. In adopting an inclusive bicycle and pedestrian trails plan, the Cache MPO will consider an 'Ultimate Trails Plan' that is consistent with the Ultimate Functional Classification map for roads and highways. This would define the vision for bicycle

and pedestrian trails planning in Cache Valley and offer a build-out plan on which nearer-term trails plans could be based. The importance of this trails plan lies in the consistency of plans between cities and at municipal borders more so than specific trail plans within each city. Care should be taken in this trails planning process in considering commuter trends and patterns and identifying more opportunities for commuter bicycle facilities.

*ii. Transit*

The Cache Valley Transit District and the Logan Transit District provide free-fare transit service to the residents of the area. Although the transit system is relatively small due to the size of the Cache region, ridership numbers in the Cache Valley are high when compared to other transit systems of similar size.

As discussed in Chapter 4, vehicle miles traveled are increasing more quickly than population, a trend seen nationwide as well as in the Cache region. Driving becomes not only more convenient, but more necessary as land uses spread and become more segregated. In Table 6-3, census data from 1990 and 2000 shows that one and two-car households decreased as a percent of total households, while three, four, and five-car households all increased. In addition, households with no cars also increased, perhaps reflecting the development of a comprehensive transit system during the same period.

**Table 6-3: Cache County Vehicle Ownership**

Cars/Household	1990		2000	
	Households	Percent of Total	Households	Percent of Total
None	728	3.5%	1,158	4.2%
1	6,039	28.7%	6,817	24.8%
2	8,830	42.0%	11,523	41.8%
3	3,647	17.3%	4,891	17.8%
4	1,240	5.9%	2,041	7.4%
5+	537	2.6%	1,113	4.0%
<b>Total</b>	<b>21,021</b>	<b>100.0%</b>	<b>27,543</b>	<b>100.0%</b>

While transit as a share of total trips is still relatively small, transit service is important in that it provides an alternative for those who choose not to or are unable to drive. In addition, transit use for work trips has a “spillover” effect because it reduces those vehicle trips that might otherwise be taken midday, or before or after work. In essence, transit is about more than buses and routes: it is about lifestyle and land use choices.

**C. Performance Measures**

Tying transportation funding to specific performance measures is a way to recognize the merits of a transportation project beyond standard capacity-increasing elements. While cost-effective as a short term traffic congestion solution, simply increasing road capacity, by itself, has not been proven successful in solving long-term traffic congestion problems. Instead, planning needs to be done with a broader spectrum of choices such as alternative modes, travel demand management (TDM) strategies, alternative land use development patterns, etc. Examples of performance measures for highway, transit, and non-motorized travel are discussed in Chapter 4.

Evaluation of transportation alternatives from a performance-measure perspective offers a process by which a community's goals and objectives can become a more meaningful component in the planning process. Advantages of performance-based planning include:

- Reflecting the results of the plan and not just the actions taken,
- Providing measurable results that can be tracked on an annual basis,
- Displaying indicators of transportation's impact on "Quality of Life" and not just technical measurements such as Level of Service,
- Providing an early warning for actions to be modified in Transportation Plan Updates if results vary from expectations.

Due to the expected high growth in Cache Valley, new road capacity is a vital component to the future transportation system. Yet, the strength of Cache Valley in attracting new growth may arguably be found in its "small town charm" offered by a walkable and mixed use downtown. Performance measures offer a means of tracking the success of the transportation system in supporting the strengths of the area in an absolute sense, as opposed to simply comparing it to "how bad it could have been." Comprehensive land use and transportation planning allows for improvement to the area as opposed to an acceptance of a gradual decline, and performance measures offer a means of tracking and measuring this success.