

# **Box Elder County**

## **Transit Feasibility Study**

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***Draft Final Report***  
***July 2004***

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**Brigham City**  
**Box Elder County**

*In Cooperation With:*  
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## **Introduction**

Beginning April 2004, InterPlan Co. was hired by Brigham City Corporation to provide the first phase of a Transit Feasibility Study for Brigham City and Box Elder County. The first phase was designed to provide for Policy Planning in order to assess the types of transit services desired by the community and the range of costs associated with various levels of transit service. An optional second phase of work would allow the City and County to consider more detailed transit routing, ridership studies, and service provider options pending the results of the first phase recommendations.

This report presents the findings for the first phase of work and completes the contractual obligation established between Brigham City Corporation and InterPlan Co. Information included in this report represents the results of a series of meetings with the Box Elder County Transit Task Force and coordination with the Utah Department of Transportation (UDOT), the Utah Transit Authority (UTA), as well as Brigham City.

In summary, the Cities of Brigham City, Perry City, and Willard City are presently part of the UTA service area and provide ¼-cent sales tax dedicated to transit services provided by UTA. Despite the general success of the UTA transit service serving the commuter needs of the service area, transit service to the mobility-impaired segment of the population is a concern in both Brigham City and Box Elder County-wide. A Countywide task force was established and provided significant support in summarizing the range of transit services provided by various non-profit agencies throughout the County. The task force concluded that transit services could be significantly improved through improved coordination of existing services.

Findings of this report suggest that perceived inefficiencies of existing and uncoordinated transit service is partly due to the varying objectives of each transit service provider, for which transit service is often a secondary objective. Geographic limitations of service providers are also a constraint, with very little transit service coverage to Tremonton and the northern section of the Box Elder County. Like many public services, improvements to transit service are limited by the available funding dedicated to mass transit. However, with funding increases on par with other Wasatch Front communities, transit service to Box Elder County and Brigham City could be dramatically improved and would meet most of the objectives of the task force. Transit service improvements would require a detailed action plan to overcome hurdles associated with two separate transit agencies serving the neighboring counties as well as a taxpayer willingness to fund incremental transit service improvements.

## **Existing Conditions**

Existing conditions related to transit service in Box Elder County include both the existing transit services and the demographic and socio-economic conditions which might support or hinder transit service. Transit service in the County can be divided into both commuter services, which includes college students, and “para-transit” service, or transit service to the mobility-impaired community. Similarly, demographic characteristics can also be summarized along the lines of jobs and various commuter sheds as well as the

mobility impaired community consisting of seniors, people with disabilities, and people for which private vehicle ownership would represent a disproportionately large amount of income. Existing conditions are summarized along these lines.

#### Transit Service:

Commuter transit service is generally provided by UTA through ¼-cent sales tax funding from Brigham City, Perry City, and Willard City. UTA runs 37 one-way bus trips each weekday between Brigham City and Ogden and serves approximately 360 passenger trips each day. Service is also provided by UTA on Saturdays. UTA service consists of route 630 serving hourly trips between Brigham City and the Ogden Transit Center as well as route 685 serving two morning peak and two afternoon peak trips between Brigham City and approximately 36<sup>th</sup> Street in Ogden, including service to the Ogden Flying J. UTA service is presented on Figure 1 on the following page. According to information collected by the Box Elder County Transit Task Force, limited transit service is also provided by the Cache County Employment Center and the Utah State University Aggie Shuttle, both located in Logan.

In addition to direct service to Box Elder County, UTA is presently performing the environmental studies to implement a commuter rail transit system from Salt Lake to Pleasant View, approximately 15 miles south of Brigham City, Forest Street. Commuter rail consists of passenger trains operating within the existing freight rail right-of-way. In other cities, commuter rail plays a role in serving relatively long distance commute trips. Current UTA plans call for commuter rail operating at 20 minute peak headways up to Pleasant View City by the end of 2007 or early 2008. UTA has also purchased a shared track agreement with the Union Pacific Railroad (UPRR) from Pleasant View to Brigham City for the possibility of extending commuter rail service north of Pleasant View, but there are no short term plans to implement that service.

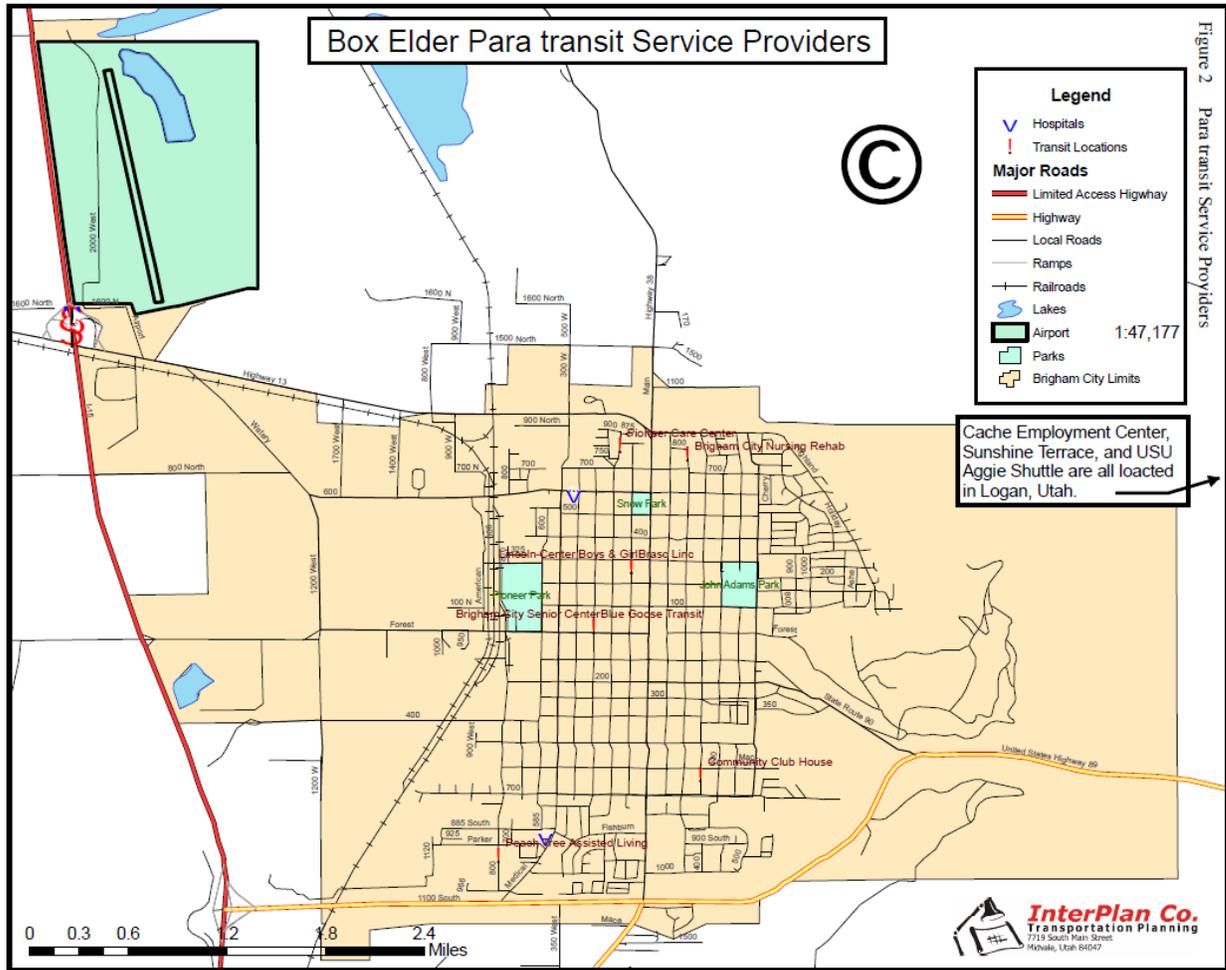
Para-transit service is primarily provided by a series of fragmented services ranging from a contract with HandiTrans through the UTA to the Blue Goose in Brigham City. The Box Elder Transit Task Force summarized 15 separate transit service providers using approximately 26 vans and few large buses (not including UTA or USU service) for various transit service operations (summarized in the appendix of this report). Transit service is supported by fragmented and often variable levels of public and private funding and ridership levels are difficult to quantify but probably average approximately 200 riders per day. The majority of transit service providers are located in Brigham City and are displayed in Figure 2.

#### Demographics:

Commuter transit service in Brigham City serves a significant share of the total trips as compared to other transit systems. Table 1 displays the one-way daily work trips based on the year 2000 Census. Considering the transit market of Box Elder residents to Weber, Davis, or Salt Lake workplaces, UTA transit serves between 5 and 6 percent of the total demand.



Figure 2  
Para transit Service Providers



**Table 1: One Way Work Trips (Daily)**

Residence	Workplace						
	Cache	Box Elder	Weber	Davis	Salt Lake	Utah	Other
Cache	39,235	2,383	606	334	463	94	616
Box Elder	631	13,570	2,529	660	401	26	698
Weber	379	1,671	64,671	16,659	6,425	458	1,081
Davis	199	313	14,876	61,208	33,851	803	1,467
Salt Lake	224	80	2,084	8,370	411,283	8,075	8,511
Utah	12	14	317	842	18,159	140,834	3,399

2000 Census

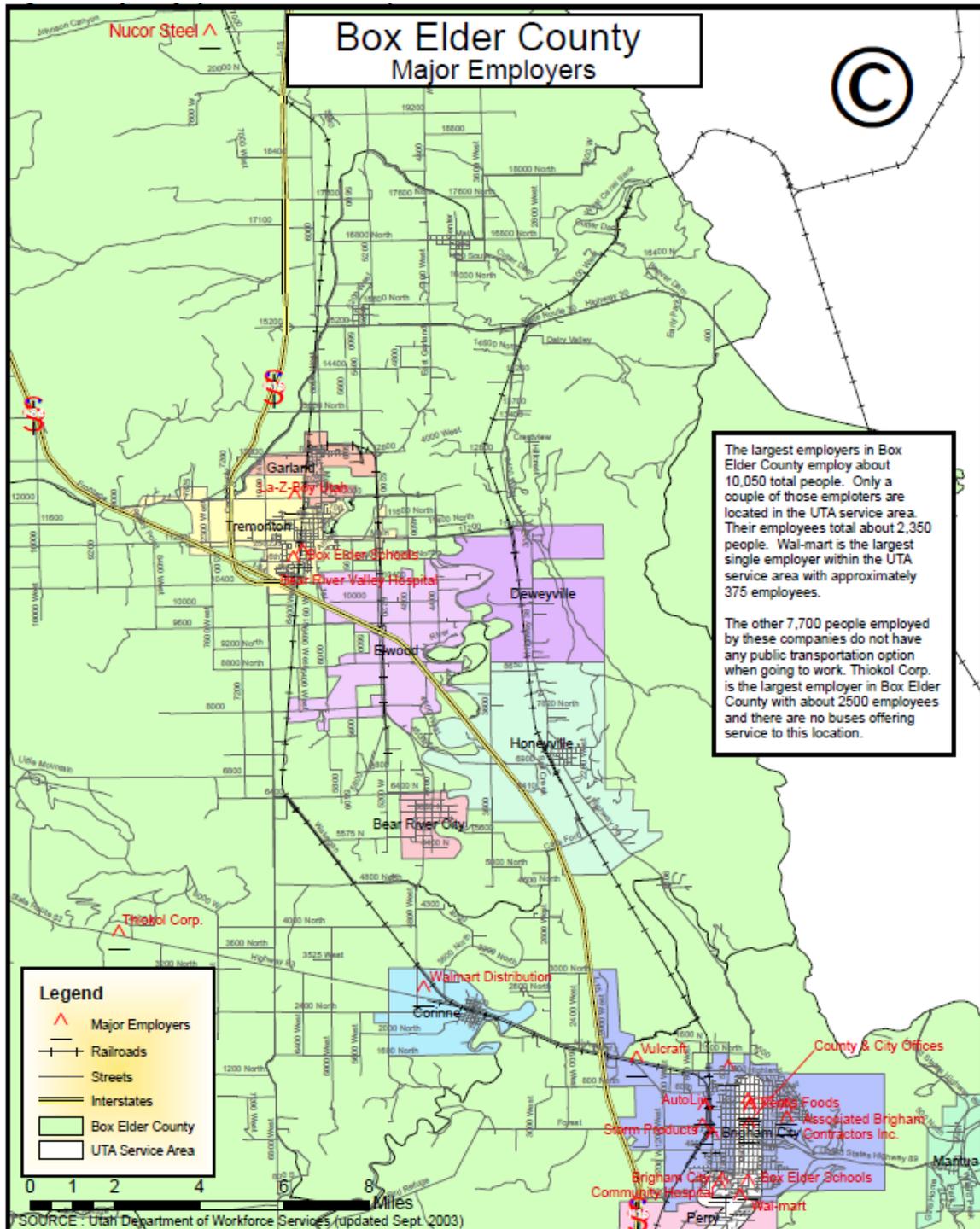
Intra-county demand is approximately four times the inter-county demand to these three counties of Weber, Davis, and Salt Lake; but would not capture the same share of transit due to the shorter trip distances. Work trips from Weber, Davis and Salt Lake to workplaces in Box Elder County are probably not served since relatively little of the employment base of the County is along the Main Street corridor served by UTA routes. The number of inter-county work trips to Box Elder County from Weber, Davis and Salt Lake is approximately 57 percent of the inter-county work trips from Box Elder County to these three Wasatch Front counties. Intra-county work trips to and from Cache County, presently not served by transit, are also significant but slightly smaller than travel between Weber and Box Elder.

The employment base in Box Elder County is still relatively concentrated amongst a few major employers. As the area grows, it can be expected that the employment base will diversify. However, presently the top 10 employers in the County provide over 50 percent of the total jobs in the County. The following lists the largest employers in Box Elder County:

1. Thiokol Corp.	Space Vehicle Manufacturing	2,000-2,999 Jobs
2. La-Z-Boy	Furniture Manufacturing	1,000-1,999 Jobs
3. Autoliv	Motor Vehicle Equip. Man.	1,000-1,999 Jobs
4. Box Elder Sch. Dist.	Public Education	1,000-1,999 Jobs
5. Wal-Mart	Distribution Center	500-999 Jobs
6. Nucor Steel	Steel Mill	250-499 Jobs
7. Vulcraft	Fabricated Struct. Metal Man.	250-499 Jobs
8. Wal-Mart	Discount Department Store	250-499 Jobs

Although the present UTA service area serves over 50 percent of the population base in Box Elder County, it serves relatively few of the top employment sites in the County. Nucor Steel and Thiokol are north and west, respectively, of any significant population center. Similarly, the Wal-Mart Distribution Center in Corrine and the La-Z-Boy manufacturing in Tremonton are beyond the UTA service area. Figure 3 displays the location of major employers in Box Elder County.

Figure 3  
Major Employers in Box Elder County



Providing transit service to the mobility impaired community, those people in greatest need for transportation assistance, is a difficult challenge in most rural communities. The Federal Transit Administration (FTA) provides funding assistance for capital purchases to private non-profit agencies providing transit services to senior citizens and persons with disabilities (5310 funding) and operating assistance in rural areas (5311 funding). Rural para-transit service is a national challenge and the problems in Box Elder County are not unique. Transit service is most cost effective when there is a concentration of either people or locations being served.

Of the total population of approximately 44,000 residents in Box Elder County, slightly over half are served by UTA transit service in Brigham City, Perry, and Willard. Generally, the same or a slightly higher proportion of the para-transit market including the following groups are also found in the UTA service area:

- People with disabilities,
- People living in poverty,
- Seniors (generally people age 75 and over), and
- People in Households without access to a Private Vehicle.

Maps of each of these para-transit market groups are provided in Figures 4 through 7, respectively. In general, para-transit needs are focused in Brigham City, and to a lesser extent Tremonton City. Outside of these areas, para-transit markets are relatively scattered. It is worth noting that the graphics displayed in Figures 4 through 7 are based on random dots in Census Block Groups. The randomness of these dots probably makes them appear less concentrated than the actual locations of each house.

#### Costs and Funding:

As discussed, UTA transit service is funded through ¼ of each cent sales tax in the three cities included in the UTA service area. UTA also receives \$1.35 and \$2.50 fare box funding assistance from each passenger trip, with discounts available through a variety of passes. Although the UTA service area serves only 50 percent of the County population, it receives over 60 percent of the County sales tax revenue, since Brigham City is generally the center of retail for the County. According to 2001 State Tax records, there was approximately \$392 million of gross taxable sales and services purchased in Box Elder County with over \$214 million purchased in Brigham City (and approximately \$30 million in Willard and Perry).

Each ¼ cent sales tax provides over \$600,000 annual revenue in the UTA service area, which could be increased to just under \$1 million if the sales tax were imposed County-wide. UTA fixed route service through routes 685 and 630 generally provide transit service in the range of \$5.50 per passenger trip for a total annual operating cost of approximately \$600,000. The remaining sales tax revenue of approximately \$50,000 goes to para-transit service contracted by UTA to an outside provider (presently HandiTrans, although a contract extension is pending). Fixed route operating costs are based on

Figure 4  
People with Disabilities

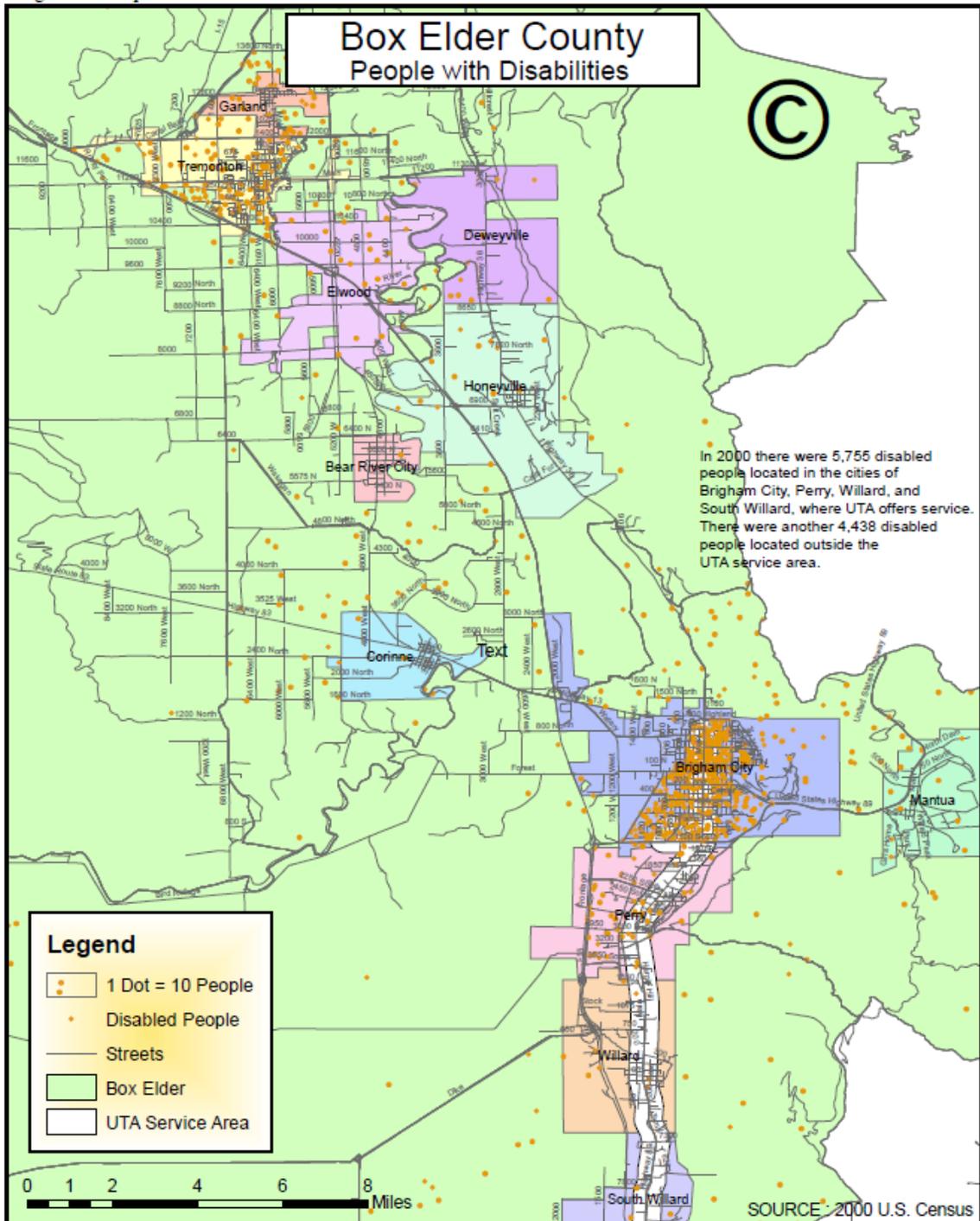


Figure 5  
 People Living in Poverty

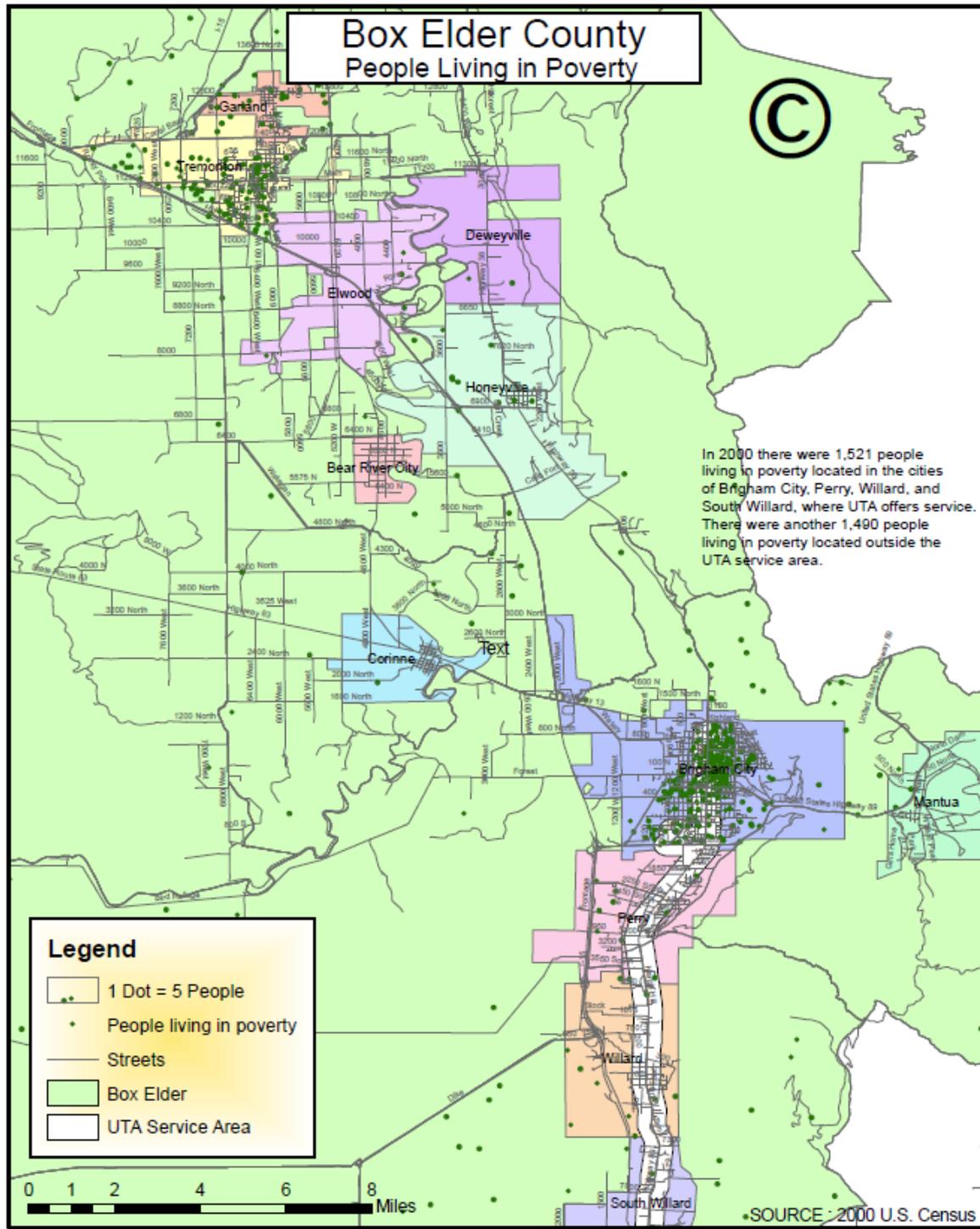


Figure 6  
 People Age 75 or Older

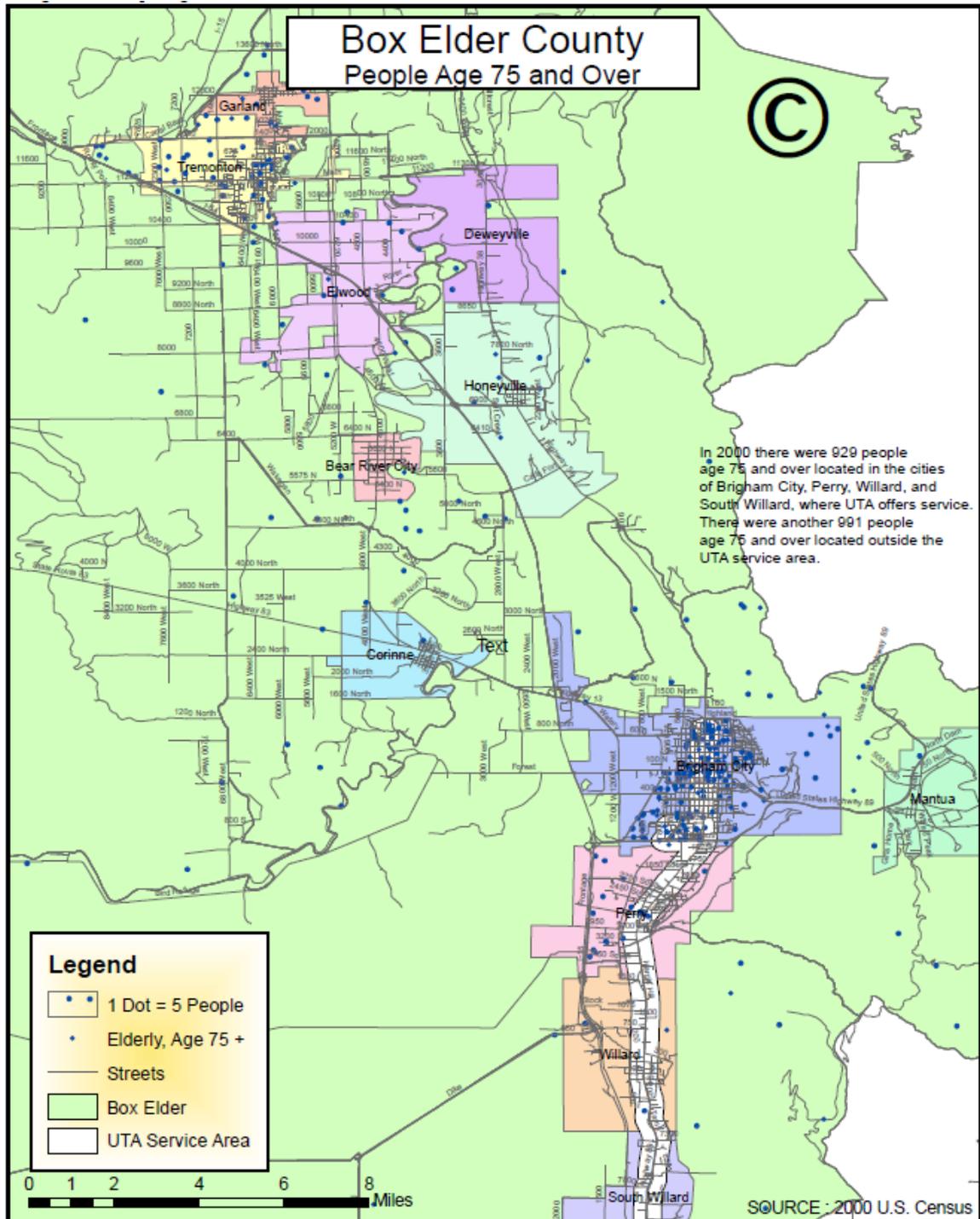
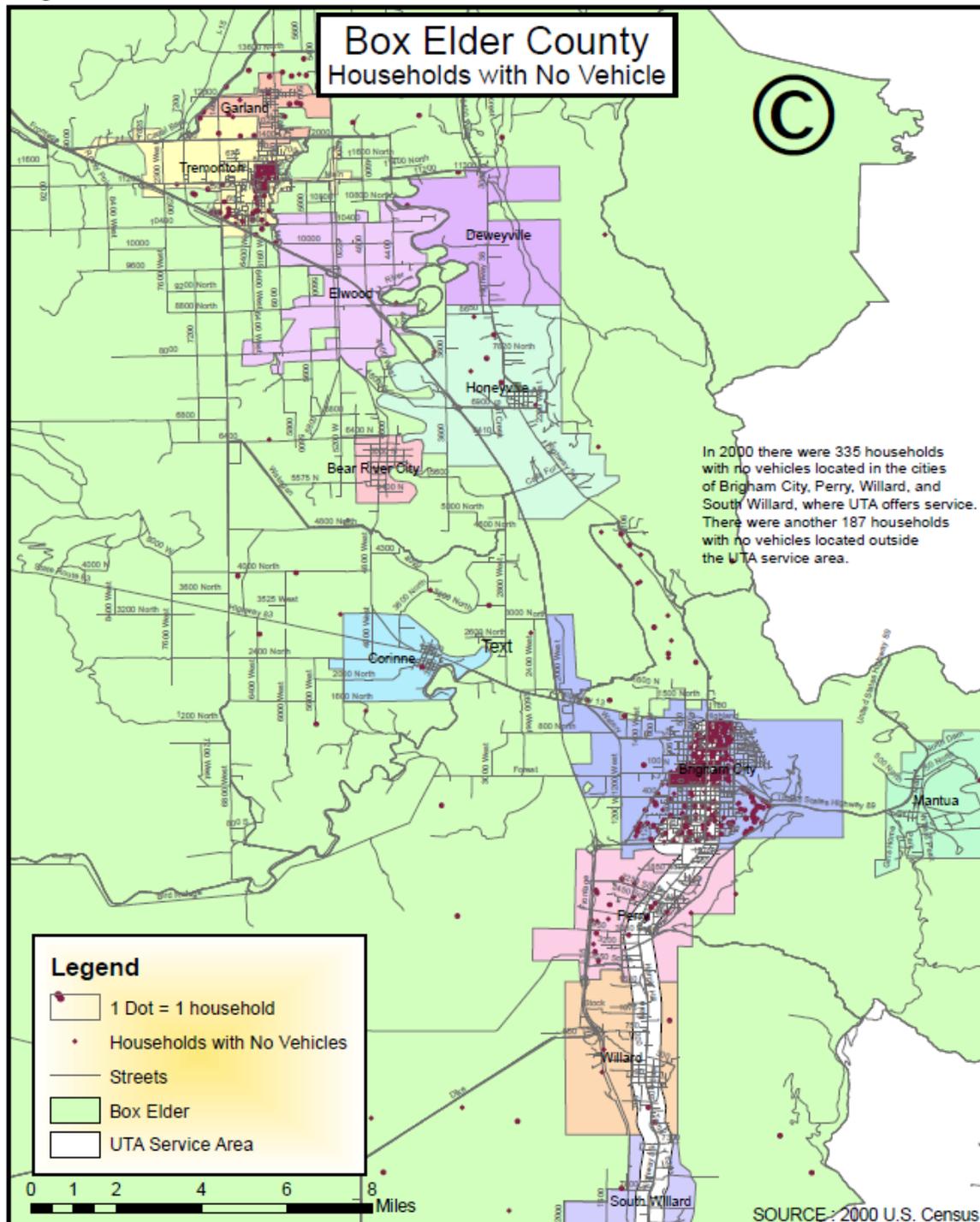


Figure 7  
Households with No Vehicles



information provided directly by UTA and includes system-wide operating costs of \$27.50 per hour and \$0.90 per mile applied to Box Elder County service.

Private non-profit para-transit service costs are more difficult to track. Typically, smaller transit service providers can receive one-time capital grant funds from FTA and not fully track the cost of maintenance and up-keep in their operating expenses. While it is not uncommon for para-transit service to cost in excess of \$10 per passenger trip, it is rare that private service providers recognize the full cost of their service. Some private para-transit service providers require fare or request a fare box donation; others view transit service as an extension of their other social service role (such as support for seniors or youth) and often waive any transit fare. One of the difficulties in consolidating such services is that the continued social service role that each agency continues to play and the view that transit continues to be an extension of that service even in the presence of a dedicated para-transit service provider.

## **Transit System Goals**

Public transit service is not a “profitable” venture in the sense that fare box revenue will exceed the cost of providing service. Similarly, transit service will never compete with the private automobile in terms of travel time and convenience. Yet, transit service can play an important part in a community both in terms of a transportation option and in terms of a social service. Therefore, it is important to establish clear goals for the expectations of the transit service.

The Box Elder County Transit Task Force studied the issues of transit service prior to the procurement of consultant support in evaluating possible transit service options. Prior to InterPlan’s support, the initial focus of the Task Force was on the short term issues associated with para-transit service and the viability of the Blue Goose to provide a needed transit service. After InterPlan was hired to assist the Task Force, the following five goals were articulated by members of the Task Force:

1. Improve the efficiency and reliability of Para-transit to meet the growing service needs within the County.
2. Provide transit service within the County with particular emphasis in serving the major employers in the County.
3. Improve service to Cache County, particularly for students at USU and major employment sites in Logan.
4. Continue and improve coordination with UTA in order to maintain strong transit service between Box Elder County and the greater Wasatch Front and work to accelerate commuter rail service to Brigham City.
5. Allow transit to assist in various tourism related goals, particularly with respect to the Golden Spike State Park and the Great Salt Lake Bird Refuge.

## **Transit Service Recommendations**

A discussion of transit service options has been limited to the recommendation of the types of transit service which best meets the goals identified by the Transit Task Force. These recommendations do not exhaust the range of other options and, where appropriate, some discussion of variations to the main service option described is also presented. Transit service goals can generally be met with three general services.

### Intra-County Transit Service

Although commuter trips to Weber, Davis, and Salt Lake represent a significant fraction of commuter needs from Box Elder County residents, intra-county work trips (work trips from residents of Box Elder County to workplaces within Box Elder County) represent more than 70 percent of the daily commute. Similarly, residents from neighboring counties of Weber and Cache comprise the vast majority of inter-county commuters into workplaces in Box Elder County. Furthermore, since more than half of the total employment base in Box Elder County is concentrated among the top ten employment sites, transit service within the County would allow existing residents and commuters from neighboring counties a viable alternative form of transportation for work trips.

A relatively common service option in rural communities is to provide checkpoint transit service. Checkpoint service, also called route-deviation transit service, allows buses to load and unload riders at fixed locations and at fixed times. Yet, flexibility would be provided in scheduling of service to allow the bus to vary its route and pick up additional passengers based on requests for service, typically met within 24 hour advanced reservation. During peak commuter periods of the morning and afternoon peak hour, little extra time would be allowed in the schedule so that commuters are offered somewhat premium travel time service. At off peak times throughout the day, more flexibility could be offered in scheduling to allow for additional deviations of the travel route thereby providing significant service coverage expansion for the mobility impaired community.

Checkpoint service represents a hybrid service that would serve both commuter and para-transit service needs within Box Elder County. It should be recognized that these transit service needs often compete in that commuter needs value time savings while para-transit needs value service coverage. While checkpoint service is common in rural areas, it is not common as areas become more urban. Yet, with the large land area of the county, the relative limit of high quality streets to provide efficient travel time, and the apparent concentration of work sites and para-transit needs, checkpoint service has a reasonably good chance of success as a primary service option for all intra-county transit service needs in Box Elder for the foreseeable future.

Four main routes have been identified for cost and ridership estimating purposes. These routes would likely be modified based on additional analysis and represent concepts as opposed to specifics. The first route would serve needs between Brigham City and Tremonton, with extensions of service north of Tremonton to possibly serving Nucor Steel. Peak hour service would likely go directly on I-15 from Brigham City to Tremonton. Off-peak service would allow for on-demand service to the communities of

Garland, Deweyville, Elwood, Honeyville, and Bear River as well as extensions north of Tremonton. The second route would primarily serve peak hour service between Brigham City, Corrine, and Thiokol along SR-83. Off-peak service could overlap service to Tremonton and serve coordinated, on-demand needs of Bear River City, Elwood, and Honeyville. This route may form a triangle supplementing the off-peak service to and from Tremonton. The third route would primarily provide inter-city service in Brigham City. Frequent service along Main Street would coordinate and overlap with existing UTA service and provide inter-city circulation along major destinations along Both Forest Street and 1100 South, near Perry. In order to maintain relatively efficient schedules for all other routes, a fourth route is proposed to be purely on-demand and would not follow any specific route or schedule.

Checkpoint service within Box Elder County is estimated to cost between \$700,000 and \$900,000 per year, including fare box return, roughly requiring a ¼ of one percent sales tax increase Countywide. Assuming approximately a 2 percent transit share for inter-county commuter trips applied to only half of the jobs in Box Elder County, checkpoint service would serve approximately 150 daily intra-county commuters and could boost UTA's ridership by up to 120 new riders per day by allowing residents in other Weber, Davis and Salt Lake Counties to have direct transit access to work locations in Box Elder County (assuming UTA service could carry the increase). Checkpoint service would likely supplement existing para-transit service providers, and not replace them, providing a critical geographic link outside of Brigham City and roughly serve an additional 50 para-transit service trips per day.

There are a variety of issues and potential obstacles to overcome in providing intra-county transit service. Box Elder County is part of the UTA service district and, by state statute, would require the approval of UTA to establish additional transit service or to replace a service already provided by UTA (para-transit service). While UTA could be a potential service provider, the issue of coordinating with an existing service provider would eventually be faced for service to expand to Cache County, with transit provided by the Logan and Cache Valley Transit Districts. UTA presently provides for low interest van purchase loans for the formation of van-pools to large employers such as Thiokol, so coordination with each major employer would be necessary to ensure that bus service would be a useful attraction. Coordinating the details of bus stop locations, shift work schedules, and possible transit incentives would also be necessary with each large employer but are secondary to the question of whether direct transit service would be seen as a benefit.

#### Cache County Transit Service

Transit service to Cache County would likely serve between 40-60 riders from Box Elder County residents plus another 100 new riders from Cache County residents, if coordinated with intra-county transit service in Box Elder County. An additional 50-100 riders per day would also be added by connecting Cache County to the UTA service in the greater Wasatch Front, again assuming that UTA could service the additional demand. Assuming approximately twelve one-way trips per day, and using Sardine Canyon (US-89) as an estimated route, service costs would be approximately half to two-thirds of the cost of existing UTA service in Box Elder County, or roughly \$400,000 per

year, but this assumes no significant ridership loss with less frequent off-peak service throughout the day than UTA service.

Service implementation would need to address the coordination of the UTA service area and the Cache Valley Transit service area. One or both agencies would need to approve parallel or complimentary transit service. Timed transfers with UTA service, proposed Box Elder intra-County service, and service in Cache County would all be necessary. The location of a main transit center should be considered in Brigham City to facilitate timed transfers and to foster other land use and transit goals of the community. Coordination with Utah State University, in addition to the UTA and Logan Transit District, is also recommended.

#### Commuter Rail Extension to Brigham City

Commuter rail does not presently exist in the Wasatch Front. Light rail service, similar to the TRAX line in Salt Lake County, is an electrified rail car that serves stations spaced approximately every mile to two miles and can travel on either a dedicated rail alignment or in a street with mixed traffic (such as on Main Street, Salt Lake City). Commuter rail differs from light rail in that it is diesel powered and must operate on a dedicated rail alignment and cannot operate in mixed street traffic. Because of the slower acceleration and deceleration capabilities of the diesel trains, stations are generally spaced 5 to 8 miles apart so that service is generally provided for longer (20 mile plus) travel distances. UTA is pursuing an Environmental Impact Statement and Full Funding Grant Agreement with the Federal Transit Administration to construct commuter rail from Salt Lake City to Pleasant View, north of Ogden. In addition, UTA has already negotiated with the UPRR for a shared track agreement to extend commuter rail service north of Ogden into Brigham City by sharing the use of the existing track.

Despite the ingredients coming together for a high probability that commuter rail will someday serve trips between Brigham City and Ogden and Salt Lake, commuter rail service to Brigham City is highly unlikely within the next five years. Existing UTA bus service is presently adequate and the construction of commuter rail to Pleasant View is consuming much of UTA's planning resources. In addition, there are many unknowns about the short and mid-term feasibility of rail service to Brigham City that will be easier to answer once commuter rail is established along the more probable routes in the core Wasatch Front. After successful commuter rail service from Salt Lake to Ogden, commuter rail may be a relatively simple extension of the existing rail service that is accommodated within the existing capital facilities, or would require the purchase of additional rail cars in addition to the operating expense required to extend service. Ridership estimates are also a variable that will be much better understood once commuter rail service is up and running.

One of the best indicators for the need for commuter rail service to Brigham City would be the increased use of the existing bus service or a large number of Box Elder County vehicles parked in the Pleasant View rail station parking lot. UTA's expected total per mile operating cost for commuter rail service is expected to be approximately triple the per mile bus costs, including a per mile lease agreement with the UPRR. This makes rail service highly contingent on both revenue and ridership. While Brigham City can

increase the revenue side by opting for higher tax rates dedicated to transit, ridership can best be improved by complimenting existing UTA service with both intra-county service to major employment locations and by linking service to Cache County. In other words, additional funding will help little to accelerate rail service to Brigham City if the ridership is not there.

It is likely that the increased speed, convenience, and appeal of a rail facility over bus service would likely increase present transit ridership to UTA's service area by 25 to 50 percent. This ridership increase could be coupled with ridership increases from providing intra-county transit service within Box Elder County, and/or service to Cache County. These ridership increases would still require an additional operating cost subsidy for commuter rail service roughly equivalent to a 50 to 100 percent increase in existing transit sales tax revenue. Future commuter rail service to Brigham City would likely run at half the frequency of rail to Ogden, or every 40 minutes during the peak period, and it would be possible to fit an intermediate station in between Brigham City Forest Street and Pleasant View, although intermediate service could also continue to be served by buses.

## **Conclusions**

Existing Para-transit service issues in Box Elder County are common among similarly sized areas and no single solution exists. Transit service options in Box Elder County are somewhat complicated by two separate transit providers, Logan and Cache Valley Transit Districts serving Cache County, and the Utah Transit Authority serving the greater Wasatch Front including portions of Box Elder County. A comprehensive transit system which meets the goals of the community would best be provided with a phased implementation plan. Transit implementation would include the following phases:

1. Short-term intra-county transit service could serve major employment centers and other major activity centers coupled with on demand service to the transportation disadvantaged. Intra-county transit service could be provided within 6 months to one year depending on taxpayer willingness and the ability of a service provider to bring in the necessary capital equipment. Existing service contracts with UTA would still need to be honored. Discussions with UTA should begin immediately to coordinate future service contracts and to lay the groundwork for additional intra-county service. The most likely funding for this service would be a ¼ cent sales tax increase Countywide.
2. Mid-term expansion of transit service could be provided to Cache County. Cache County service would ideally follow intra-County service in order to optimize ridership, but could be cost effective as an earlier phase assuming coordination between L(CV)TD and UTA. Scheduled transit service to and from Cache County could be operating with six months to three years, again depending on taxpayer willingness and the ability to coordinate with various service providers. The Logan and Cache Valley Transit Districts should be included in discussions with UTA to begin the necessary coordination.

3. Commuter rail service to the existing UTA service areas could be provided as soon as 2009 or 2010. Implementing major rail service between Salt Lake and Ogden is a complicated process that is made more complicated by attempting to service areas where ridership is considered marginal. For this reason, rail service should follow, not precede, intra-county transit service to ensure that rail serves both residential origins and employment destinations in Box Elder County. The eventual implementation of rail service should be coordinated with all earlier transit planning activities, particularly as they relate to land use and transit station planning.

All phases of transit implementation would require taxpayer approval. A comprehensive transit system would require approximately  $\frac{3}{4}$  of one percent sales tax Countywide dedicated to transit, which includes the existing  $\frac{1}{4}$  cent dedicated to transit in the Cities of Brigham City, Perry, and Willard. Other funding sources have not been extensively reviewed and various funding options undoubtedly exist, but sales tax revenue should be considered the most likely source of funding. It should be understood that Brigham City will carry a disproportionate load of transit sales tax revenue compared to service, particularly in the short term phases recommended.

No political strategy for sales tax approval is offered in this feasibility analysis. There is discussion of transit sales tax increases in the core Wasatch Front Counties (Weber, Davis, Salt Lake, and possibly Utah Counties) to request approval for transit sales taxes of up to 1 percent. Similarly, the Cache Valley Transit District is also contemplating additional transit revenue from sales tax increases in the future. This feasibility analysis establishes the types of transit services that could be provided to meet the Box Elder Transit Task Forces goals for transit service and the revenue that would be necessary to implement that service. Community leaders must first understand the potential costs and benefits of transit service, and this paper lays out a description of what transit service can do and what it will cost.

Transit service should be viewed in a realistic light of providing a transportation option that can assist both residential and commercial land uses in Box Elder County. The Cities of Perry and Willard, in particular, are beginning to observe suburban residential development pressures of an exurban community to Ogden. Properly planned transit service can help balance growth pressures by providing areas for higher density residential development as well as walkable commercial uses. Transit can benefit existing employment locations by increasing their pool of qualified job applicants. Reductions in traffic growth are expected to be modest, at best, with transit service providing a reduction of single occupant automobile travel of approximately one percent. These points are offered to allow City and County leaders to view transit within the context of other land use and transportation plans for the area. Envision Utah is presently assisting Brigham City develop a comprehensive land use plan and the Utah Department of Transportation is completing work on a Master Transportation Plan. Transit plans should be coordinated with these two planning efforts.