Mesa County

2030 Transit Element

Prepared for

Mesa County Regional Transportation Planning Office

TRANSPORTATION CONSULTANTS, INC.

Mesa County
Transit Element

Final Report
Short- and Long-Range Plans

Prepared for:

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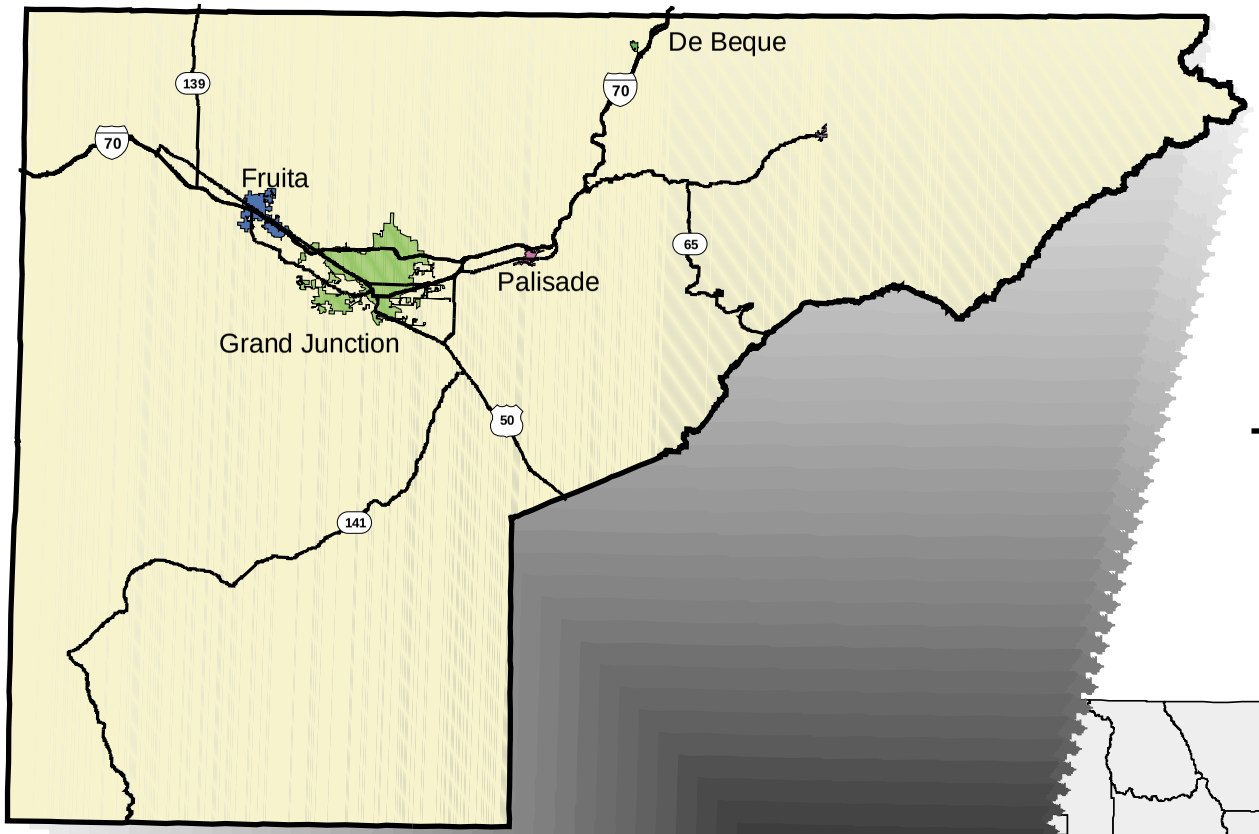
CHAPTER I

Introduction

The Mesa County Regional Transportation Planning Office (RTPO) contracted LSC Transportation Consultants, Inc. (LSC) to prepare the short-term and long-term Transit Element for Mesa County. Chapters 1 through 5 present a summary of the existing conditions related to public transit services in Mesa County, including a description of the communities within Mesa County, a review of the existing transportation providers in the study area, issues to be addressed in the study, and the transit demand estimates for the study area. Figure I-1 shows the Mesa County study area. Chapters 6 through 11 provide a range of service, capital, institutional and financial alternatives to meet the unique needs of the region that were identified through the public process. Chapters 12 and 13 provide recommended short- and long-range transit elements.

PROJECT PURPOSE

This Transit Element will be incorporated into the 2030 Regional Transportation Plan update and will become the transit planning document for the Grand Valley Regional Transportation Commission (GVRTC) and the transit service providers within Mesa County. The Colorado Department of Transportation (CDOT) will use this Transit Element in evaluating and approving grant applications for capital and operating funds from the Federal Transit Administration (FTA), as well as other available transit funds. The GVRTC will use the long-range Transit Element for allocating available funds and project prioritization.



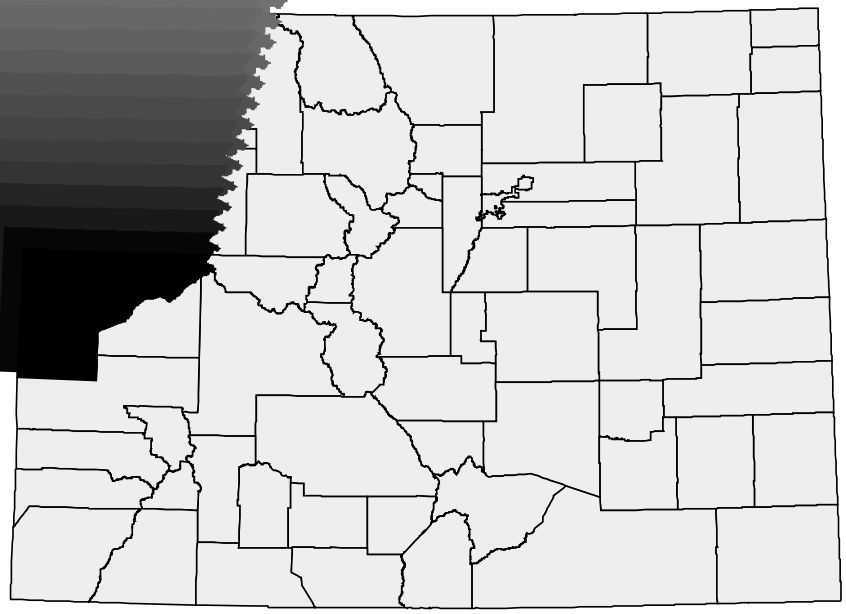


Figure I-1

Mesa County Transit Element Study Area

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STUDY APPROACH

This study looks at how transportation services are provided within Mesa County. This will include investigating rural and urban areas and how transportation needs vary across the study area. The needs of the rural areas are very different from the needs of residents living in the area currently served by Grand Valley Transit, in and adjacent to Grand Junction. This study presents both a short-range and long-range transit element. The short-range transit element is the basis for operational plans for each transit provider within the region for 2003-2010. The long-range transit element will develop a vision for the quality of life and transportation goals to support that vision. The long-range transit element will present the Preferred Transit Plan and also the 2030 Financially-Constrained Plan.

MESA COUNTY TRANSPORTATION VISION AND MISSION STATEMENT

Vision Statement

The MPO also serves as the Transportation Planning Region, or TPR, for the Mesa County geographic area, including the City of Grand Junction, City of Fruita, Town of Palisade, Town of Collbran and Town of DeBeque. The following vision statement was adopted by the RTPO:

> *"Working to prioritize and coordinate regional transportation improvements and enhance public transit service through coordinated programs."*

General Mission Statement

The following mission statement should be reviewed by all concerned with public transportation within the County:

> "*To provide, through cooperative public and private efforts, effective and cost-efficient public transportation services to the extent possible and at a level supported by Mesa County residents."*

SUMMARY OF THE ISSUES

The list of issues presented in the following text has been identified from a variety of sources including previous reports, the inventory of existing providers, interviews with key personnel, the Kick-off Meeting, and discussions with transit riders. Issues have been identified that may require short-range or long-range actions. Each of the issues will be considered when developing short-range and long-range plans for the study area. These issues, as well as others that are identified during the process, will be addressed in this planning effort:

- The need more direct service between frequent origins and destinations.
- The need to meet bell times at major activity centers (schools, Mesa State College, employment centers).
- The need to evaluate the potential to combine school and public transportation.
- The need to evaluate existing and future capital needs.
- Consideration of a longer daily span of service.
- The need to consider the long-term funding/equity issue.
- The need to reconsider vehicle size for bus fleets.
- The need to consider changes to the fare structure.

- The need to consider additional local funding sources besides general funds.

The following list of general issues will also be addressed through this planning effort:

- What are the locations of services, employment, and residential areas that should be served?

- What is the level of demand for public transportation services? What are the current and projected unmet needs?

- What coordination efforts could provide for effective and efficient use of available resources?

- Regional coordination – land use and transportation planning efforts.

- Capacity to implement transportation solutions.

    - Physical challenges, logistics, environmental considerations.
    - Impacts on communities.
    - Funding – local, state, federal, other.

- The need to carefully tailor transit services to the transportation needs of the county, in order to make the most effective use of limited financial resources.

- The residential and commercial growth in the community, both over the last few years as well as over the coming 10 to 30 years.

- The ongoing need to serve low-income elements of the community, particularly with regard to providing access to training and employment opportunities.

- The potential need to provide effective commuter service along the Interstate 70 corridor and in Grand Junction.

- The increasing need to provide public transit access to existing and planned employment centers in the county and region.

- The potential benefits versus costs of an expanded "span of service" for local transit services on Saturdays, Sundays, and on weekday evenings.

- The need to ensure that service quality can be maintained at a high level on all services through careful evaluation of transit route capacity issues, on-time performance and operations staffing levels.

- The need to develop financially-constrained plans that reflect the constantly changing availability of public subsidy funding, both continuing sources (such as Federal Transit Administration Section 5307 funds) as well as discretionary sources (such as potential Job Access Reverse Commute funds).

These issues listed above and others will be addressed as part of the Mesa County Transit Element.

GOALS AND OBJECTIVES

The Mesa County Transportation Development Plan 1993-1997, identified several goals which should be reviewed. These goals are presented here for consideration and may be revised as part of this planning process. The objectives will also be used to evaluate the transit existing services and any potential changes.

- Independence of mobility for Mesa County area residents and visitors.

- Dependable transit service.

- Service within the community's ability and willingness to support financially;

- A safe and reliable transit service provided by well-trained staff;

- Increased public awareness of transit options in Mesa County;

- A system which has adequate and sustainable public and private funding support; and,

- A system that improves the environmental quality of life in Mesa County.

These goals and objectives should be reviewed by all those concerned with public transportation within the county, as well as those areas immediately surrounding the study area. These preliminary goals will be refined throughout the planning process to reflect the overall transportation goals of the Mesa County Transportation Planning Region.

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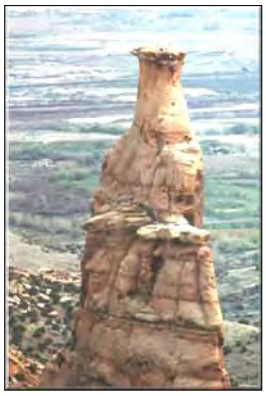
CHAPTER II

Socioeconomic and Environmental Profile

INTRODUCTION

Transportation has always played an important role for Mesa County. Grand Junction, the county seat of Mesa County, is located almost exactly midway between Denver and Salt Lake City. The Grand Junction metropolitan area is located in western Colorado and includes the communities of Grand Junction, Fruita, and Palisade. Named for the meeting of the Colorado River (previously Grand River) and the Gunnison River, the area is a thriving business community and a growing recreational and residential area.

MESA COUNTY



The Grand Junction Metropolitan Statistical Area (MSA) was the 12th fastest growing metropolitan area in the 1990s. Mesa County covers an area of approximately 3,328 square miles. A detailed map is shown in Figure II-1. The rural areas of Mesa County are sparsely populated, and most services are located in Grand Junction. Mesa County and the immediate surrounding area have numerous tourist attractions and recreational opportunities.

The changes in Mesa County's demographics generally followed the growth pattern of the West over the past 10 years—strong growth in both population and employment. According to the US Census, the population of the county was 93,145 in 1990, increasing to 116,255 in 2000. This represents a 24.8 percent increase, or 2.2 percent average annual growth. This growth was particularly high in the City of Grand Junction, which grew from a population of 29,034 in 1990 to 41,986 in 2000 (3.8 percent annual growth).

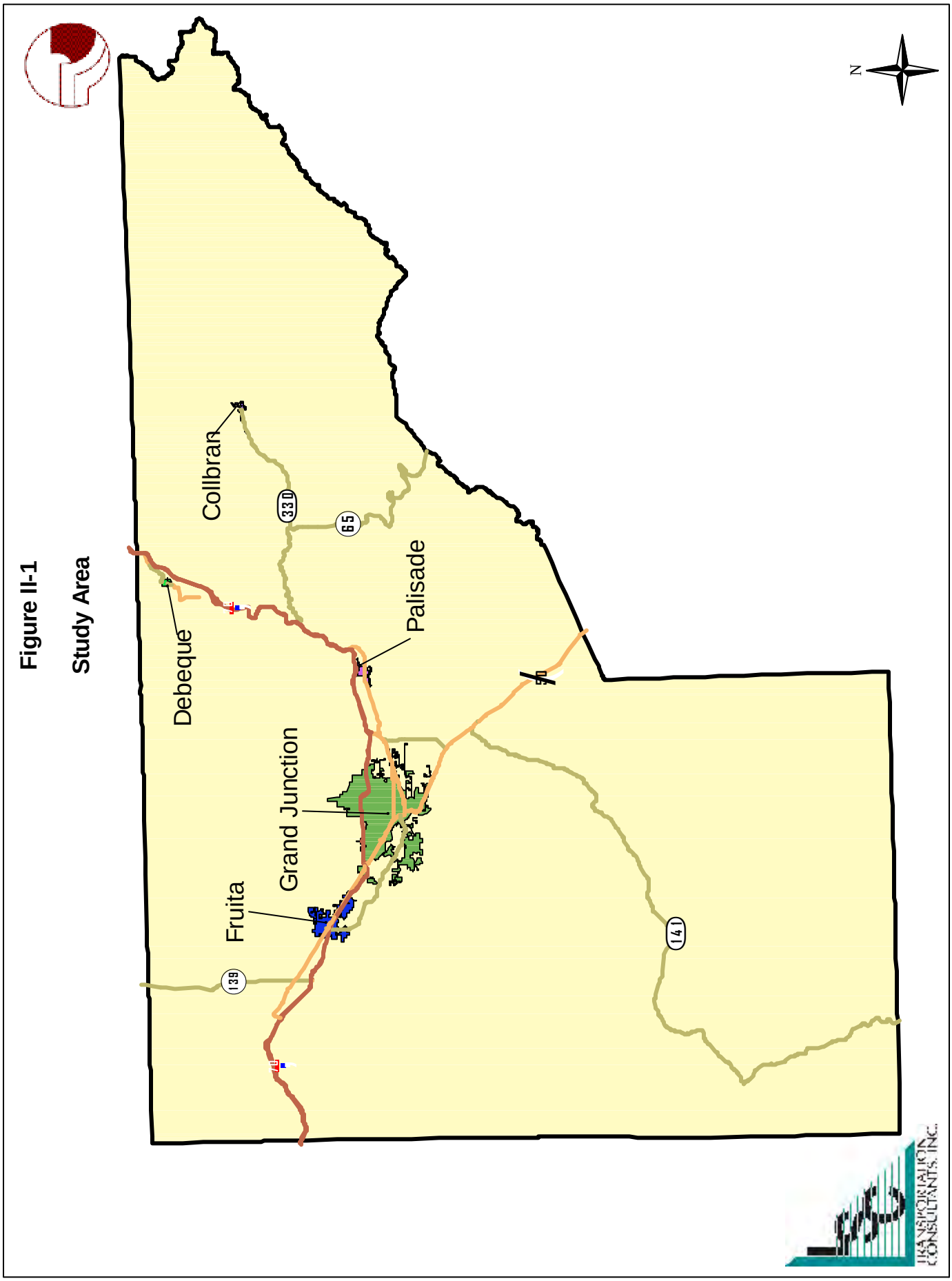


Figure II-1

Study Area

In comparison, the population in the State of Colorado increased annually by 2.7 percent. In total, the population growth in the cities of Grand Junction, Fruita, and Palisade over the past 10 years accounted for 69.7 percent of total countywide growth. The Colorado Division of Local Government estimates that the population of Mesa County will increase to 194,075 by 2025. This equates to an additional 77,820 residents, roughly equal to 185 percent of Grand Junction's 2000 population.

The number of elderly Mesa County residents increased greatly during the 1980s, due largely to the excellent healthcare facilities, high quality of life, and mild dry climate. It should be noted that the proportion of elderly residents to total residents in Grand Junction actually dropped between 1990 and 2000 (24.5 percent versus 19.0 percent), although this proportion remains well above the 2000 state average of 13.0 percent. As noted in the previous Transit Development Plan (TDP), the proportions of mobility-limited, low-income, and zero-vehicle households are higher in Mesa County in comparison to the rest of the state, which underscores the need for effective transit services in the region. The importance of public transportation in addressing societal goals, such as Welfare-to-Work and the high proportion of households without access to a private automobile, has also led to changing demands on public transportation in the region.

TRANSPORTATION SYSTEM OVERVIEW

Railroads

The Union Pacific Railroad operates two rail lines in Mesa County. Their main line is located primarily along the Colorado River through the county. The secondary line (southern leg) branches off of the main line and is located along the Gunnison River. Passenger rail service is offered daily by Amtrak, which serves the east and west coasts.

Aviation Facilities

The Walker Field Airport, located in Grand Junction, is the only airport in Mesa County that provides scheduled commercial air service. The airport is served by three major airlines including: America West, Skywest/Delta Connection, and United Express, with non-stop flights daily to Denver, Phoenix, and Salt Lake City.

MAJOR TRANSIT DESTINATIONS

Major transit destinations are important in terms of land use, trip generation rates, and their ability to be served by public transit. Figure II-2 shows the location of important points of interest identified within the study area. Many of these destinations are clustered together into what can be termed "activity centers." Most major transit destinations are located in City of Grand Junction.

STUDY AREA DEMOGRAPHICS

2000 County Population

The 2000 Census reported the population of Mesa County to be 116,255 persons. This represents an increase of approximately 25 percent from 1990. Table II-1 presents 2000 population characteristics by census tract for the county. Table II-1 also provides gender and race information. Population trends are shown in Figure II-3 below. The overall population has been steadily increasing since the 1980s. The county population density is illustrated in Figure II-4, with Figure II-5 providing the location of census tracts within the study area.

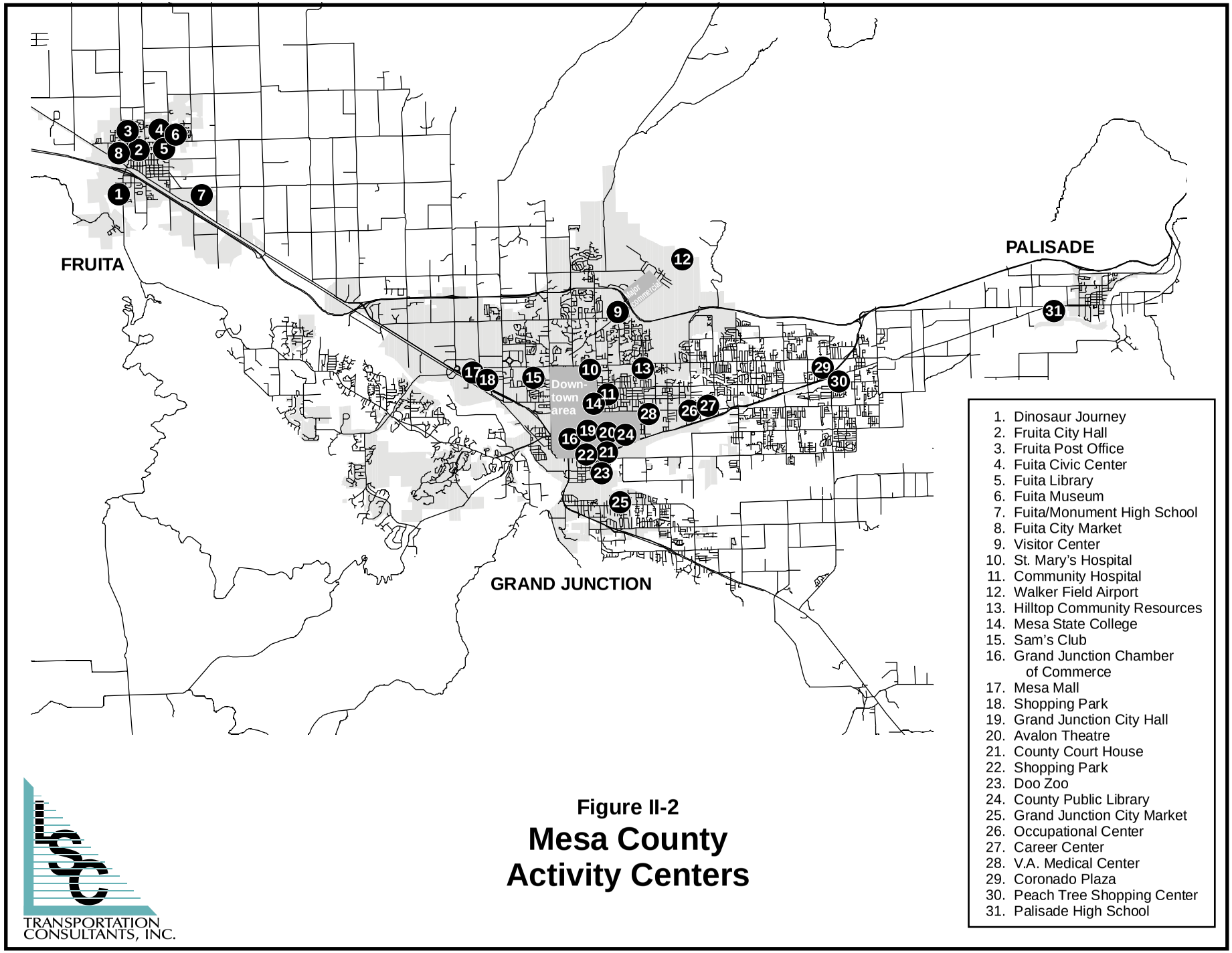


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Figure II-2

Mesa County Activity Centers

Table II-1

2000 General Population Characteristics

Census Tract	Land Area (sq.mi.)	2000 Total Poulation	Gender Male	Gender Female	Total Households	White	Black	Am. Indian Esk-Aleut	Asian Pacific Islander	Other Race	Population over 15 Years
0002.00	0.4	2,119	1,052	1,067	1,122	1,889	29	16	22	163	1,870
0003.00	0.6	1,606	918	688	763	1,328	16	26	35	201	1,293
0004.00	1.4	3,333	1,491	1,842	1,518	3,051	0	20	40	222	2,714
0005.00	0.5	2,480	1,143	1,337	898	2,310	91	24	0	55	2,218
0006.01	1.0	3,276	1,402	1,874	1,479	3,098	23	41	0	114	2,804
0006.02	1.0	4,588	2,258	2,330	2,053	4,067	50	17	13	441	3,601
0007.00	1.3	4,326	2,154	2,172	1,805	3,753	33	152	0	388	3,278
0008.00	6.3	5,907	3,071	2,836	1,997	5,219	66	122	9	491	4,473
0009.00	7.0	1,658	921	737	543	1,389	0	34	0	235	1,336
0010.01	2.1	3,907	1,739	2,168	1,681	3,707	0	41	30	129	3,154
0010.02	3.5	5,019	2,353	2,666	2,251	4,838	15	58	32	76	4,207
0011.01	2.1	6,981	3,334	3,647	2,906	6,464	11	23	36	447	5,283
0011.02	1.7	4,194	2,004	2,190	1,617	3,944	0	52	0	198	3,275
0012.00	13.0	1,933	1,015	918	732	1,790	0	16	8	119	1,543
0013.01	3.9	6,893	3,377	3,516	2,693	6,345	30	26	32	460	5,220
0013.02	2.9	2,846	1,429	1,417	1,074	2,712	0	30	24	80	2,217
0014.02	9.6	4,712	2,300	2,412	1,789	4,621	0	29	0	62	3,666
0014.03	3.7	3,426	1,785	1,641	1,321	3,230	0	0	94	102	2,738
0014.04	6.5	3,488	1,759	1,729	1,454	3,427	14	14	0	33	2,875
0015.01	7.5	6,732	3,230	3,502	2,564	6,162	59	46	9	456	5,102
0015.02	387.7	5,272	2,789	2,483	1,899	4,958	0	20	26	268	4,087
0016.00	45.5	2,874	1,451	1,423	1,054	2,684	0	0	35	155	2,243
0017.02	20.2	4,411	2,159	2,252	1,715	4,094	0	60	31	226	3,548
0017.03	2.0	3,423	1,689	1,734	1,304	3,131	0	67	0	225	2,520
0017.04	4.0	8,433	4,006	4,427	3,097	7,601	53	11	7	761	5,967
0017.05	2.7	5,264	2,419	2,845	1,898	4,672	24	130	7	431	3,906
0018.00	1150.3	3,112	1,606	1,506	1,130	2,934	2	75	21	80	2,438
0019.00	1653.9	4,042	2,043	1,999	1,483	3,827	0	4	0	211	3,135
Mesa County Total	3,342	116,255	56,897	59,358	45,840	107,245	516	1,154	511	6,829	90,711

Souce: Census Bureau, 2000.

Figure II-3
Mesa County Population Trends

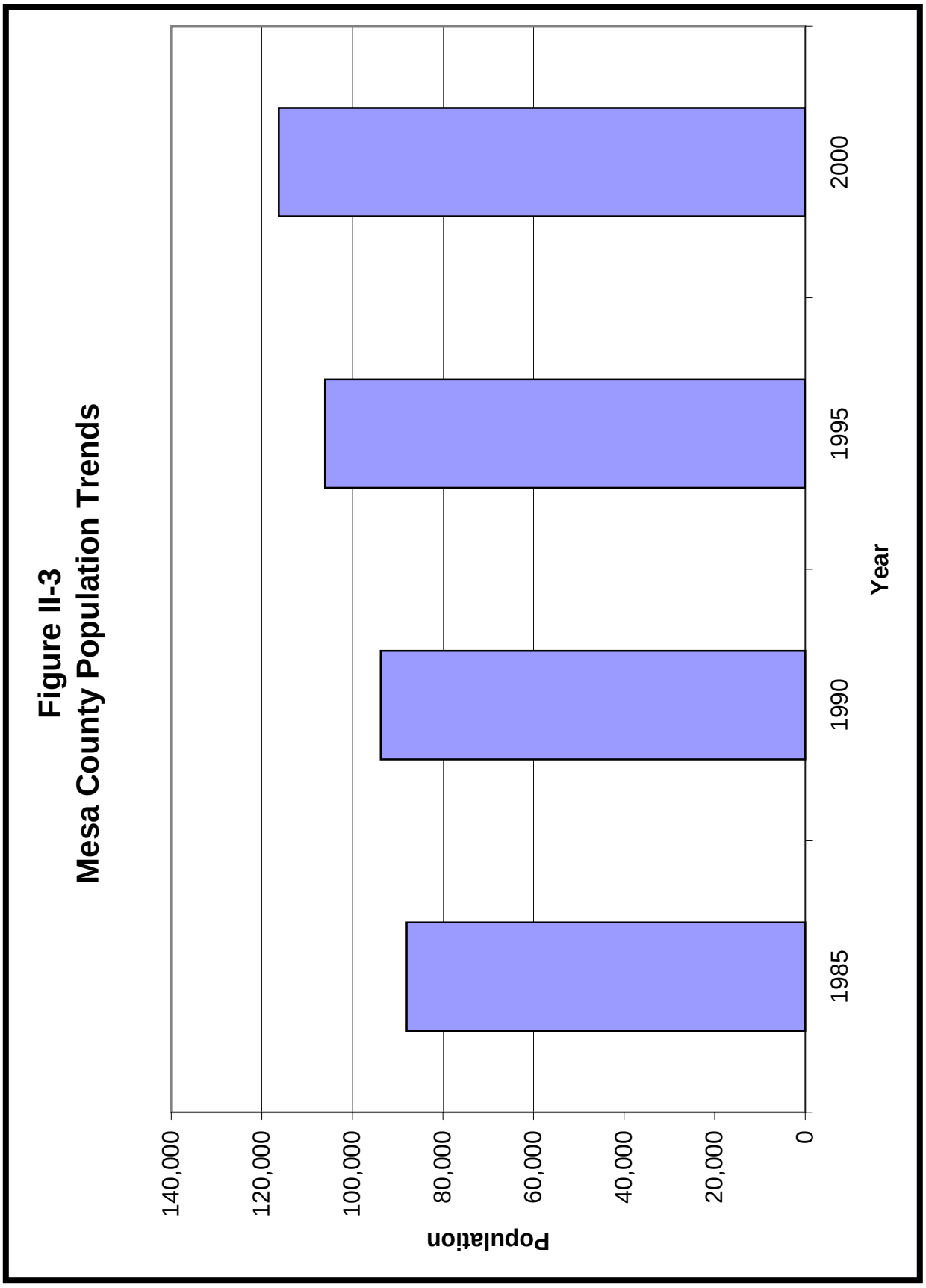
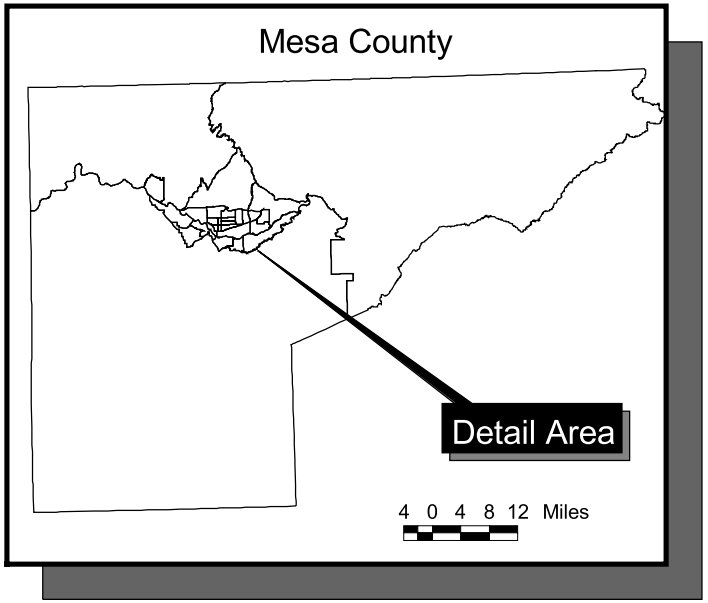
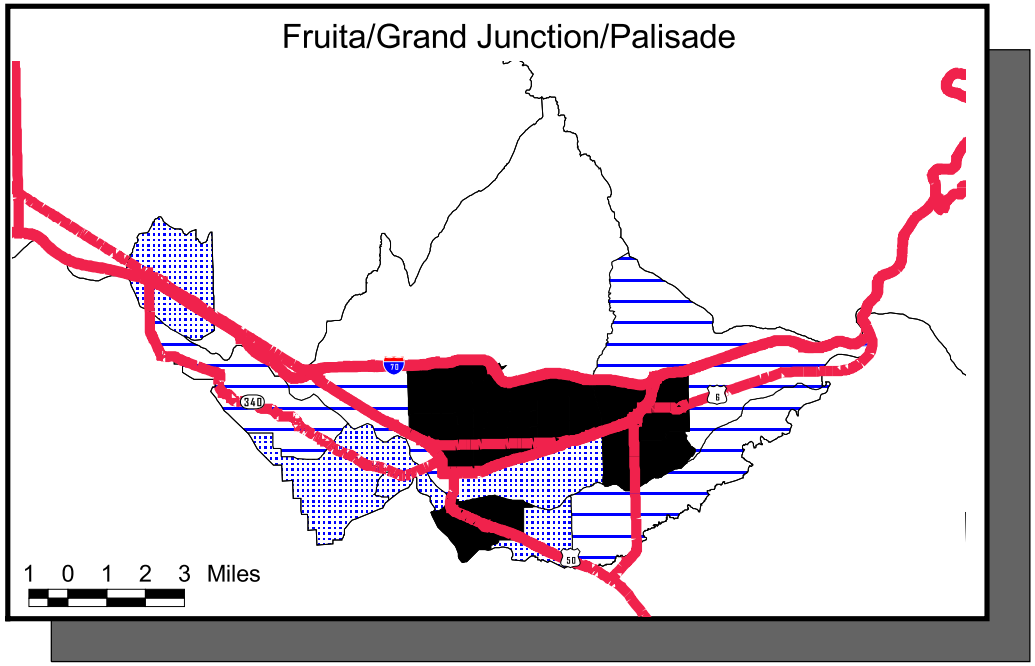


Figure II-4

2000 Population Density





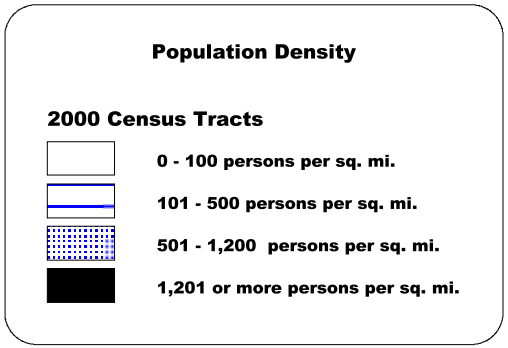
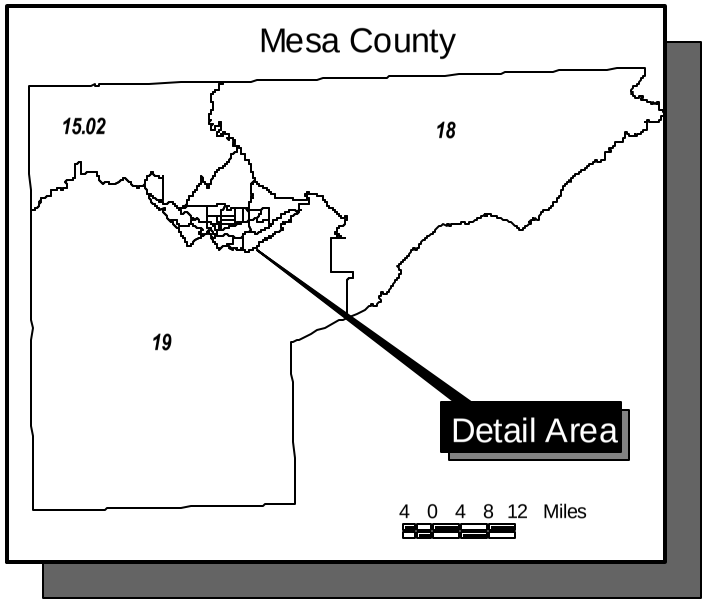
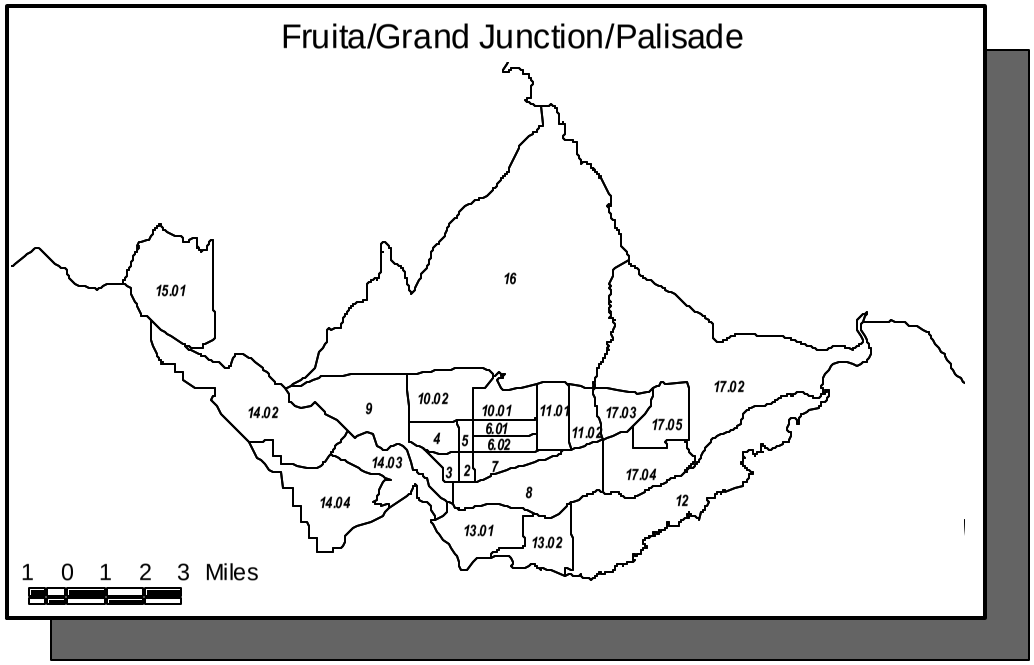


Figure II-5

2000 Census Tracts





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Transit-Dependent Populations

This section provides information on individuals considered by the transportation profession to have a higher propensity to use public transit. In general, these population characteristics preclude most such individuals from driving and increase the dependence on friends and relatives for transportation.

The four types of limitations, which preclude persons from driving, are: (1) physical limitations, (2) financial limitations, (3) legal limitations, and (4) self-imposed limitations. Physical limitations may include everything from permanent disabilities such as frailty due to age, blindness, paralysis, or developmental disabilities to temporary disabilities such as acute illnesses and head injuries. Financial limitations essentially include those persons unable to purchase or rent their own vehicle. Legal limitations refer to such limitations as persons who are too young (generally under age 16) or those persons whose privileges have been revoked (DUI, etc.). The final category of limitation includes those people who choose not to own or drive a vehicle (some or all of the time) for reasons other than those listed in the first three categories.

The Census is generally capable of providing information about the first three categories of limitation. The fourth category of limitation is generally recognized as representing an insignificant proportion of transit ridership. Table II-2 presents the regional census statistics including zero-vehicle households, youth population, elderly population, mobility-limited population, and below-poverty population. Table II-3 provides the "urban core" transit-dependent population currently served by Grand Valley Transit services. These communities include Grand Junction, Fruita, and Palisade. These three communities had a 2000 population of approximately 51,043, representing approximately 44 percent of the total county population. Figure II-6 illustrates the transit-dependent population of these three communities. The transit-dependent data presented are important to the various methods of demand estimation presented later in Chapter V.

Table II-2

Mesa County Estimated 2000 Demographic Data by Census Tract

Census Tract	Description	Square Miles	Population		Total Number of Households	Elderly Persons (Aged 60 and Over)		Mobility Limited Persons Total Number (1)		Persons Below Poverty Status		Zero-Vehicle Households	
			Total Number	Per Sq. Mile		Total Number	% of Total Pop	Total Number	% of Total Pop	Total Number [2]	% of Total Pop	Total Number	% of Total Pop
0002.00	7th Street west to 12th Steet, North Ave south to Pitkin Ave, Grand Junction	0.4	2,221	5,352	1,155	356	16.0%	119	5.4%	516	23.2%	208	18.0%
0003.00	North Ave south to Pitkin Ave, I-70 Junction west to 7th Street, Grand Junction	0.6	1,504	2,629	1,122	193	12.8%	90	6.0%	228	15.2%	156	13.9%
0004.00	25 Road west to 7th Street, Patterson Road south to Pitkin Ave, Grand Junction	1.4	3,342	2,434	763	892	26.7%	99	3.0%	342	10.2%	95	12.5%
0005.00	7th Street west to 12th Steet, Patterson Road south to Pitkin Ave, Grand Junction	0.5	2,471	5,246	1,518	515	20.8%	87	3.5%	394	15.9%	141	9.3%
0006.01	12th Street west to 29 Road, Patterson Road south to Orchard, Grand Junction	1.0	3,275	3,285	898	1,044	31.9%	99	3.0%	506	15.5%	75	8.4%
0006.02	12th Street west to 29 Road, Orchard to North Ave, Grand Junction	1.0	4,589	4,566	1,479	782	17.0%	195	4.2%	710	15.5%	225	15.2%
0007.00	12th Street west to Harmony Road, North Ave south to I-70 Business, Grand Junction	1.3	4,326	3,248	2,053	642	14.8%	206	4.8%	1,037	24.0%	188	9.2%
0008.00	S. 5th Street west to 31 Road, I-70 Business south .5 miles, Grand Junction	6.3	5,845	931	1,805	870	14.9%	350	6.0%	591	10.1%	69	3.8%
0009.00	Northwest Grand Junction, south of I-70	7.0	1,720	247	1,997	217	12.6%	95	5.5%	236	13.7%	53	2.7%
0010.01	27 Road west to 29 Road, I-70 south to Patterson, Grand Junction	2.1	3,907	1,838	543	1,317	33.7%	78	2.0%	261	6.7%	179	33.0%
0010.02	25 Road west to Horizon Drive, I-70 south to Patterson, Grand Junction	3.5	5,019	1,427	1,681	1,574	31.4%	151	3.0%	197	3.9%	110	6.5%
0011.01	29 Road west to 30 Road, I-70 south to North Ave, Grand Junction	2.1	6,981	3,271	2,251	1,317	18.9%	245	3.5%	716	10.3%	156	6.9%
0011.02	30 Road west to 31 Road, I-70 south to I-70 Business, Grand Junction	1.7	4,194	2,523	2,906	979	23.3%	52	1.2%	133	3.2%	32	1.1%
0012.00	Southwest of Grand Junction	13.0	1,896	146	1,617	358	18.9%	62	3.3%	119	6.3%	6	0.4%
0013.01	Southern portion of Grand Junction, along US Hwy 50	3.9	6,797	1,726	732	969	14.3%	249	3.7%	592	8.7%	71	9.7%
0013.02	28 1/2 Road west to 30 Road, Unaweep Ave south to Sunridge Road, Grand Jct.	2.9	2,942	999	2,693	638	21.7%	27	0.9%	193	6.6%	10	0.4%
0014.02	West of Grand Junction along State Hwy 340 to Fruita	9.6	4,749	493	1,074	1,168	24.6%	126	2.7%	104	2.2%	17	1.6%
0014.03	Between S. Broadway and US Hwy 50 and River Road and Mariposa Dr, Grand Jct.	3.7	3,400	917	1,789	798	23.5%	85	2.5%	173	5.1%	15	0.8%
0014.04	West portion of Grand Junction south of SH 340	6.5	3,514	538	1,321	760	21.6%	96	2.7%	65	1.8%	0	0.0%
0015.01	Town of Fruita	7.5	6,732	898	1,454	1,434	21.3%	204	3.0%	838	12.4%	117	8.0%
0015.02	Northwest corner of Mesa County	387.7	5,272	14	2,564	842	16.0%	115	2.2%	264	5.0%	81	3.2%
0016.00	Directly north of Grand Junction	45.5	2,874	63	1,899	511	17.8%	51	1.8%	127	4.4%	18	0.9%
0017.02	West portion of county from Grand Jct city limits to just east of Palisade	20.2	4,411	219	1,054	995	22.6%	89	2.0%	580	13.1%	88	8.3%
0017.03	West of the I-70/I70 Business Loop Junction west of Grand Junction	2.0	3,423	1,719	1,715	663	19.4%	40	1.2%	120	3.5%	33	1.9%
0017.04	31 Road west to 33 1/2 Road, I-70 (B) south to D Road, Grand Junction	4.0	8,433	2,120	1,304	986	11.7%	242	2.9%	1,134	13.4%	62	4.8%
0017.05	Southeast of I-70/I70 Business Loop Junction west of Grand Junction	2.7	5,264	1,977	3,097	629	11.9%	190	3.6%	650	12.3%	91	2.9%
0018.00	Northeast corner of Mesa County	1,150.3	3,112	3	1,898	582	18.7%	80	2.6%	415	13.3%	39	2.1%
0019.00	South portion of county from I-70 to county line	1,654	4,042	2	1,130	578	14.3%	163	4.0%	410	10.1%	6	0.5%
	Total Mesa County	**3,328**	**116,255**	**35**	**45,512**	**22,609**	**19.4%**	**3,685**	**3.2%**	**11,651**	**10.0%**	**2,341**	**5.1%**
	State of Colorado Totals	**103,718**	**4,301,261**	**41**	**1,658,238**	**560,658**	**13.0%**	**236,572**	**5.5%**	**385,960**	**9.0%**	**105,466**	**6.4%**

Note 1: Mobility Limited includes persons aged 16 and over.

Source: U.S. Census Bureau, 2000.

Table II-3

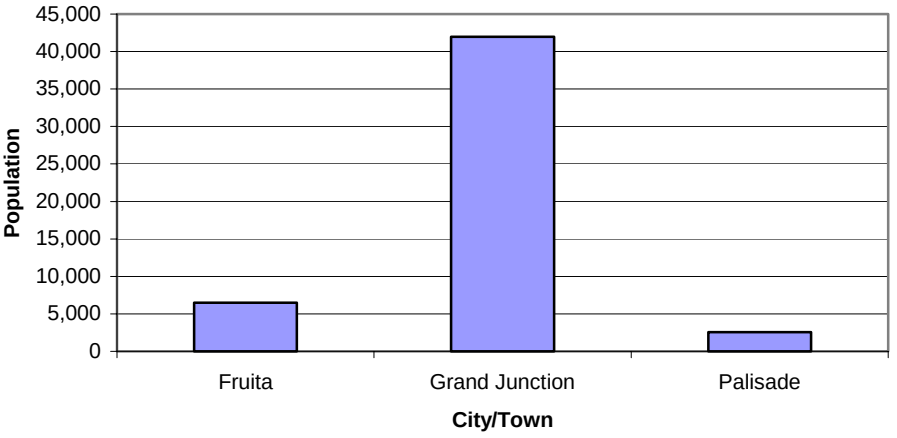
Urban Core Estimated 2000 Demographic Data by Census Place

Census Place	Square Miles	Population		Households	Elderly Persons (Aged 60 and Over)		Mobility Limited Persons[1]		Persons Below Poverty Status		Zero-Vehicle Households	
		Total Number	Per Sq. Mile		Total Number	% of Place	Total Number	% of Place	Total Number	% of Place	Total Number	% of Place
Fruita	5.9	6,611	1,121	2,633	1,360	20.6%	203	3.1%	853	12.9%	103	3.9%
Grand Junction	30.8	42,225	1,371	18,872	9,209	21.8%	1,566	3.7%	4,807	11.4%	1,534	8.1%
Palisade	1.1	2,636	2,396	1,128	546	20.7%	76	2.9%	352	13.4%	64	5.7%
Subtotal	**37.8**	**51,472**	**1361.7**	**22,633**	**11,115**	**21.6%**	**1,845**	**3.6%**	**6,012**	**11.7%**	**1,701**	**7.5%**

Note 1: Mobility Limited includes persons aged 5 to 64.

Source: U.S. Census Bureau, 2000.

Figure II-6
2000 Population by Place



Youth Population

The total population of youth aged 0 to 15 years for the study area was 25,544 persons in 2000, representing 22 percent of the total population. Not surprisingly, the largest number of youth resides in Grand Junction.

Elderly Population

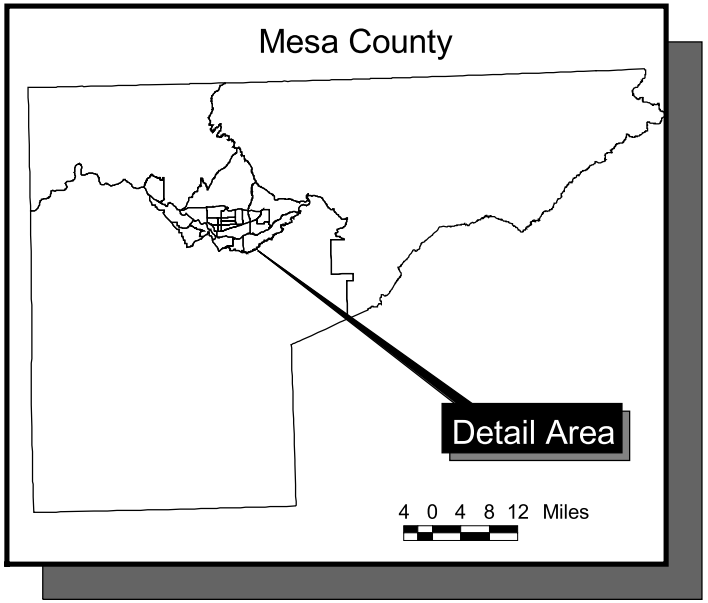
Elderly persons (age 60 or older) represent 19 percent of the total population of the study area. Figure II-7 graphically illustrate the distribution of elderly persons across the county. Generally, the largest percentage of elderly persons is found in Census Tracts 10.01 and 10.02. These areas of high elderly concentration are important areas for senior service programs. A general trend across the United States is that the elderly population has been increasing as a proportion of the total population.

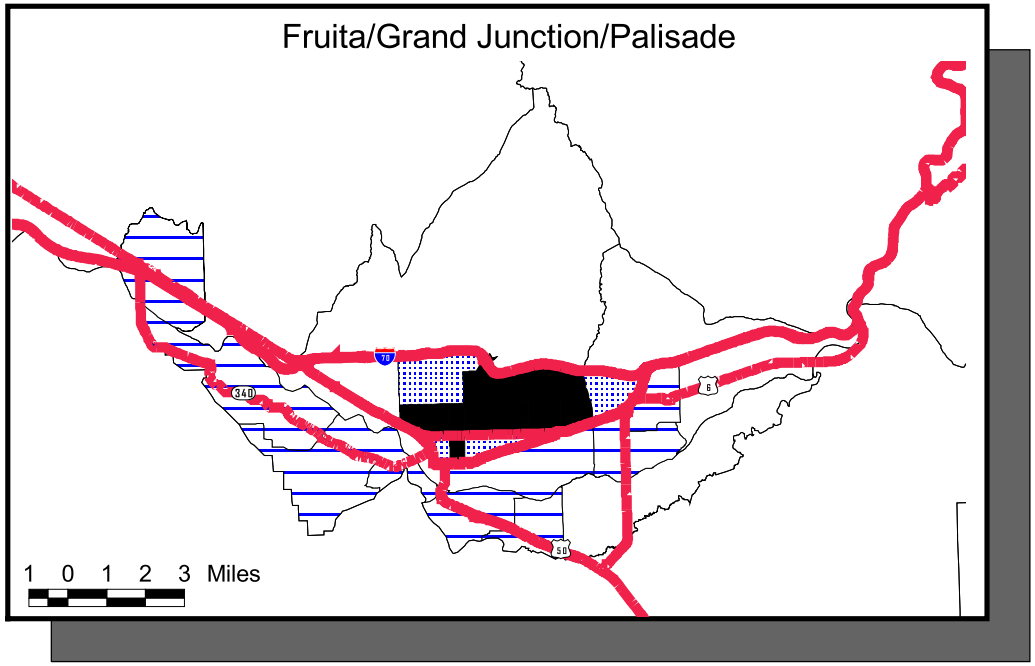
Mobility-Limited Population

The 2000 Census reports the number of mobility-limited persons differently than in 1990. The 1990 Census reported mobility-limited persons over the age

Figure II-7

Density of Persons 60 Years and Older





Population Density

2000 Census Tracts

- 0 - 100 persons per sq. mi.
- 101 - 250 persons per sq. mi.
- 251 - 500 persons per sq. mi.
- 501 or more persons per sq. mi.

N

of 16, while the 2000 Census does not have a "mobility-limitation" category. The 2000 Census records persons with a "go-outside-the-home" disability as a person who has a disability limiting them from leaving the home to go to doctors, shopping, etc. A person with a go-outside-the-home disability reports a disability that limits this outside the home travel for six months or more. The mobility-limited population, as a whole, represents approximately six percent of the county population. Figure II-8 shows the distribution of the mobility-limited population in the study area. The census tracts with the highest density of mobility-limited persons are located in the Grand Junction area. Census Tracts 3.00 and 8.00, both in Grand Junction, have the highest proportion of mobility-limited persons, with 6.0 percent of the total tract population.

Low-Income Population

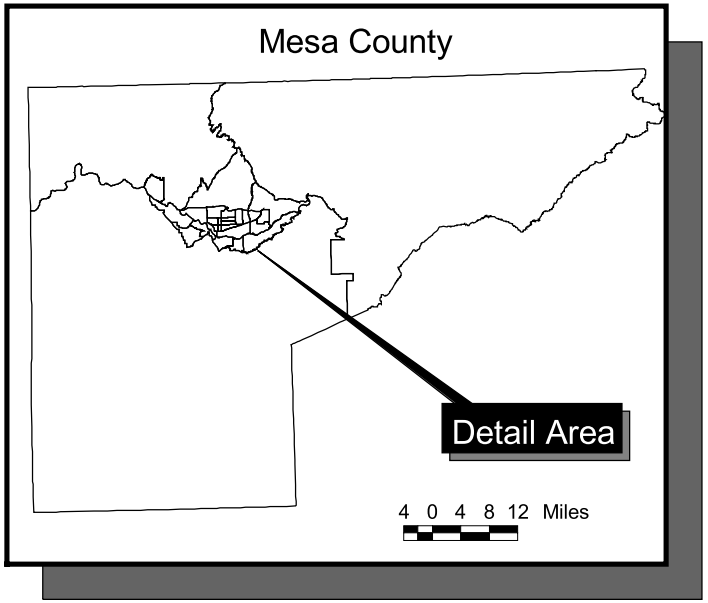
Low-income persons tend to depend on transit to a greater extent than persons with a high level of disposable income. Based on the 2000 US Census, Mesa County reported that 10 percent (11,651) of the population ranked below poverty level. Figure II-9 presents the density of below-poverty persons within the study area. Census Tract 7.00 has the highest percentage of residents living below the poverty level, with approximately 24.0 percent of the total population being below the poverty level.

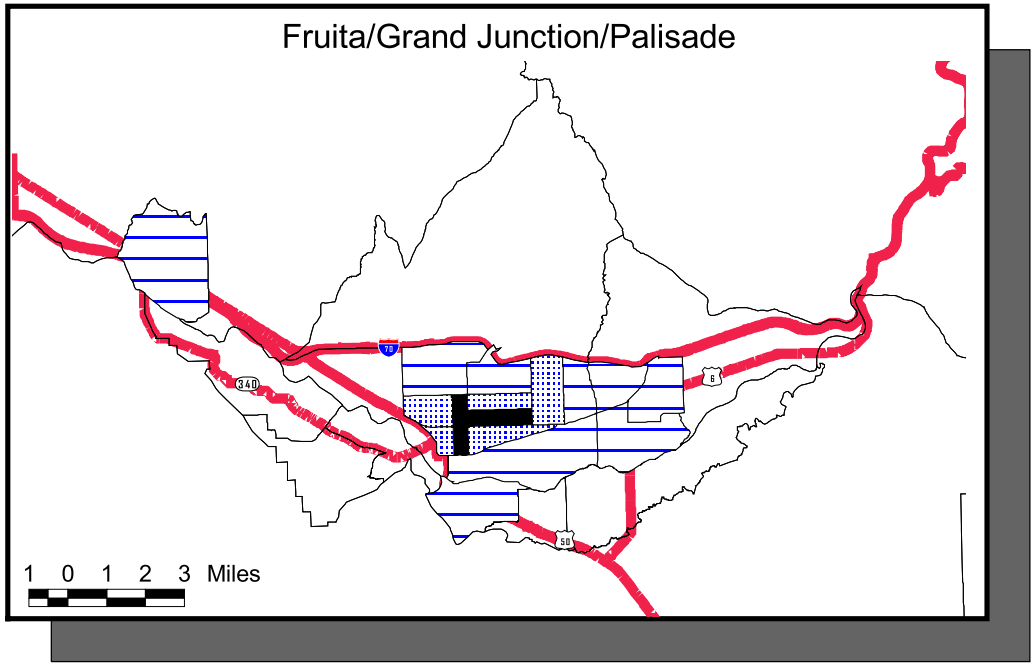
Zero-Vehicle Households

The final census information related to the "transit-dependent" is the distribution of households without their own vehicle. That distribution is shown for the study area in Figure II-10. The census indicates that 2,341 of the study area's 45,512 households did not have a vehicle in 2000, representing about five percent of the total. The highest number of zero-vehicle households was located in Census Tract 10.01. This tract had approximately 33 percent of the households without a car. This area is located in central Grand Junction, just south of I-70.

Figure II-8

Density of Mobility-Limited Persons





Population Density

2000 Census Tracts

- 0 - 50 persons per sq. mi.
- 51 - 125 persons per sq. mi.
- 126 - 250 persons per sq. mi.
- 251 or more persons per sq. mi.

N

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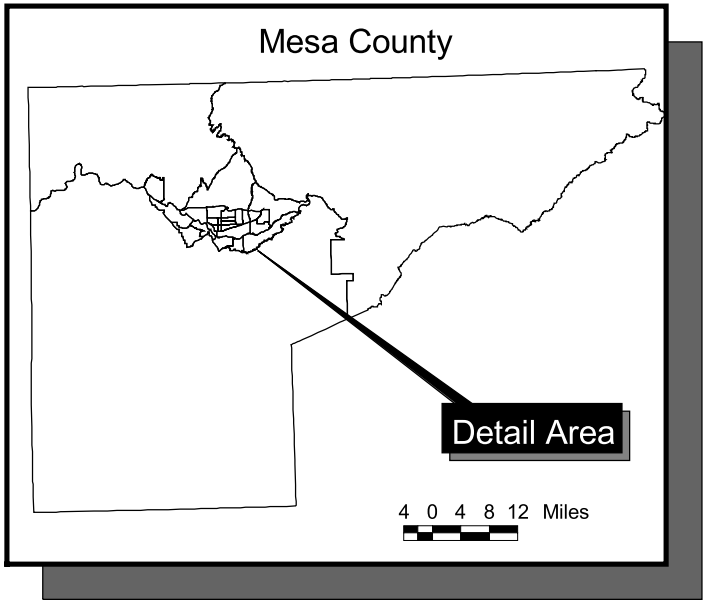
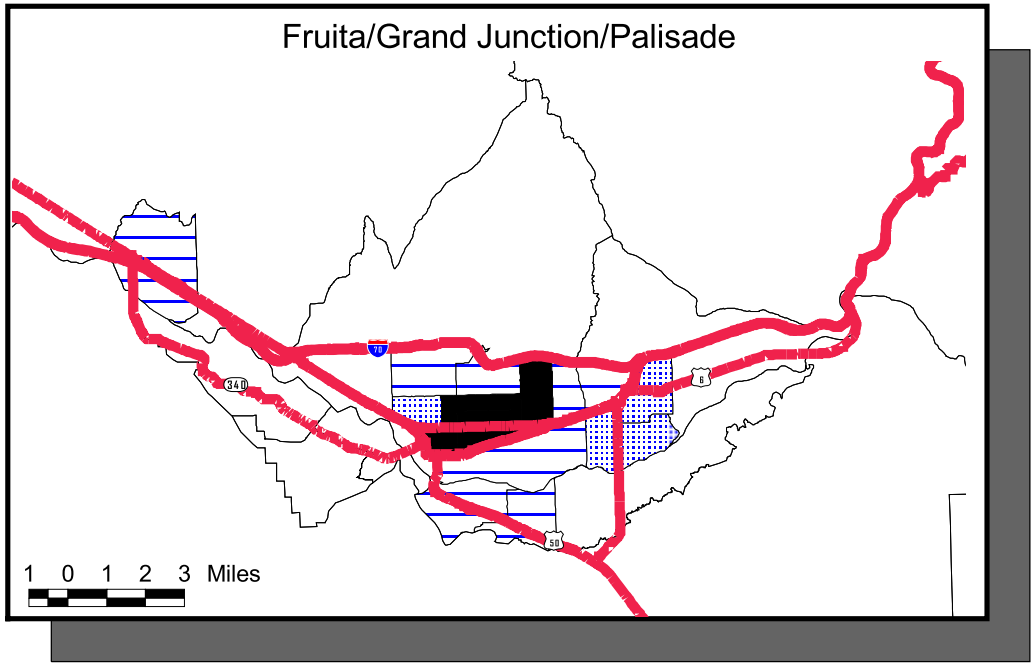
Figure II-9

Density of Persons Below Poverty Level





Population Density

2000 Census Tracts

- 0 - 50 persons per sq. mi.
- 51 - 150 persons per sq. mi.
- 151 - 300 persons per sq. mi.
- 301 or more persons per sq. mi.

N

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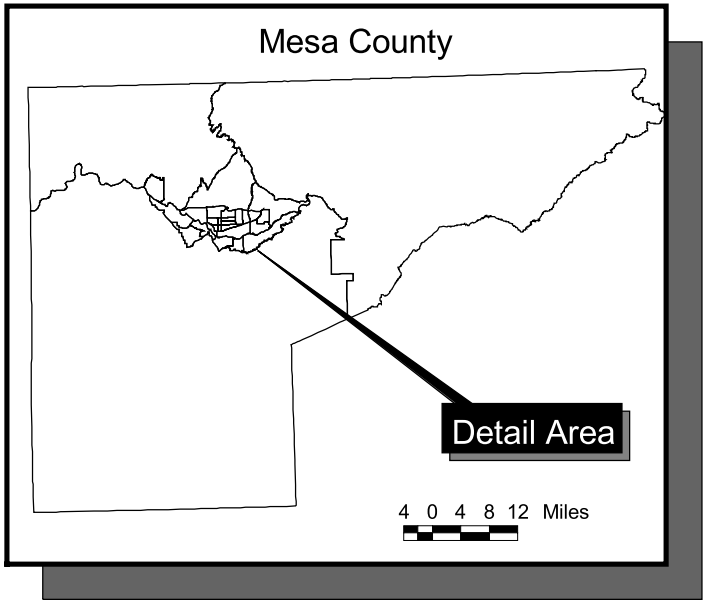
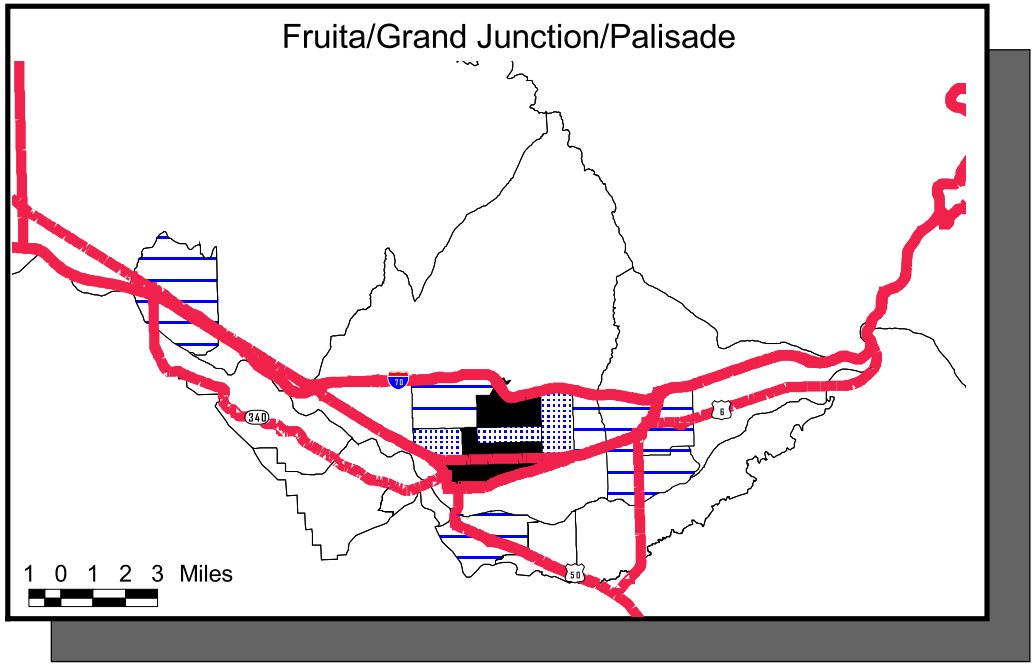
Figure II-10

Density of Zero-Vehicle Households (HHDs)





Density of 0-Veh HHDs

2000 Census Tracts

- **0 - 10 HHDs per sq. mi.**
- **11 - 35 HHDs per sq. mi.**
- **36 - 75 HHDs per sq. mi.**
- **76 or more HHDs per sq. mi.**

N

HHDs = Households

Population Projections

Population trends for Mesa County are shown in Table II-4. Figure II-11 graphically illustrates the 2025 preliminary population trends and projections within the county. Figure II-12 illustrates projected 2025 population density by Census Tract.

Table II-4

Projected Population for Mesa County

Area	2000	2005	Total Growth, 2000 to 2005	Annual Growth, 2000 to 2005	2010	Total Growth, 2005 to 2010	Annual Growth, 2005 to 2010	2015	Total Growth, 2010 to 2015	Annual Growth, 2010 to 2015	2025	Total Growth, 2015 to 2025	Annual Growth, 2015 to 2025
Mesa County	116,255	128,058	10.2%	2.0%	141,176	10.2%	2.0%	157,180	11.3%	2.2%	194,075	23.5%	2.1%
Colorado	4,301,261	4,717,697	9.7%	1.9%	5,131,089	8.8%	1.7%	5,567,551	8.5%	1.6%	6,009,699	7.9%	0.8%

Source: Colorado Department of Local Affairs, Demography Section, 2002.

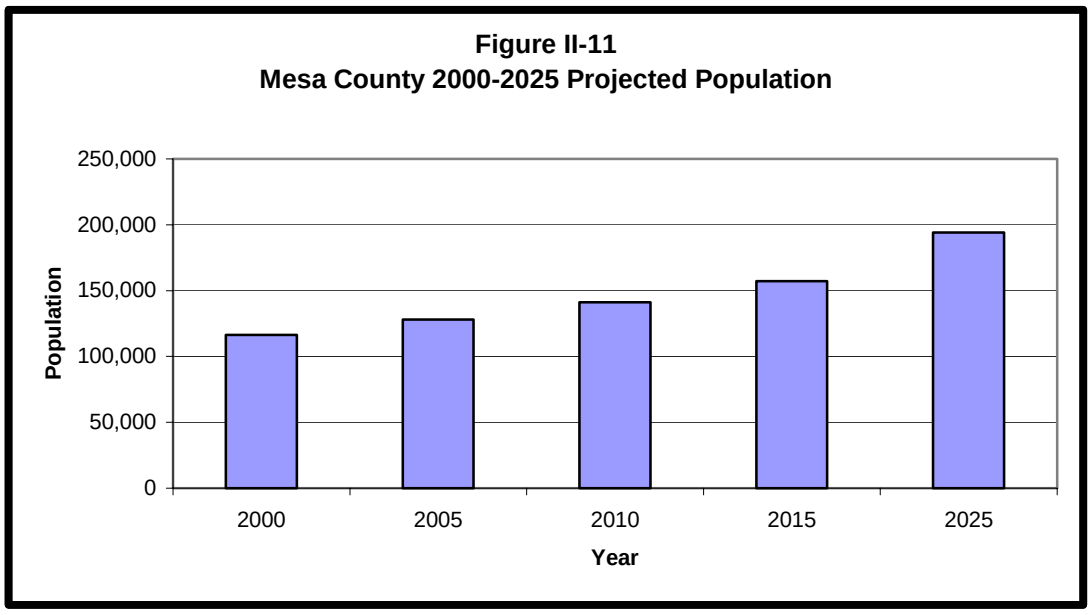
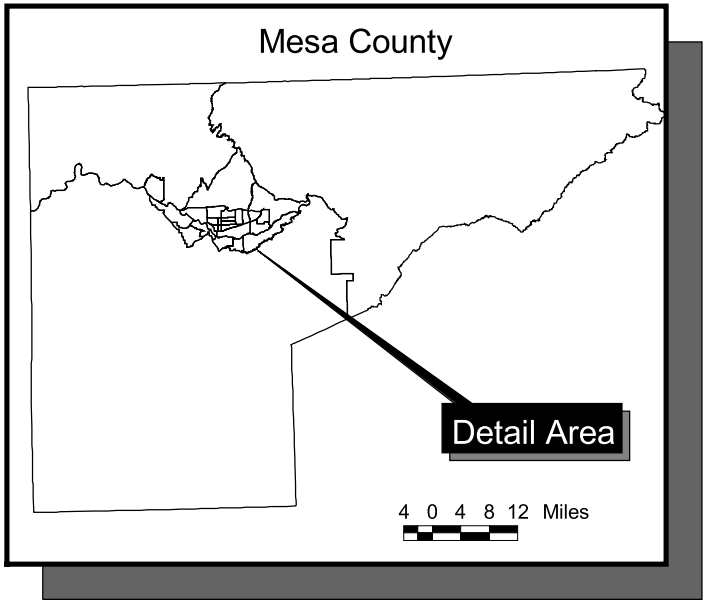
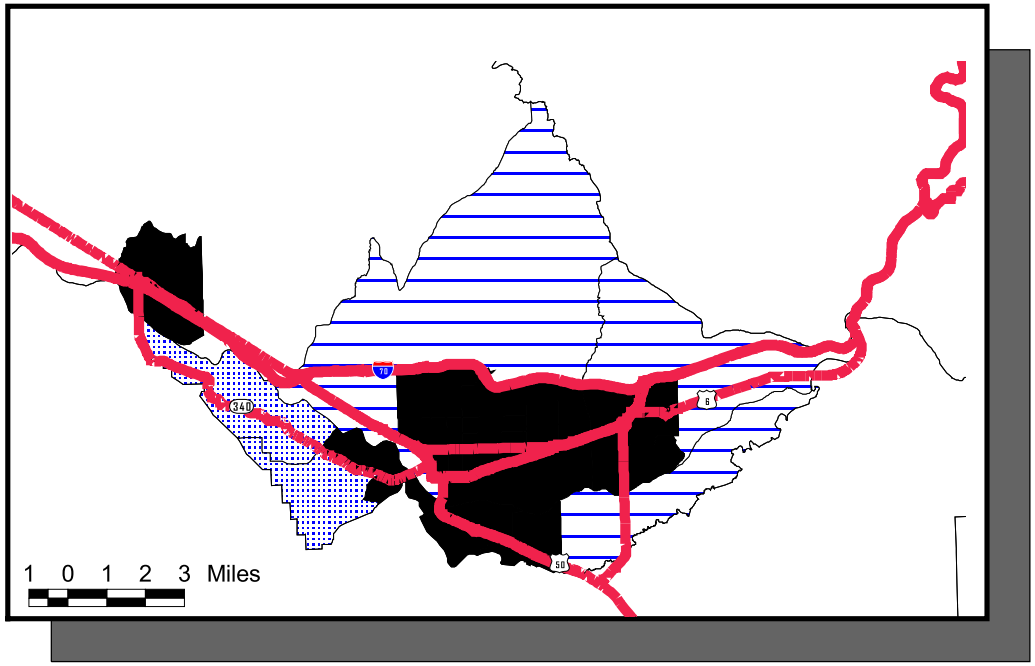


Figure II-12

2025 Projected Population Density





Projected Population Density

2000 Census Tracts

- 0- 100 persons per sq. mi.
- 101 - 500 persons per sq. mi.
- 501 - 1,200 persons per sq. mi.
- 1,201 or more persons per sq. mi.

N

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Economy and Employment

Tables II-5 and II-6 show the available 2000 information on employment by county. The primary employment sector for the area is the Services sector, as with most areas across the United States. Mesa County's Wholesale and Retail Trade sector also plays an important role in the area, employing approximately 16,000 persons. Future employment needs are an important factor in the vitality of an area. Figure II-13 shows the projected employment need for the county by total jobs.

Table II-5
Mesa County 2000 Employment by Sector

Persons Aged 16 and over	Persons	% of Total
Sector		
Agriculture	3,419	4.9%
Mining	533	0.8%
Construction	6,051	8.6%
Manufacturing	4,639	6.6%
Transp., Comm, Utilities	3,505	5.0%
Wholesale and Retail Trade	16,511	23.5%
Financial, Ins., Real Estate	4,256	6.1%
Services	22,736	32.4%
Government	8,489	12.1%
Total	70,139	100.0%

Source: Colorado Department of Local Affairs, LSC, 2002.

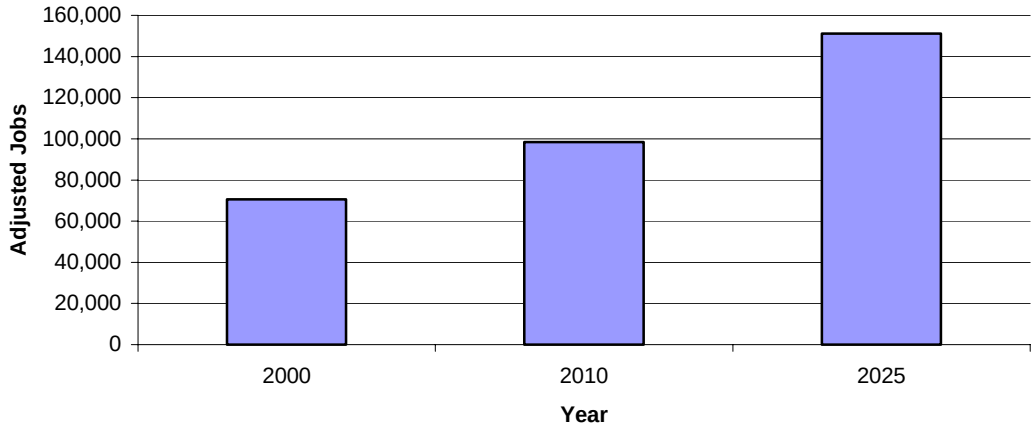
Table II-6

Mesa County 2001 Employment

Persons Aged 16 and over	Persons	% of Total
Mesa County		
Employed	55,529	47.8%
Unemployed	2,285	2.0%
Total in Labor Force	57,814	
Not In Labor Force	58,441	50.3%
Total	116,255	

Source: Colorado Department of Local Affairs.

Figure II-13
Mesa County Projected Employment Need



Major Employers

Table II-7 lists the major employers in Mesa County. As presented, the Mesa County School District employs the largest number of persons, with 2,607 employees. The second largest employer in the county is St. Mary's Hospital employing approximately 2,100 persons.

Table II-7
Mesa County Major Employers, 2002

Employer	Type of Business	Number of Employees
Mesa County School District	School	2,607
St. Mary's Hospital	Healthcare	2,100
Mesa State College	School	1,225
Mesa County [1]	Government	852
City Markets, Inc.	Retail	783
Wal Mart	Retail	600
State of Colorado [2]	Government	575
StarTek	Manufacturing	544
City of Grand Junction	Government	537
Rocky Mountain HMO	Healthcare	434
Hilltop Community Resources	Service	400
Choice Hotels	Service	390
Community Hospital	Healthcare	370
Family Health West	Healthcare	350
Albertson's/Max Foods	Retail	325
Grand Junction VAMC	Healthcare	307
West Star Aviation	Transportation	289
Mesa Developmental Services	Service	277
Hamilton Sundstrand	Manufacturing	255
U.S. Postal Service	Government	250
Qwest	Communications	238
The Daily Sentinel	Media	225
Target	Retail	204
Home Depot	Retail	201

Note 1: Includes Department of Human Services and all other county departments.
Note 2: Includes: GJ Regional Ctr (414), Division of Youth Corrections (72), Vocational Rehab (20) and Support Staff (69).

Source: Grand Junction Area Chamber of Commerce.

Mode of Travel-to-Work

The US Census Bureau tracks travel-to-work modes for all counties in the country. These data are helpful to track travel patterns both within a county, as well as travel between counties for employees. It should be noted that general public transportation services began in 2000, the year of the most recent census. As such, the figures below reflect the mode split based on a relatively new transit service and are likely slightly lower than the current split.

Table II-8 provides the 2000 travel-to-work mode for Mesa County. These data also provide the mode split for work transportation, which is helpful in determining public transportation/transit mode split among workers. The mode split for public transportation in urban Mesa County is approximately 1.4 percent. That is to say, of those workers 16 years and older who answered the mode-to-work question for the 2000 Census, approximately 1.4 percent used public transportation in the urban areas of Mesa County. This mode split drops to approximately 0.9 percent for persons living in rural Mesa County, where public transportation is more limited.

Table II-8
2000 Mesa County Travel-To-Work Mode Split

Travel Mode	Mesa County #	Mesa County %	Grand Junction #	Grand Junction %	Fruita #	Fruita %	Palisade #	Palisade %
Drove Alone	41,701	76.8%	14,768	75.1%	2,328	82.3%	885	69.1%
Carpooled	6,522	12.0%	2,327	11.8%	230	8.1%	223	17.4%
Public Transportation	465	0.9%	275	1.4%	0	0.0%	50	3.9%
Motorcycle	174	0.3%	94	0.5%	14	0.5%	6	0.5%
Bicycle	526	1.0%	383	1.9%	8	0.3%	3	0.2%
Walked	1,512	2.8%	804	4.1%	118	4.2%	72	5.6%
Other Means	543	1.0%	155	0.8%	10	0.4%	4	0.3%
Worked at Home	2,854	5.3%	868	4.4%	120	4.2%	37	2.9%
Total	**54,297**	**100.0%**	**19,674**	**100.0%**	**2,828**	**100.0%**	**1,280**	**100.0%**

Source: US Census Bureau, 2000.

CHAPTER III

Grand Valley Transit Survey Analysis

INTRODUCTION

On Tuesday, November 19, 2002, the RTPO conducted an onboard survey of Grand Valley Transit (GVT) riders to determine how services are perceived and to ascertain what shortcomings, if any, are present. A total of 411 valid onboard surveys were completed and collected on the fixed-route service. However, only six surveys were completed on the Dial-A-Ride service, which is not statistically significant. As such, the completed Dial-A-Ride forms were forwarded to RTPO staff for separate review. The results of the fixed-route survey are presented below.

BACKGROUND

The results of this survey will assist the RTPO in planning for services that meet riders' needs and for allocating limited resources where warranted. The days selected for the onboard survey were selected to represent a "typical" ridership period. Thus, the results are assumed to be representative of overall GVT ridership. See Appendix A for copies of the survey questionnaires used during this effort.

FIXED-ROUTE ONBOARD SURVEY ANALYSIS

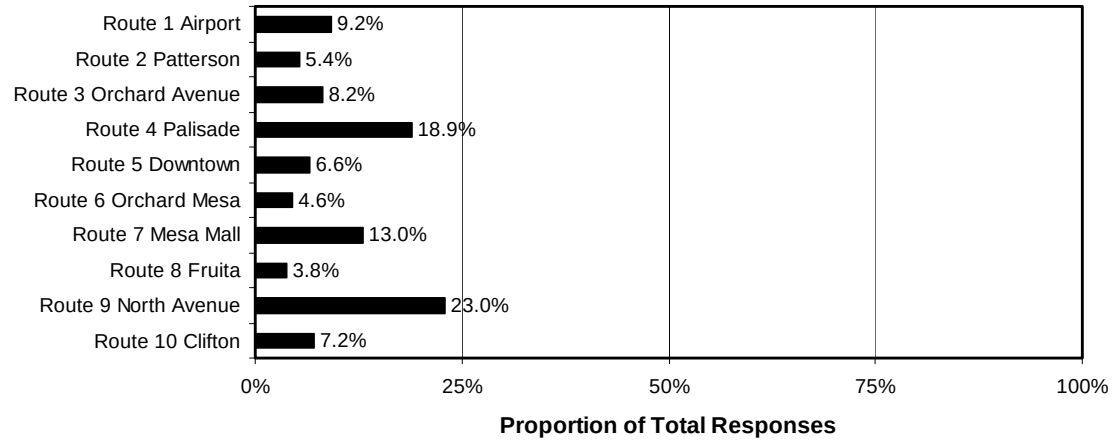
Riders were asked to complete the survey forms using GVT-provided pencils; trained volunteers assisted those passengers who requested assistance. The on-board survey form itself uses a sequential format that asks respondents to only respond to pertinent questions. In addition, respondents were asked not to complete more than one survey. The survey form was developed by RTPO staff, with input from LSC Transportation Consultants. It should be noted that

questions were asked in English on one side of the form, and in Spanish on the reverse side.

Considering the responses of each survey question individually yields the following:

- As presented in Figure III-1, the greatest proportion of respondents boarded Route 9 North Avenue (90 respondents, or 23.0 percent of total), followed by Route 4 Palisade (74 respondents, or 18.9 percent of total) and Route 7 Mesa Mall (51 respondents, or 13.0 percent). The fewest number of surveys was completed by riders on the Route 8 Fruita service. This is intuitive, given the relatively low ridership on this service.

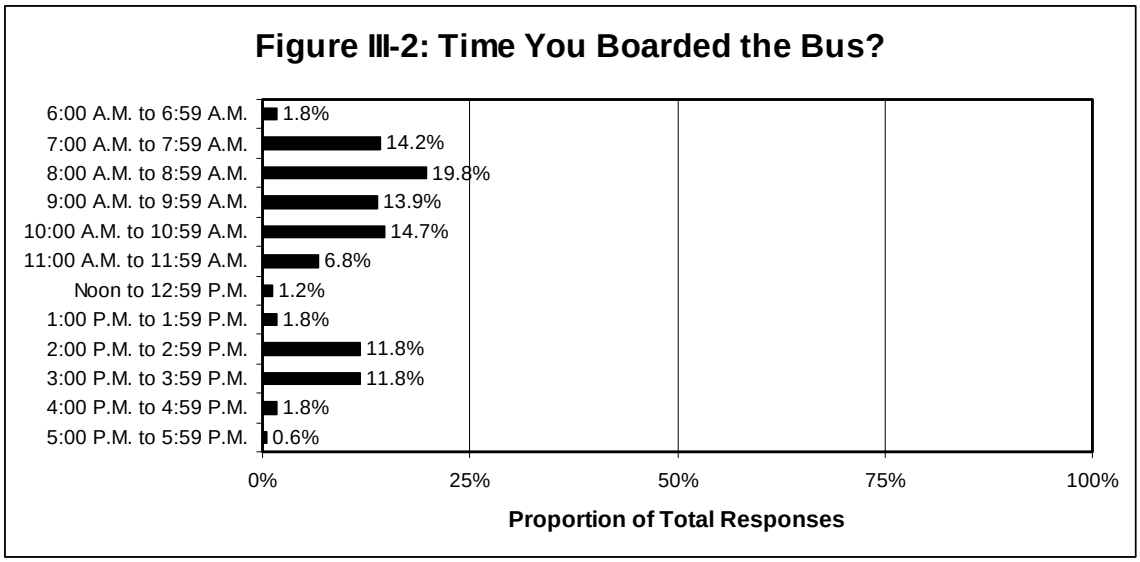
Figure III-1: Route Number You Are Currently Riding?



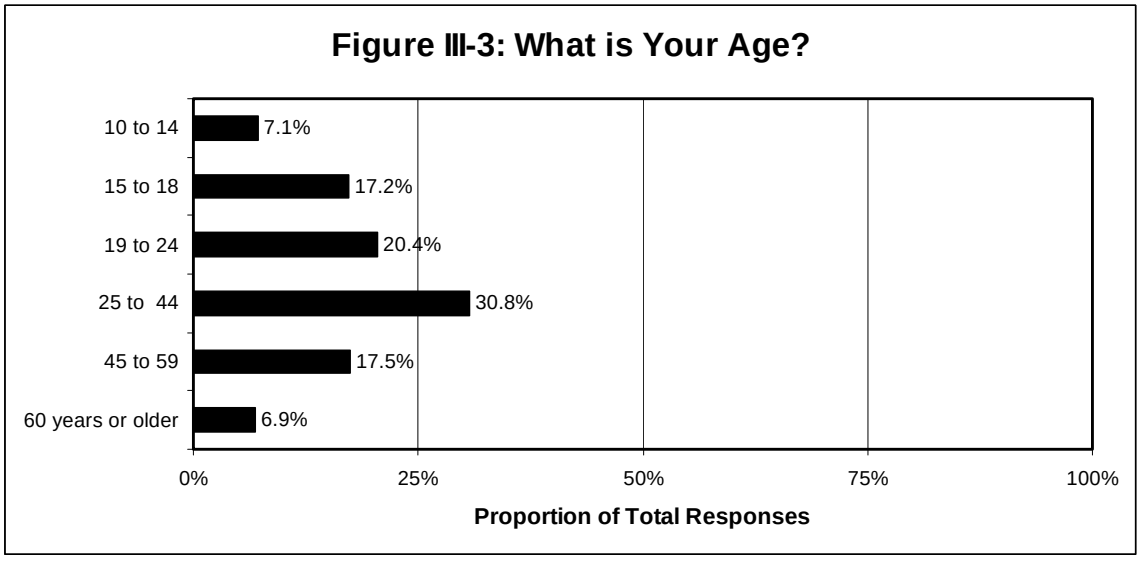
- In terms of when respondents boarded the bus, the greatest proportion (67 respondents, or 19.8 percent of total) used GVT services between 8:00 and 8:59 a.m., followed by 10:00 to 10:59 a.m. (50 respondents, or 14.7 percent of total) and 7:00 to 7:59 a.m. (48 respondents, or 14.2 percent of total). See Figure III-2 on the next page for details.

- The gender of respondents is roughly equal (50.1 percent male and 49.9 percent female).

- The overwhelming majority (88 percent) of respondents planned to use GVT services for their return trip.



- The age of respondents was relatively evenly distributed, with the greatest portion being between the ages of 25 to 44. Only 6.9 percent of respondents were elderly, compared to 19.1 percent for the entire study area. This suggests that GVT could consider increasing its marketing efforts to attempt to attract more elderly riders. See Figure III-3 for details.



- A total of 45 respondents (11.3 percent of total) are disabled. Of these, five use a wheelchair. It should be noted that 5.7 percent of Mesa County residents are mobility-limited. This suggests that GVT is doing a good job of attracting disabled riders on its services.

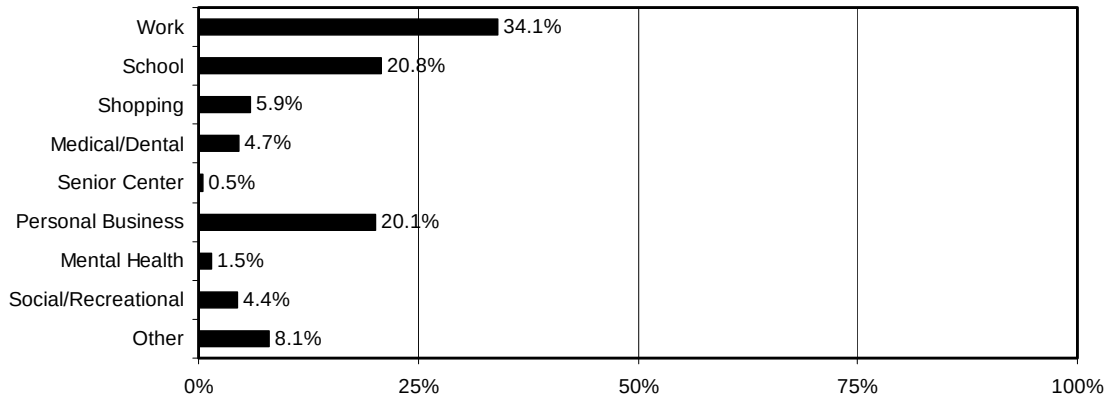
- Only 140 respondents (34.5 percent of total) have a valid driver's license. Of those of driving age (age 15 and above), 36.8 percent have a valid driver's license.

- A total of 164 respondents (41.4 percent of total) do not have access to an operable motor vehicle in their household. This proportion is significantly higher than the proportion for the study area (5.1 percent).

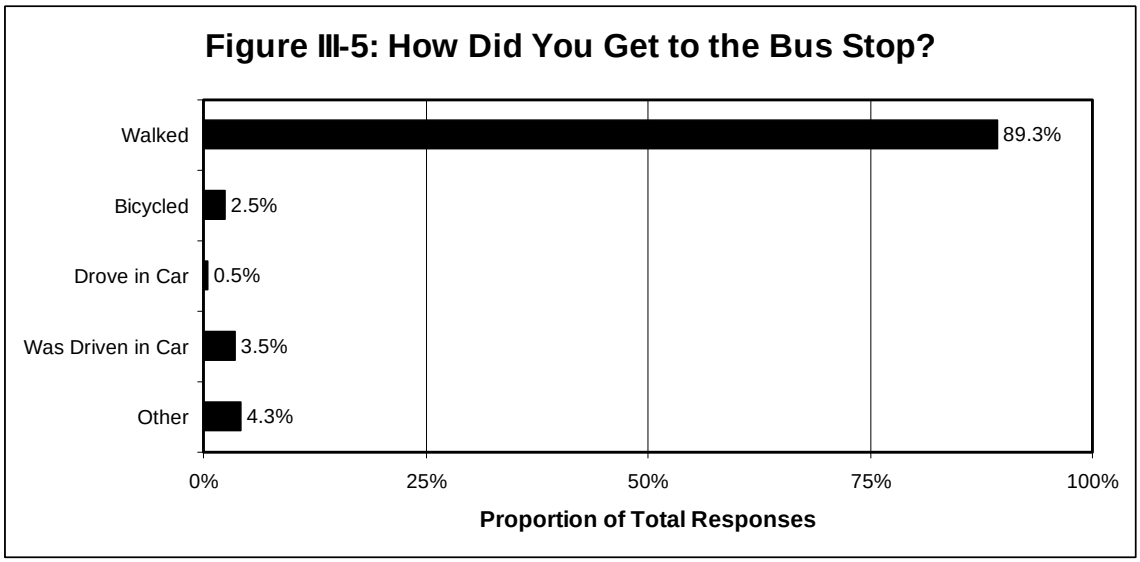
- Passengers were asked which routes they would use to complete their trip, including transfers. The greatest proportion would only use one route (193, or 63.3 percent of total), followed by two routes (29.5 percent) and three routes (6.2 percent). Three respondents (1.0 percent) stated they would use four or more routes to complete their trip.

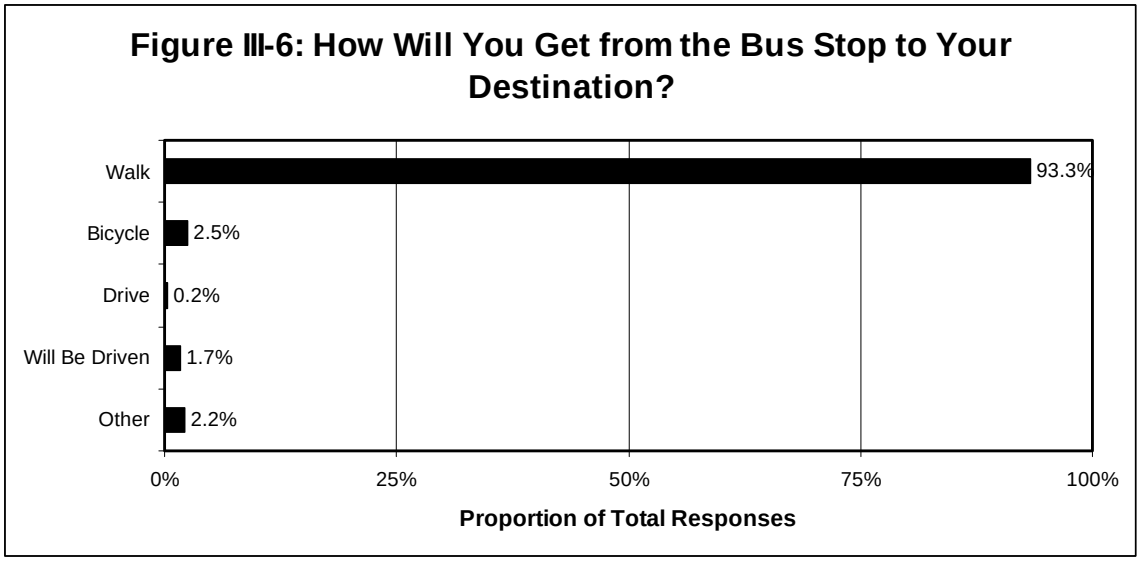
- In terms of trip purpose, the greatest number of respondents use GVT fixed-route services for transportation to and from work (139, or 34.1 percent of total), followed by school (85, or 20.8 percent) and personal business (82, or 20.1 percent) as shown in Figure III-4. It should be noted that the GVRTC originally developed the GVT service to primarily serve the working poor, providing access to job, school and shopping. In this regard, the GVT is doing a good job serving the needs of this population.

Figure III-4: What is Your Trip Purpose?



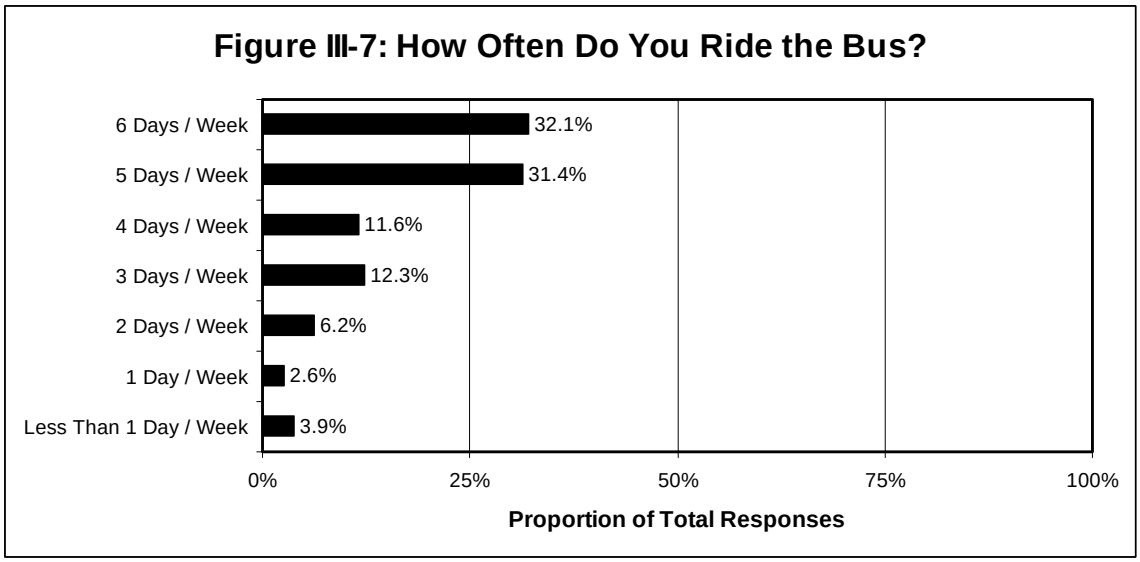
- A total of 89.3 percent of respondents walked to the bus stop to ride fixed-route services, and 3.5 percent were driven by another person. Eleven of the 17 respondents who marked "other" transferred from another bus. See Figure III-5 for details. As presented in Figure III-6, once respondents leave the bus, the majority planned to walk to their



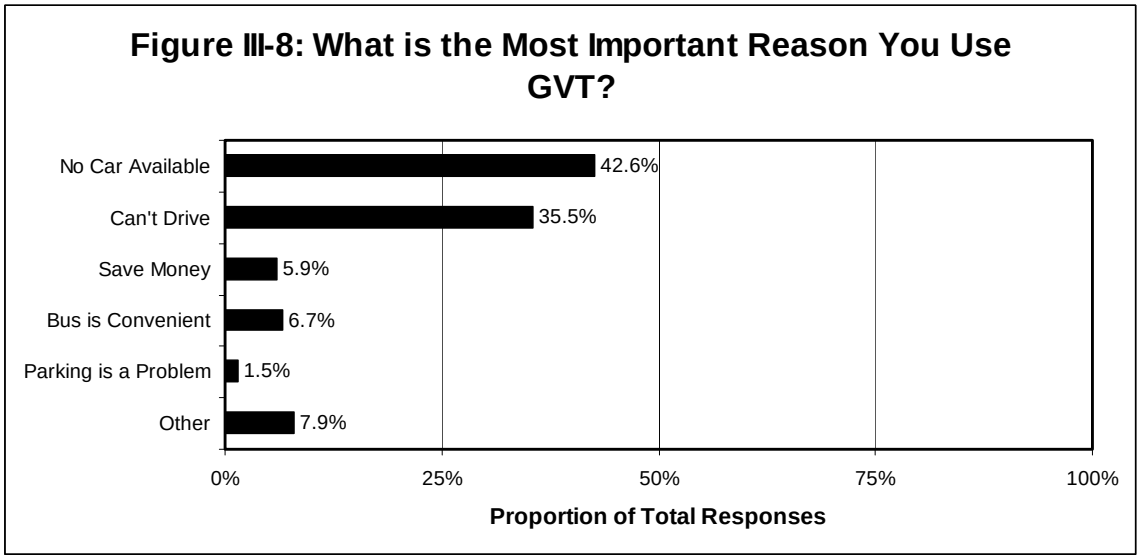


final destination. Of the nine persons who marked "other," five planned to transfer to another bus.

- As presented in Figure III-7 on the next page, the majority of respondents use the bus five or more days per week. This suggests a high proportion of transit-dependent riders.



- As presented in Figure III-8, the greatest proportion of respondents use GVT because they do not have access to an automobile (173, or 42.6 percent of total), followed by an inability to drive (144, or 35.5 percent of total).

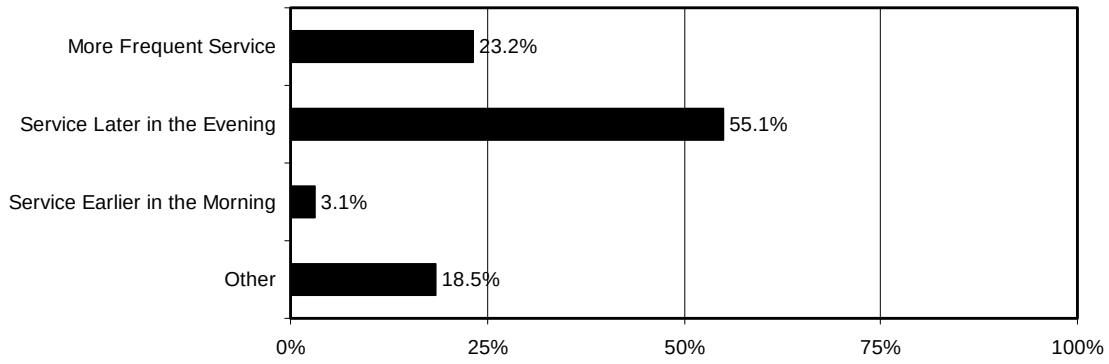


- A total of 231 respondents (57.6 percent of total) stated that the current hours and days of operation meet their requirements. Of the 170 who stated the current hours and days do not meet their needs, many stated a desire for a longer daily span of services, more frequent service, and

Sunday service. A list of the desired improvements has been submitted to the RTPO under separate cover.

- Riders were asked which *single* improvement they would like GVT to implement. As presented in Figure III-9, the greatest proportion of respondents stated a desire for service later in the evening (211, or 55.1 percent of total), followed by more frequent service (89, or 23.2 percent). Of the 71 respondents who marked "other," 16 stated a desire for Sunday service. A full list of these desired improvements is included in Appendix C.

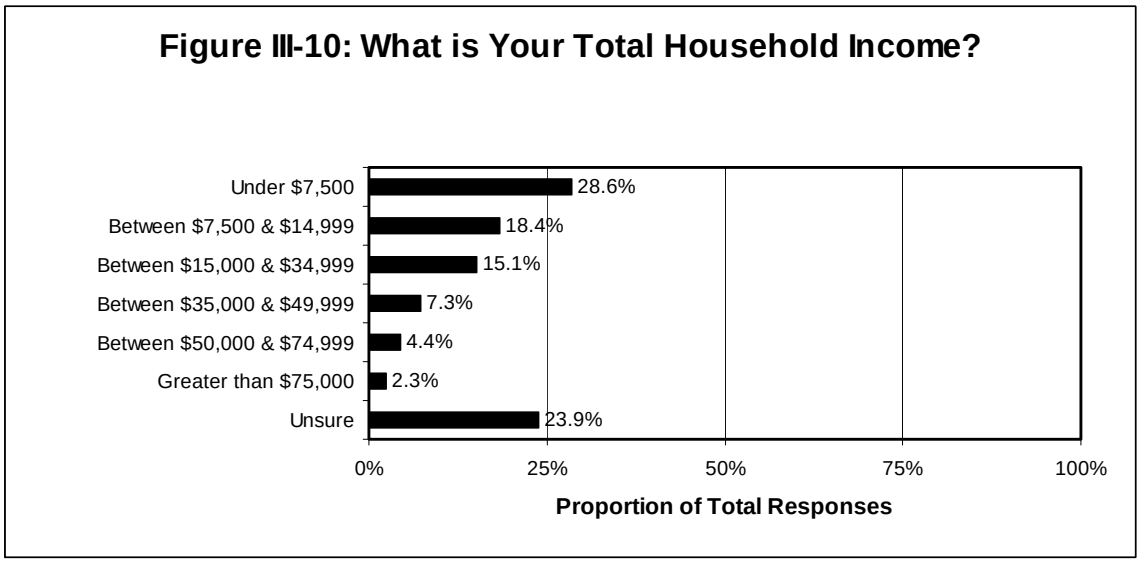
Figure III-9: What *Single* Improvement Would You Like to See Implemented?



- As presented in Figure III-10 on the next page, of those respondents who reported their total household income, nearly half have a household income of less than $15,000.

CONCLUSIONS

GVT riders generally perceive transit services positively, although some of the comments received pinpoint areas of concern. The majority of riders on the GVT services are transit-dependent, given limited access to the private automobiles, low-income levels, and stated need for the service. A review of the written comments submitted by respondents indicates a strong level of support for services. However, several pointed comments suggest that service quality could be improved by providing more frequent service, ways to address the relatively short daily span of service, implementing Sunday service, use of larger buses, and



better control of youth behavior. These suggestions, and their potential costs/ benefits, will be reviewed further in subsequent steps of the Transit Element process.

CHAPTER IV

Existing Transportation Systems

INTRODUCTION

Chapter IV reviews the existing transportation providers within Mesa County. The providers presented vary in both service type and clients served. This chapter provides a summary of the public and private transportation providers who operate within the study area.

Mesa County residents are currently provided with a host of private and public transportation services, ranging from agencies providing transportation services ancillary to the organization's core mission to larger, more-focused public transportation programs. Grand Valley Transit provides the majority of general public transit services in Mesa County, provided under contract by MesAbility, Inc.

The *Grand Junction/Mesa County Metropolitan Planning Organization 1998-2002 Transit Development Plan* called for increased demand-response services (to match 1996 levels), an enhanced user-side subsidy taxicab program, and initiation of a limited, two-bus fixed-route system. However, the current fixed-route service level has far exceeded that originally envisioned during the TDP process; the current service plan includes eleven routes.

Having surpassed the plans of the previous TDP and recognizing the changing dynamics of the region, a key "next step" in the evolution of the organization is the development of a financially-constrained Transit Element. This plan, while focusing on the upcoming short-term period, will consider transit needs over the long term to ensure that capital decisions, such as vehicle purchases and facility improvements, are in the best long-term interests of the region. It should be developed through a close working relationship between Mesa County, City of Grand Junction, City of Fruita, Town of Palisade, and MesAbility staff, as well as strong input from CDOT officials.

PUBLIC PROVIDERS

Grand Valley Transit

MesAbility, Inc., a private non-profit organization, operates Grand Valley Transit under a contract with Mesa County. Grand Valley Transit began operations under MesAbility, Inc. in 2000. Prior to 2000, MesAbility provided prescheduled and demand-responsive transportation services to seniors and persons with disabilities in the urbanized areas of Mesa County.

Service Overview

Grand Valley Transit operates Monday through Saturday, except during the seven nationally recognized holidays. Buses run every hour beginning at 5:15 a.m. and operate until 7:15 p.m. GVT operates from 8:45 a.m. to 6:16 p.m. on Saturdays. As mentioned, GVT operates a mix of fixed-route, dial-a-ride, and paratransit service. There are currently eleven fixed routes serving Grand Junction, Fruita, and Palisade, all equipped with wheelchair lifts and bike racks. Dial-A-Ride stops are provided throughout the urban area. Dial-A-Ride passengers must request pick-up at least two hours in advance and are charged a higher fare than fixed-route passengers. Paratransit service is offered to those persons who are unable to travel on the traditional fixed-route system. Complementary paratransit riders must qualify under the American Disabilities Act, and become certified riders. MesAbility currently employs approximately 70 persons, of which 60 are drivers. This represents a relatively high proportion of drivers in comparison to total staff, and indicates that administrative staffing levels is not exceedingly high.

Fixed-Route Service

As stated previously, GVT operates a pulse system with eleven color-coded fixed routes within Grand Junction, Fruita, and Palisade. The fixed-route fare is $0.50 per ride with free transfers at any of the three transfer centers, where routes meet at the same time for convenient transfers. Transfers can also be made at any of the fixed-route bus stops. The three transfer stations are located at the following sites:

- Orchard Avenue at 12th Street (Mesa State College)
- Coronado Plaza
- Mesa Mall

The following text provides a brief description of the fixed-route system:

Route 1 Airport (Sky Blue Route): The Airport Route serves Walker Field Airport via Horizon Drive from the Orchard Avenue /12th Street Station. This route serves St. Mary's Hospital and the commercial development along Horizon Drive and I-70 adjacent to the airport.

Route 2 Patterson Avenue (Green Route): The Patterson Avenue Route travels between the Orchard Avenue /12th Street Transfer point near Mesa State College and Coronado Plaza. The route serves St. Mary's Rehabilitation Center, Grand Mesa Middle School, Pioneer Village, and the doctors' offices located on 32 Road.

Route 3 Orchard Avenue (Red Route): The Orchard Avenue Route travels between the Orchard Avenue /12th Street Transfer point and Coronado Plaza via Orchard Avenue. The Red Route serves Mesa State College, Central High School, Grand Mesa Middle School, the doctors' offices located on 32 Road, and travel near the Department of Human Services.

Route 4 Palisade (Peach Route): The Palisade Route operates from the Coronado Transfer point to Palisade via Highway 6. This route serves the doctors' offices

on 32nd Road, the Peachtree Shopping Center, Mt. Garfield Middle School, Palisade High School, and the downtown Palisade area.

Routes 5A and 5B Downtown (Plum Route): The Downtown Route is a bi-directional circulator route (using two buses) which serves downtown Grand Junction via Main Street, Grand Avenue, Elm, and 12th Street. This route begins and ends at the Orchard Avenue /12th Street Transfer point at Mesa State College. The route serves GVT's main offices, Mesa State College, the VA Hospital, Lincoln Park, Mesa County Justice Center, and downtown Grand Junction.

Route 6 Orchard Mesa (Brown Route): The Brown Route serves the Orchard Mesa area from the Orchard Avenue /12th Street Station. This route serves City Market, Lions Park, and the downtown area of Grand Junction.

Route 7 Mesa Mall (Blue Route): The Blue Route travels from the Mesa Mall to the Orchard Avenue /12th Street Station via 25 Road, F½ Road, 25½ Road, Independent Avenue, and North Avenue. This route serves Moose Lodge, Sam's Club, UTEC and Mesa State College and Stocker Stadium, as well as stops in-between.

Route 8 Fruita (Orange Route): The Fruita Route operates as a connector route between Grand Junction and Fruita. The route runs from the Mesa Mall to Fruita via Highway 50. This route serves Fruita Monument High School, the Fruita Civic Center and Co-op, City Market, Super 8 Motel, Independence Village, and the Dinosaur Museum in Fruita.

Route 9 North Avenue (Yellow Route): The North Avenue Route also travels between the Orchard Avenue /12th Street Transfer Station and Coronado Plaza via North Avenue. This route serves Mesa State College along 12th Street, Wal-Mart, Workforce Center, Career Center, and the Department of Human Services.

Route 10 Clifton (Turquoise Route): The Clifton Route is a circulator route that begins and ends at Coronado Plaza. The route serves Clifton via E Road, D½ Road, D Road, 32 Road, and 33 Road.

Figure IV-1 on the next page illustrates the current fixed routes operated by GVT.

Dial-A-Ride Service

This service is offered as an extension of the fixed-route service. DAR service is offered to patrons who are outside of the current fixed-route system. Transit patrons may request a pick-up at any of the Dial-A-Ride (DAR) stops. Figure IV-2 below illustrates the location of Dial-A-Ride stops.

ADA Complementary Paratransit

Complementary Paratransit service is offered during the times that the fixed-route service is offered, 5:45 a.m. until 7:15 p.m. on weekdays and 8:45 a.m. to 6:16 p.m. on Saturdays. Paratransit clients must complete an ADA application and become certified riders. Qualified patrons are offered door-to-door service by request. Requests can be made from two weeks to two hours in advance. A peak of four minibuses is used to operate this service on weekdays, and one bus is used on Saturdays. Each driver shift is eight hours (equating to 32 vehicle service hours per weekday); the shifts overlap to cover the peak periods of the day.

Fare Structure

Table IV-1 below shows the current fares for the fixed-route, Dial-A-Ride, and paratransit service.

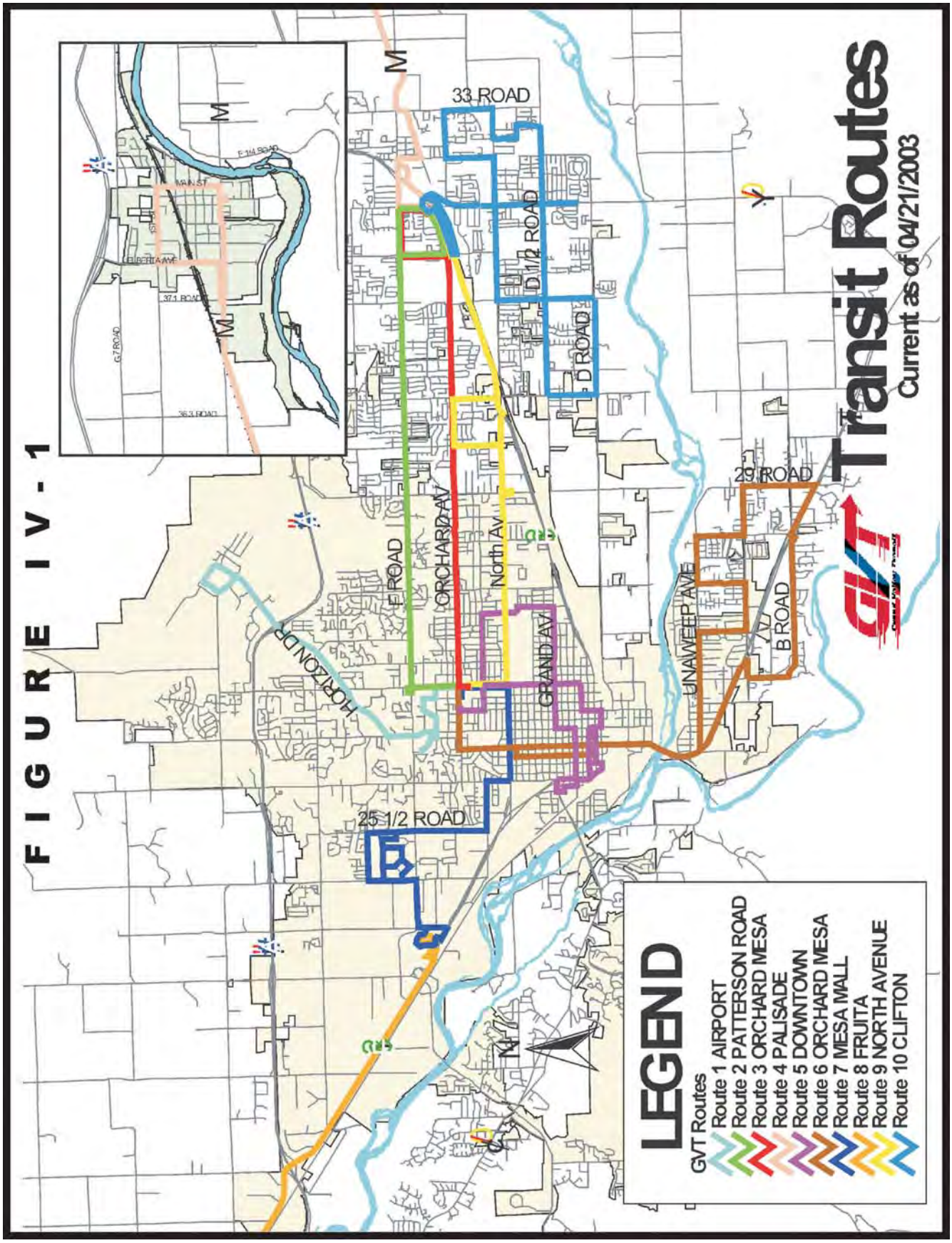


FIGURE IV-1
Transit Routes
Current as of 04/21/2003
33 ROAD
D 1/2 ROAD
D ROAD
E ROAD
ORCHARD AV
North AV
GRAND AV
HORIZON DR
25 1/2 ROAD
29 ROAD
UNAWEEP AVE
B ROAD
LEGEND
GVT Routes
Route 1 AIRPORT
Route 2 PATTERSON ROAD
Route 3 ORCHARD MESA
Route 4 PALISADE
Route 5 DOWNTOWN
Route 6 ORCHARD MESA
Route 7 MESA MALL
Route 8 FRUITA
Route 9 NORTH AVENUE
Route 10 CLIFTON

Insert figure IV-2

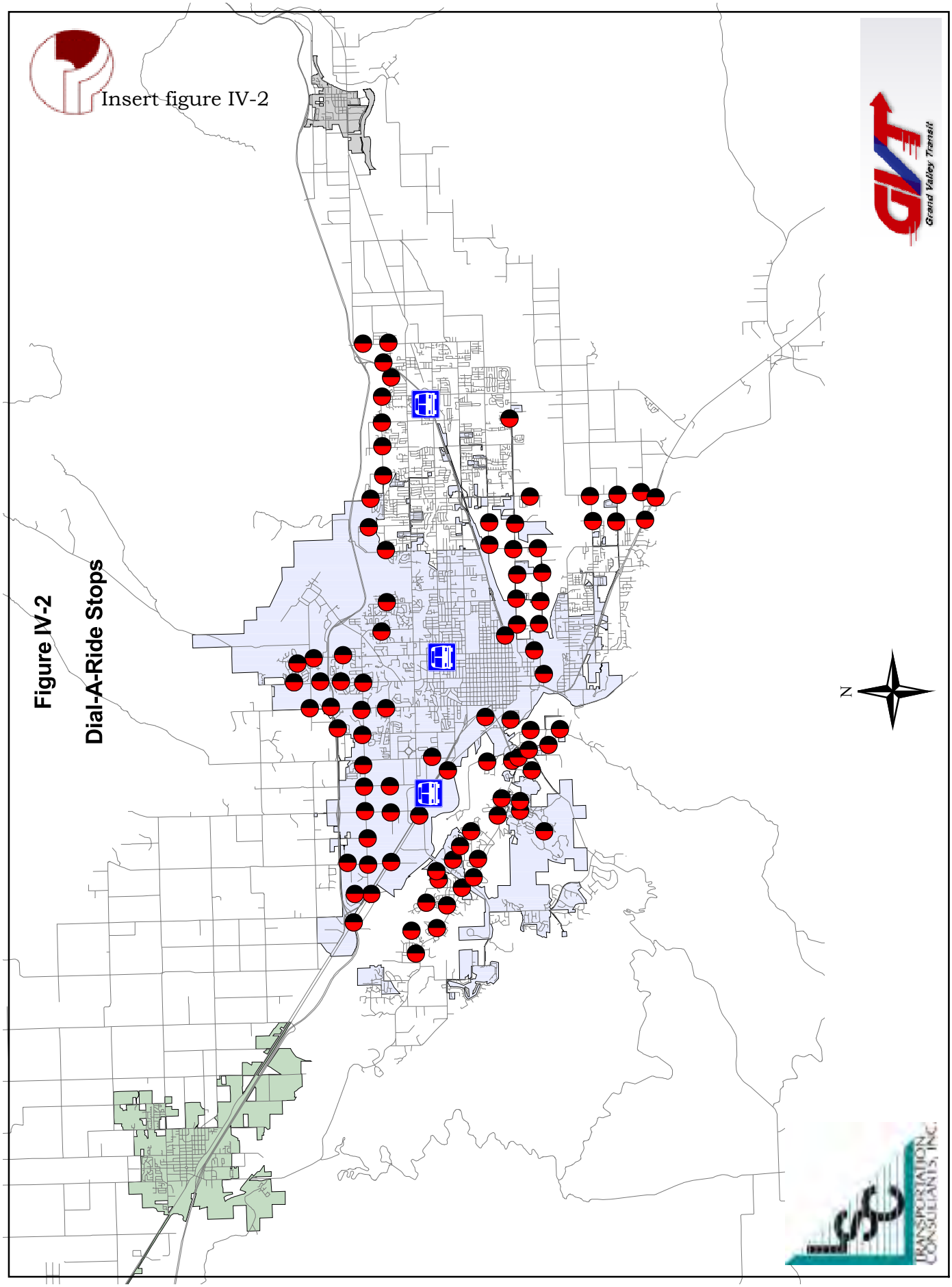


Figure IV-2

Dial-A-Ride Stops

Table IV-1
GVT Fare Structure

Fare Category	Amount
Fixed Routes	$0.50
Transfers	Free
Dial-A-Ride	$1.00 (each way)
Paratransit	$1.00 (each way)
Mesa State Students	Free
One-Day Pass	$1.50
Ten-Day Pass	$10.00
One Month Youth Pass (unlimited rides)	$10.00
Adult Pass (one-month unlimited rides)	$20.00
Six Month Youth Pass (unlimited rides)	$50.00
Six Month Adult Pass (unlimited rides)	$80.00
Youth One-Year (unlimited rides)	$100.00
Adult One-Year (unlimited rides)	$150.00

Source: Grand Valley Transit, 2002.

Ridership

Grand Valley Transit has undergone numerous service changes since service was begun. Therefore, comparing ridership trends over a long period of time does not give an accurate picture of ridership. Since GVT began operation in 2000, ridership has rapidly increased. Table IV-2 shows the fixed-route, Dial-A-Ride and paratransit ridership trends from January 2000 through August 2002. These trends are also presented in Figures IV-3, IV-4 and IV-5.

Table IV-2

GVT Ridership History

	Fixed Route		Dial-A-Ride		Paratransit		Systemwide	
	Ridership	Percent Change	Ridership	Percent Change	Ridership	Percent Change	Ridership	Percent Change
Calendar Year 2000	183,996	--	10,508	--	N/A	--	194,504	--
Calendar Year 2001	207,538	12.8%	10,374	-1.3%	14,993	--	232,905	19.7%
Calendar Year 2002[1]	530,600	155.7%	3,410	-67.1%	11,100	-26.0%	545,110	134.0%

Note 1: Calendar Year 2002 represents annualized estimates, based upon data from January through August.

Source: Grand Valley Transit, 2002.

FIGURE IV-3
GVT Fixed-Route Ridership By Year

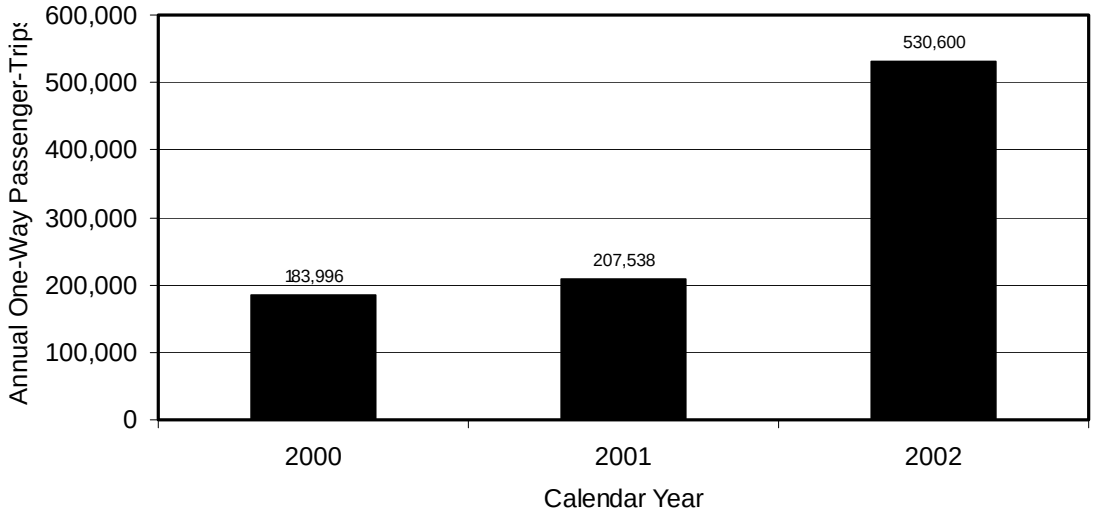


FIGURE IV-4
GVT Dial-A-Ride Ridership By Year

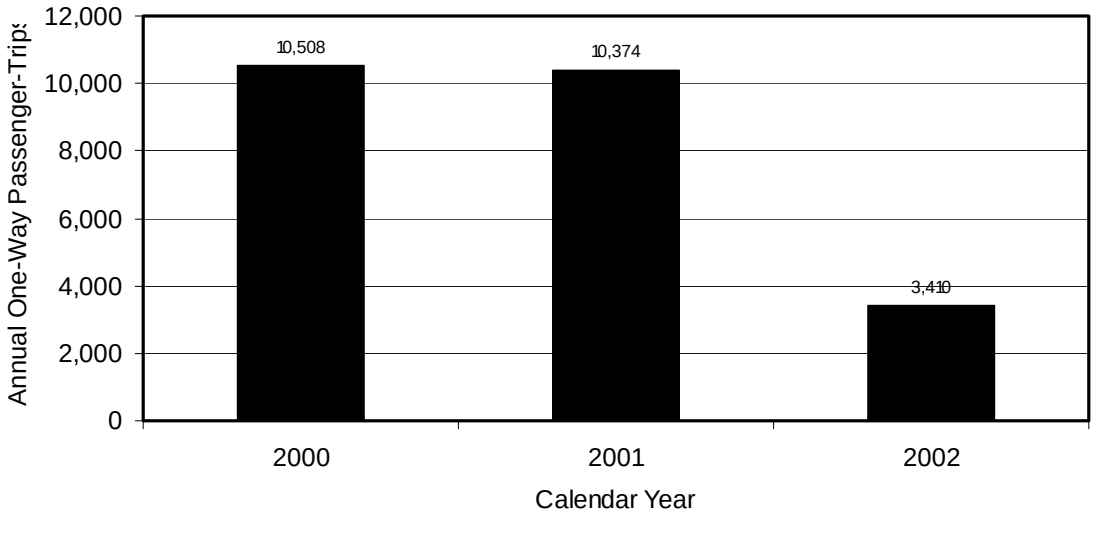
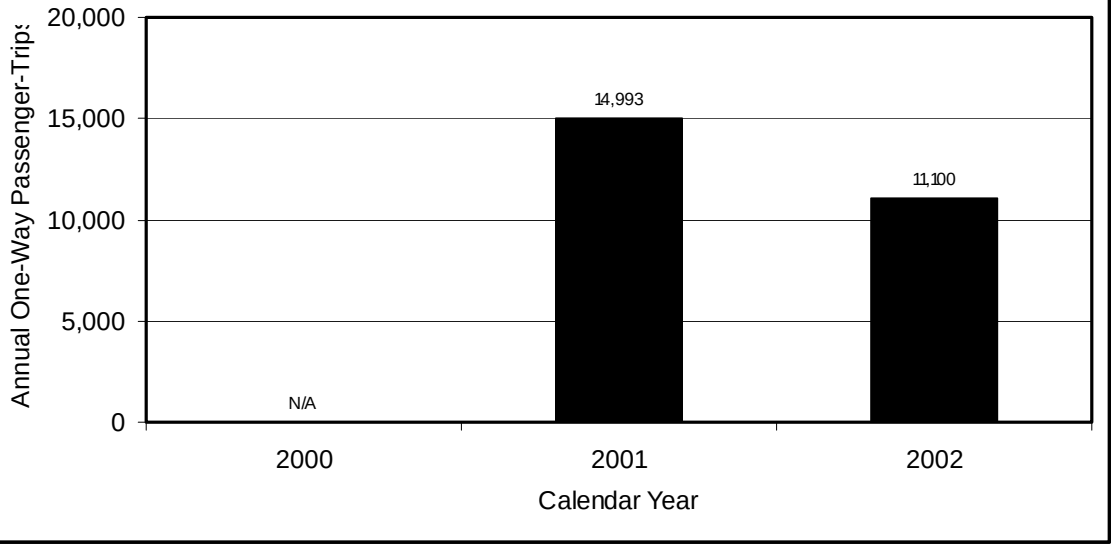


FIGURE IV-5
GVT Paratransit Ridership By Year



Systemwide ridership, up until August 2002, has more than doubled since 2001. It should be noted that Dial-A-Ride ridership has decreased by approximately 78 percent, as more and more persons are shifting to the fixed routes. Paratransit ridership is also declining, although local staff is unsure as to the reasons.

Fixed-route ridership variations by month provide a way to analyze the intensity of service during the year. Monthly variations allow an agency to assess the amount of transit activity during various times of the year, and allow GVT to determine appropriate service levels during the various months of the year. Table IV-3 provides GVT's monthly fixed-route ridership by route.

While this table only represents eight months of data, the months of April, May, and August have the highest ridership of all other months. Route #9, North Avenue, has the highest eight-month total ridership, with approximately 19 percent of the systemwide total ridership. The route with the next highest number of passengers during the eight-month period is Route #7, Mesa Mall, with approximately 14 percent of the total systemwide ridership on this route. If Routes 5A and 5B are combined since they run in opposite directions on the same route, the downtown service has about 18 percent of the total passengers. Figure IV-6 illustrates January through August 2002 ridership by route.

Table IV-3

Grand Valley Transit Fixed-Route Ridership By Month

January 2002 through August 2002

Route	January	February	March	April	May	June	July	August	**Total**	**Percent of System Total**
Route 1 St Mary's Airport	3,185	3,156	3,521	3,941	3,772	3,357	3,257	3,483	**27,672**	**7.8%**
Route 2 Patterson Ave.	2,527	2,590	2,660	2,980	2,878	2,549	2,498	2,572	**21,254**	**6.0%**
Route 3 Orchard Ave.	3,679	3,254	2,922	3,516	3,404	2,723	2,664	3,132	**25,294**	**7.2%**
Route 4 Palisade	2,824	2,921	2,985	3,870	2,842	2,321	2,479	2,986	**23,228**	**6.6%**
Route 5A Downtown	4,752	4,157	4,382	4,644	4,660	4,455	4,679	4,389	**36,118**	**10.2%**
Route 5B Downtown	3,470	2,813	3,358	3,140	3,526	3,088	3,434	3,222	**26,051**	**7.4%**
Route 6 Orchard Mesa Shuttle	3,297	3,666	4,462	4,851	4,645	4,120	4,302	4,412	**33,755**	**9.5%**
Route 7 Mesa Mall	6,141	5,180	6,245	6,766	6,482	6,295	6,256	7,214	**50,579**	**14.3%**
Route 8 Fruita	1,822	1,741	2,033	1,928	2,236	1,829	2,027	2,110	**15,726**	**4.4%**
Route 9 North Ave.	7,032	6,656	9,093	9,011	9,142	8,404	8,844	8,503	**66,685**	**18.9%**
Route 10 Clifton Circulator	3,240	2,939	3,645	4,091	3,059	3,470	3,260	3,664	**27,368**	**7.7%**
Subtotal	**41,969**	**39,073**	**45,306**	**48,738**	**46,646**	**42,611**	**43,700**	**45,687**	**353,730**	**--**
Percent of Average	94.9%	88.4%	102.5%	110.2%	105.5%	96.4%	98.8%	103.3%	**--**	**--**

Source: Mesa County RTPO monthly reports.

FIGURE IV-6: Grand Valley Transit Fixed Route Ridership

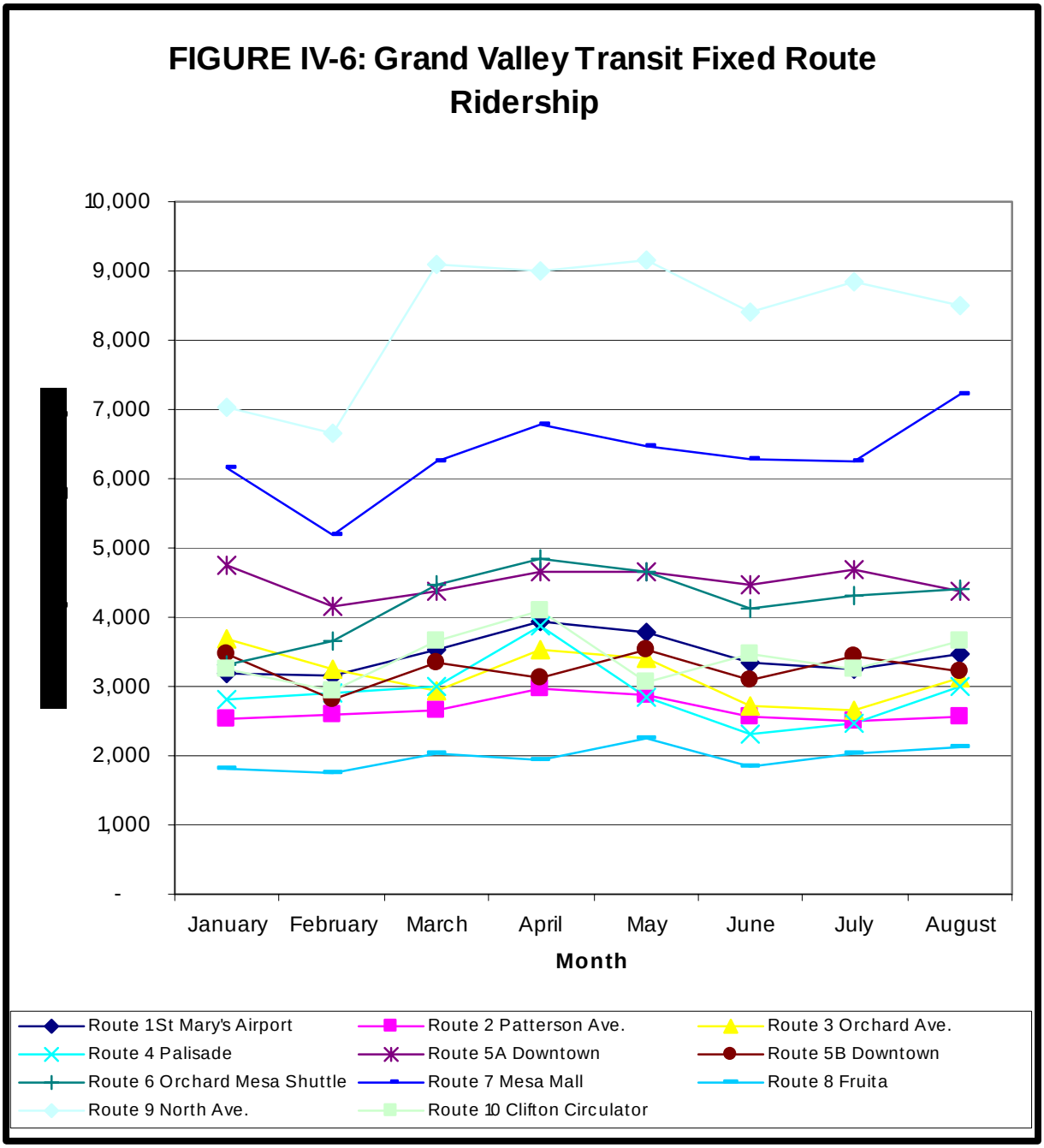


Table IV-4 presents the GVT's fixed-route average weekday boardings by route and hour of the day. Average weekday boardings by time of day determine the maximum load for a route by hour of the day in 30-minute increments. These data help in assessing the appropriate vehicle size for routes during different times of the day. Although most of the route productivity figures never reach a maximum threshold of passengers, each of the times per day should be analyzed to determine if a route reaches its maximum load during various times of the day to help in determining if the appropriate vehicle size is being used. Passenger boardings by hour help to determine the times during the day that have the highest ridership. GVT's highest average ridership time is at 3:15 p.m.

During this time of the day, many students are using the transit system to get from school to home. Route 9 North Avenue achieved the highest ridership throughout the day. Figures IV-7 through IV-18, on the following pages, illustrate each of the fixed-route's boardings by time of day.

Table IV-4

GVT Fixed-Route Average Weekday Boardings by Route and Hour

Hour Beginning	Route 1 St. Mary's Airport	Route 2 Patterson Ave.	Route 3 Orchard Ave.	Route 4 Palisade	Route 5A Downtown	Route 5B Downtown	Route 6 Orchard Mesa Shuttle	Route 7 Mesa Mall	Route 8 Fruita	Route 9 North Ave.	Route 10 Clifton Circulator	**Fixed-Route Boardings By Half-Hour**
5:45 AM	0.9	0.4	0.1	2.7	1.0	0.3	1.1	1.0	2.5	1.3	4.3	**15.6**
6:15 AM	2.4	4.1	6.8	3.5	3.8	3.8	3.4	4.6	0.9	8.6	2.3	**44.2**
6:45 AM	8.1	4.2	7.2	4.6	2.8	4.1	7.0	11.5	2.5	8.1	14.8	**74.7**
7:15 AM	3.1	10.7	10.8	11.1	5.5	5.0	8.0	5.0	2.9	18.1	1.6	**81.8**
7:45 AM	9.9	3.9	2.4	2.9	9.3	11.7	7.3	10.0	2.3	12.1	6.1	**77.9**
8:15 AM	2.7	3.6	7.9	3.9	4.5	4.9	5.7	7.0	2.1	13.9	3.0	**59.1**
8:45 AM	6.3	3.0	2.8	4.2	8.4	4.8	8.6	7.7	2.1	8.4	6.0	**62.3**
9:15 AM	3.6	4.4	7.1	3.0	5.8	6.4	7.7	7.6	1.6	14.0	2.9	**64.0**
9:45 AM	6.3	3.2	4.3	2.9	9.4	5.1	8.4	14.5	3.1	12.9	6.6	**76.6**
10:15 AM	2.7	5.3	4.0	6.6	6.7	6.9	6.4	6.7	1.9	15.9	2.3	**65.5**
10:45 AM	5.9	3.2	6.3	7.4	10.5	5.0	7.3	11.2	2.2	13.0	4.9	**76.8**
11:15 AM	3.3	4.5	8.6	8.5	6.1	7.6	8.1	11.4	3.4	15.7	5.4	**82.6**
11:45 AM	5.3	4.7	6.4	5.9	10.2	6.9	8.5	15.4	3.0	17.4	5.8	**89.7**
12:15 PM	3.9	4.5	8.9	6.6	10.4	8.2	8.0	12.1	4.7	13.5	6.1	**86.8**
12:45 PM	8.0	3.4	6.2	4.0	12.7	5.8	9.4	14.3	2.5	20.1	7.7	**94.2**
1:15 PM	6.5	4.8	7.2	4.1	6.7	8.8	9.0	10.9	3.8	16.2	6.5	**84.5**
1:45 PM	8.5	5.7	7.0	5.1	9.5	5.0	10.1	14.3	2.9	17.8	7.6	**93.6**
2:15 PM	7.4	4.2	4.7	6.6	11.1	5.7	8.4	17.0	5.0	16.4	7.8	**94.3**
2:45 PM	7.6	7.1	11.9	7.7	12.3	5.0	10.8	13.6	3.1	20.2	5.0	**104.2**
3:15 PM	12.3	5.5	16.9	10.7	9.4	7.1	11.5	14.9	7.9	18.9	9.1	**124.1**
3:45 PM	9.4	10.6	10.6	9.4	10.6	7.0	13.0	14.3	4.7	21.5	3.2	**114.3**
4:15 PM	11.0	4.8	4.9	5.8	9.9	6.9	9.3	13.1	6.4	14.3	14.2	**100.6**
4:45 PM	5.0	7.2	9.0	3.3	9.7	5.4	8.5	9.4	3.9	22.4	5.8	**89.7**
5:15 PM	4.5	2.2	3.5	4.8	6.5	5.5	5.7	10.4	5.1	10.7	7.8	**66.8**
5:45 PM	2.7	4.5	4.7	2.0	5.7	5.3	7.6	5.6	1.8	13.4	3.0	**56.4**
6:15 PM	1.3	0.9	2.4	2.9	3.0	1.9	3.5	5.0	2.7	4.0	7.4	**34.9**
6:45 PM	1.0	1.8	2.4	0.6	1.6	0.7	2.8	1.7	0.4	3.5	0.8	**17.2**
Total Fixed-Route Boardings by Route	**149.8**	**122.4**	**174.9**	**140.6**	**203.1**	**150.7**	**205.1**	**270.1**	**85.5**	**372.3**	**158.1**	**2,032.6**

Average of 21 Days, January through July, 2002

Source: Grand Valley Transit, 2002.

Figure IV-7
GVT Ridership by Hour
All Fixed Routes Combined

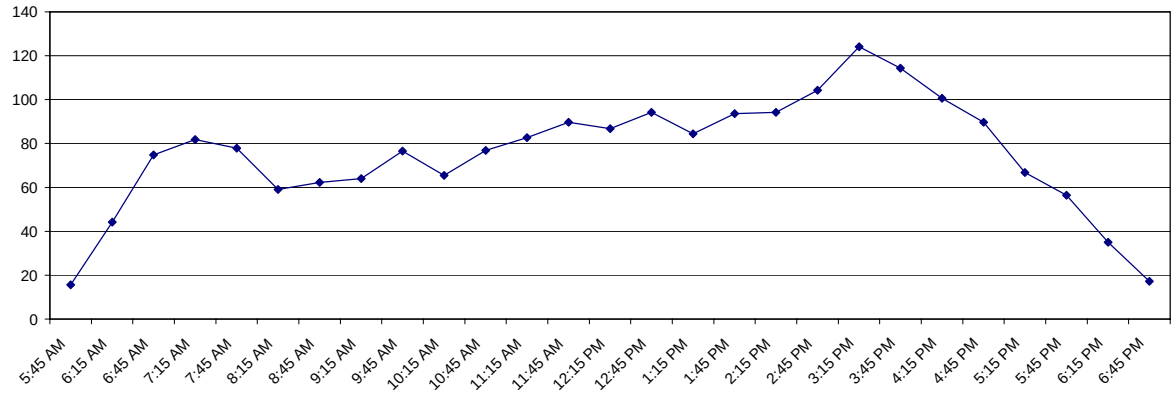


Figure IV-8
GVT Ridership by Hour
Route 1 - 1st Street/Airport

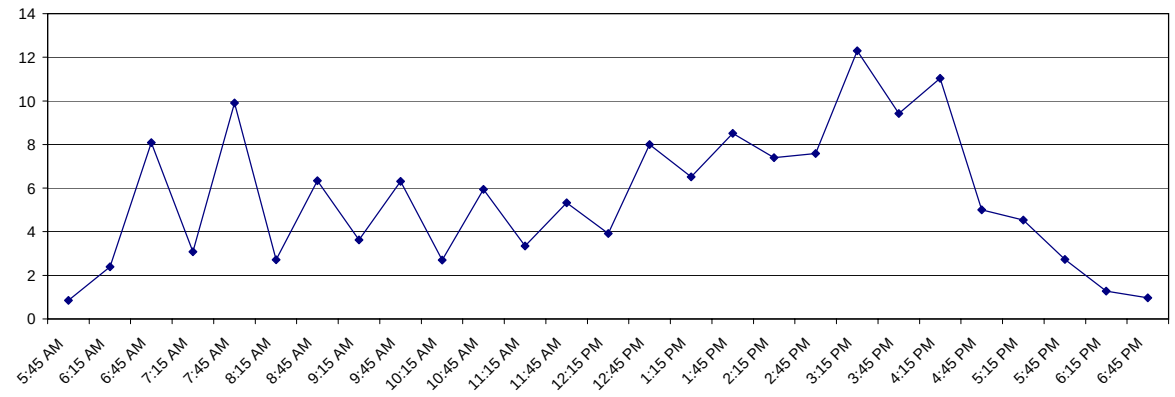


Figure IV-9
GVT Ridership by Hour
Route 2 - Patterson Ave

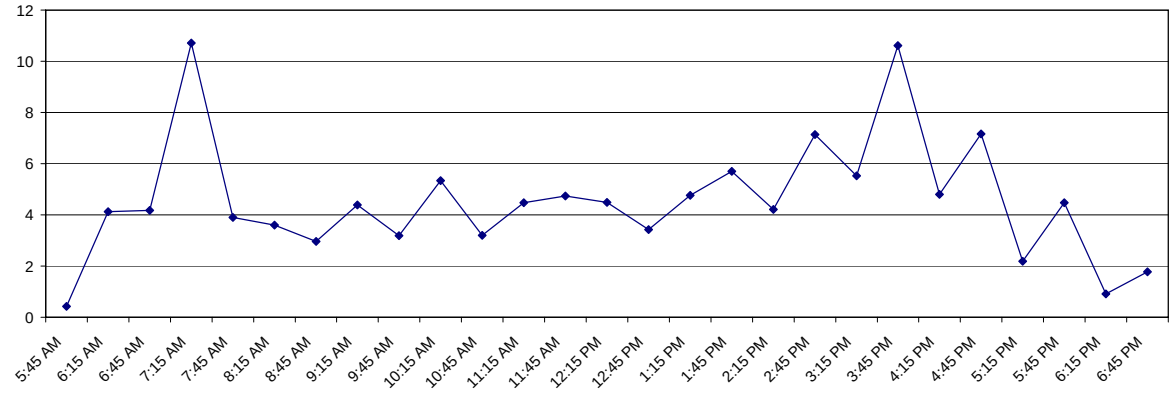


Figure IV-10
GVT Ridership by Hour
Route 3 - Orchard Ave

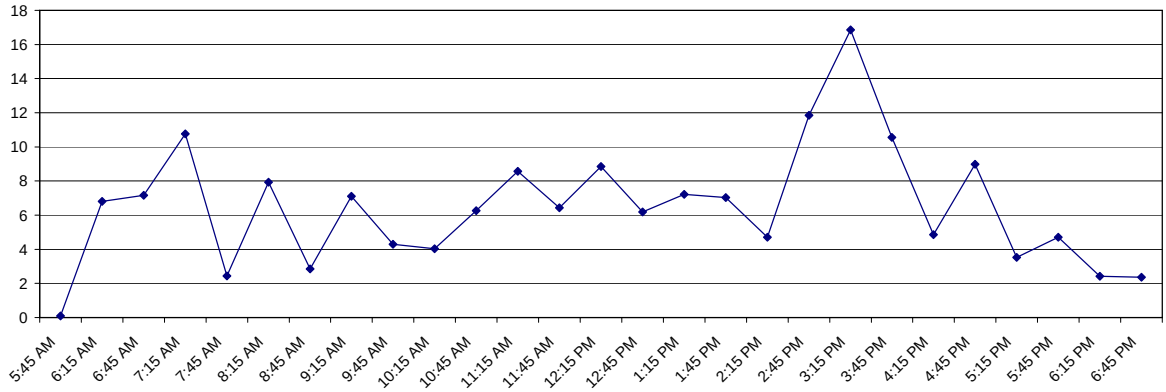


Figure IV-11
GVT Ridership by Hour
Route 4 - Palisade

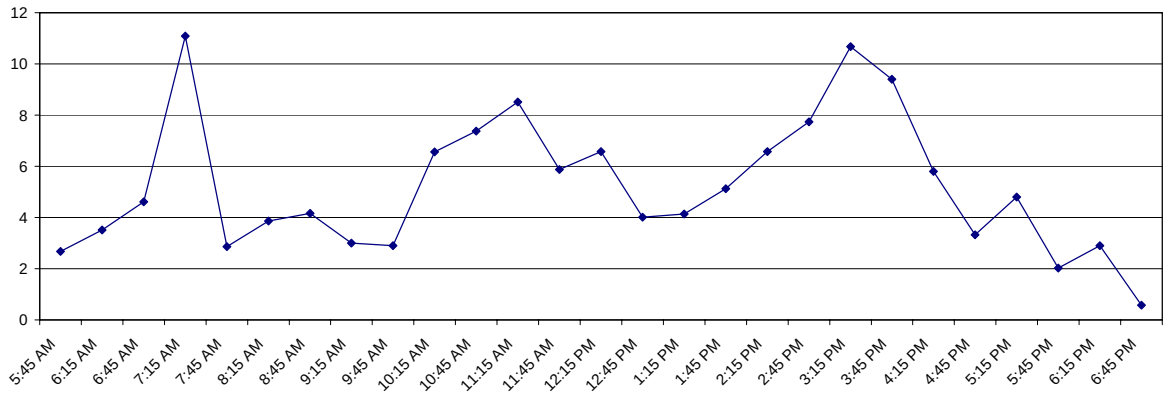


Figure IV-12
GVT Ridership by Hour
Route 5a - Downtown

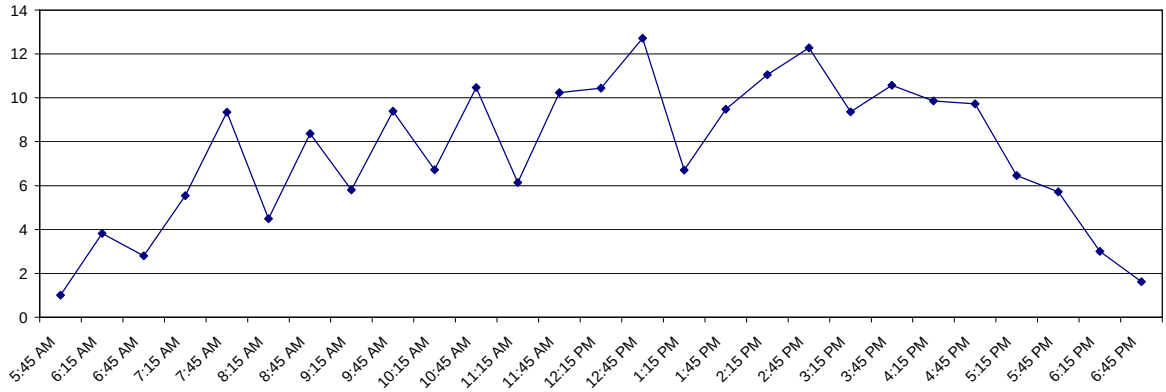


Figure IV-13
GVT Ridership by Hour
Route 5b - Downtown

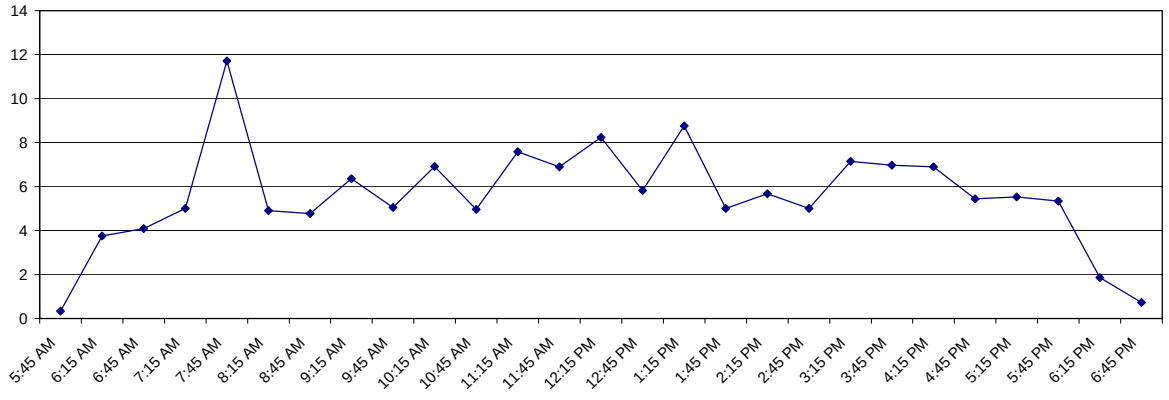


Figure IV-14
GVT Ridership by Hour
Route 6 - Orchard Mesa

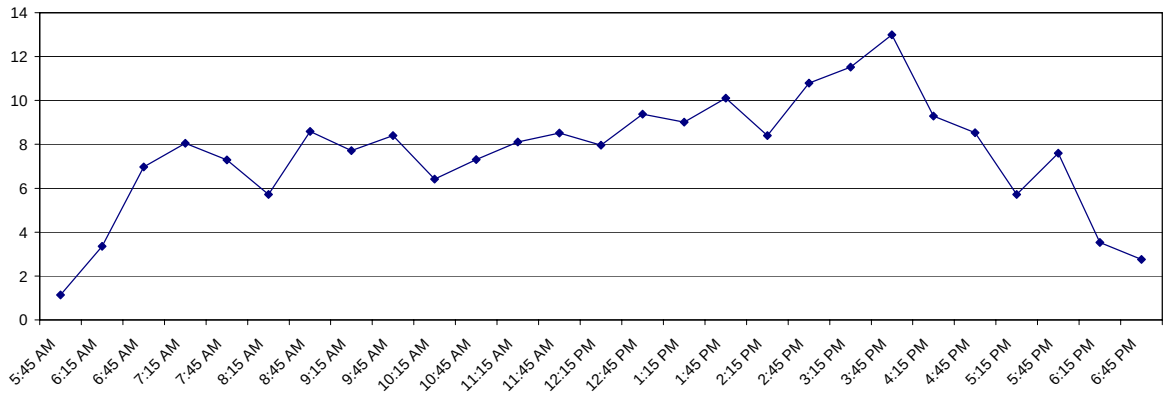


Figure IV-15
GVT Ridership by Hour
Route 7 - Mesa Mall

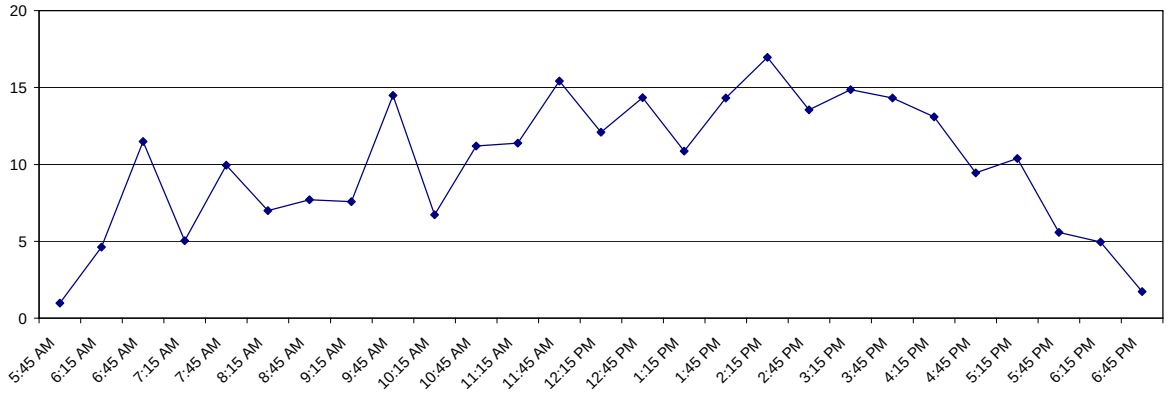


Figure IV-16
GVT Ridership by Hour
Route 8 - Fruita

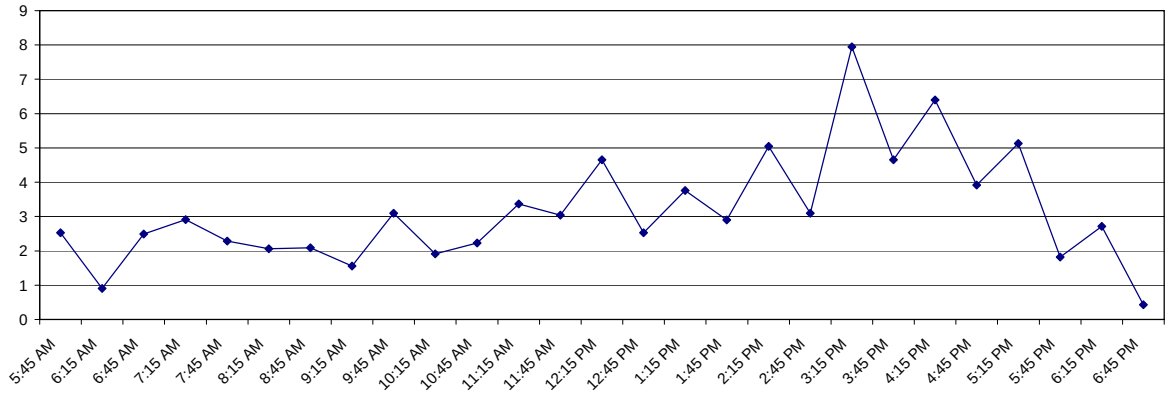


Figure IV-17
GVT Ridership by Hour
Route 9 - North Ave

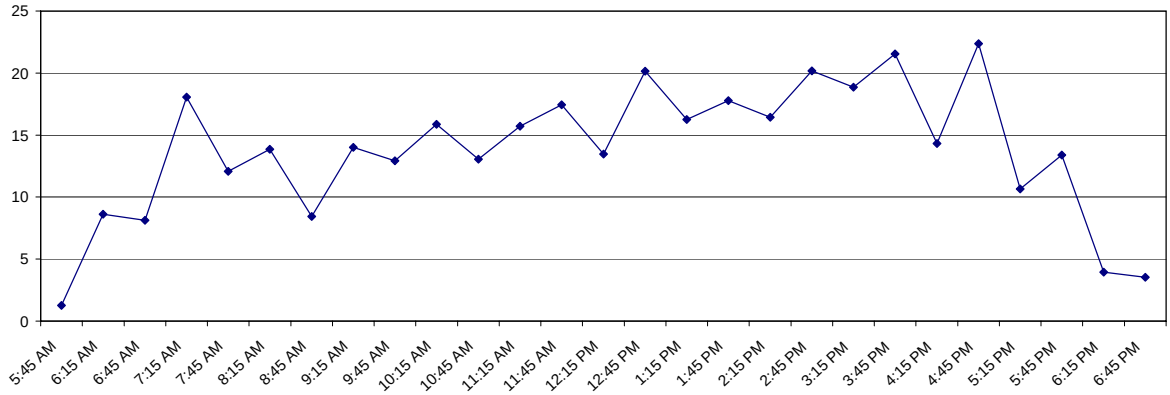
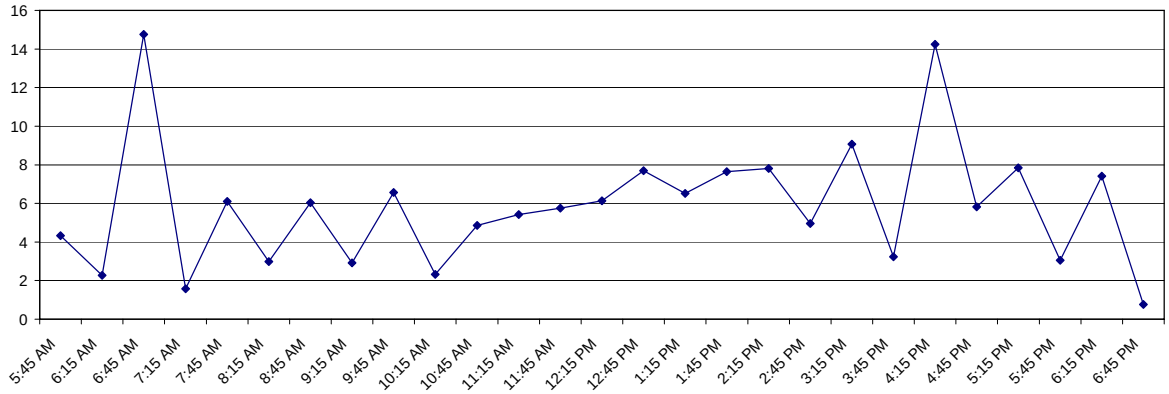


Figure IV-18
GVT Ridership by Hour
Route 10 - Clifton Circulator



Another way to analyze ridership is by day of the week. This again aids in determining where additional service should be provided, or conversely, where service can be shifted. Table IV-5 provides ridership by day of the week for the fixed-route, Dial-A-Ride, and systemwide totals.

Table IV-5
Ridership by Service and Day of Week
September 2002

	Fixed Routes Combined		Dial-A-Ride		Systemwide	
	Total	% of Total	Total	% of Total	Total	% of Total
Monday	5,058	22.7%	231	19.5%	**5,289**	**22.7%**
Tuesday	4,188	18.8%	195	20.1%	**4,383**	**18.8%**
Wednesday	3,896	17.5%	201	20.1%	**4,097**	**17.6%**
Thursday	3,968	17.8%	183	18.3%	**4,151**	**17.8%**
Friday	3,482	15.6%	165	16.5%	**3,647**	**15.7%**
Saturday	1,664	7.5%	26	2.6%	**1,690**	**7.3%**
Subtotal	**22,256**		**1,001**		**23,257**	

Source: Grand Valley Transit, 2002.

Systemwide, Mondays have the highest ridership, with ridership levels slowly declining throughout the week, except for a small increase on Thursdays.

Summary of All Services

Table IV-6 provides GVT systemwide performance data. GVT operates at a fully allocated rate of $36.17 per hour with a cost of approximately $3.51 per one-way passenger-trip. Approximately 356,003 one-way passenger-trips were provided between January and August of 2002. Annualized, this amounts to approximately 534,010 one-way passenger-trips for 2002.

Table IV-6

GVT Fixed-Route Performance Data

Annual	
Vehicle Service Miles	775,648
Vehicle Service Hours	51,811
One-Way Passenger-Trips	534,010
Operating Cost	$1,874,124
Cost per Vehicle Service Hour	$36.17
Passenger-Trips per Vehicle Service Hour	10.3
Operating Cost per One-Way Passenger-Trip	$3.51

Source: GVT Operating Reports, January through August 2002.

GVT operating data and performance indicators for January through August 2002 are presented in Table IV-7 below.

Vehicle Fleet

Mesa County currently provides 19 vehicles to MesAbility for operation of GVT services. In addition, MesAbility recently purchased five used, full-size GMC buses from the Regional Transit District in Denver to address the overcrowding issues currently experienced on the system, particularly on Route 9 North Avenue. The vehicle fleet owned by Mesa County is presented in Table IV-8. As presented, there is a definite capital replacement need over the next five years. The buses have an expected vehicle life of five years, based on the Federal Transit Administration guidelines.[1] The entire fleet of minibuses is scheduled is scheduled for replacement by Year 2005.

[1] See FTA Circular 5010.1C for details.

Table IV-7

GVT Operating Data and Performance Indicators, January 2002 through August 2002

	Service													
	Route 1 St Mary's Airport	Route 2 Patterson Ave.	Route 3 Orchard Ave.	Route 4 Palisade	Route 5A Downtown	Route 5B Downtown	Route 6 Orchard Mesa Shuttle	Route 7 Mesa Mall	Route 8 Fruita	Route 9 North Ave.	Route 10 Clifton Circulator	**Fixed-Route Total**	**Dial-A-Ride / Paratransit**	**Systemwide Total**
Operating Data														
One-Way Passenger-Trips	**27,672**	**21,254**	**25,294**	**23,228**	**36,118**	**26,051**	**33,755**	**50,579**	**15,726**	**66,685**	**27,368**	**353,730**	**13,373**	**367,103**
Operating Cost	**$141,940**	**$141,940**	**$141,940**	**$141,940**	**$141,940**	**$141,940**	**$141,940**	**$141,940**	**$141,940**	**$141,940**	**$141,940**	**$1,561,340**	**$ 312,920**	**$1,874,124**
Passenger Fares	**$7,020**	**$5,390**	**$6,420**	**$5,900**	**$9,170**	**$6,610**	**$8,570**	**$12,840**	**$3,990**	**$16,920**	**$6,950**	**$89,775**	**$3,394**	**$93,169**
Total Subsidy	$134,920	$136,550	$135,520	$136,040	$132,770	$135,330	$133,370	$129,100	$137,950	$125,020	$134,990	**$1,471,565**	**$309,526**	**$1,780,955**
Vehicle Service Hours	2,943	2,943	2,943	2,943	2,943	2,943	2,943	2,943	2,943	2,943	2,943	**32,370**	**6,488**	**38,858**
Vehicle Service Miles	36,886	45,706	39,558	58,536	29,402	29,669	53,725	42,499	73,771	45,706	51,854	**507,311**	**74,425**	**581,736**
Performance Indicators														
Subsidy Per Trip	$4.88	$6.42	$5.36	$5.86	$3.68	$5.19	$3.95	$2.55	$8.77	$1.87	$4.93	**$4.16**	**$23.15**	**$4.85**
Farebox Recovery Ratio	4.9%	3.8%	4.5%	4.2%	6.5%	4.7%	6.0%	9.0%	2.8%	11.9%	4.9%	**5.7%**	**1.1%**	**5.0%**
Trips Per VSH	9.4	7.2	8.6	7.9	12.3	8.9	11.5	17.2	5.3	22.7	9.3	**10.9**	**2.1**	**9.4**
Trips Per VSM	0.8	0.5	0.6	0.4	1.2	0.9	0.6	1.2	0.2	1.5	0.5	**0.7**	**0.18**	**0.6**

Source: Grand Valley Transit and LSC Transportation Consultants, Inc.

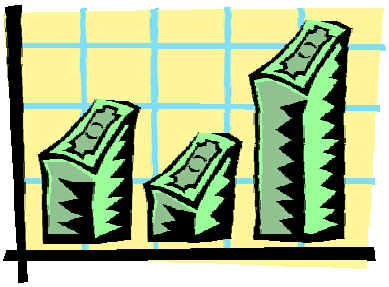
Table IV-8

Mesa County / GVT Vehicle Fleet Roster

Unit #	Year	Manufacturer	Model	Seating Capacity	Accumulated Miles	Funding Source	Planned Replacement Year
41	1999	Ford ElDorado	Startrans	12/5	92,888	FTA 5307	2004
42	1999	Ford ElDorado	Startrans	12/5	95,723	FTA 5307	2004
43	1999	Ford ElDorado	Startrans	12/5	103,723	FTA 5307	2004
44	1999	Ford ElDorado	Startrans	12/5	107,058	FTA 5307	2004
45	1999	Ford ElDorado	Startrans	12/5	104,478	FTA 5307	2004
46	1999	Ford ElDorado	Startrans	12/5	110,106	FTA 5307	2004
47	1999	Ford ElDorado	Startrans	12/5	114,678	FTA 5307	2004
48	1999	Ford ElDorado	Startrans	12/5	104,700	FTA 5307	2004
49	2000	Ford ElDorado	Aerotech	12/5	79,194	FTA 5307	2005
50	2000	Ford ElDorado	Aerotech	12/5	85,548	FTA 5307	2005
51	2000	Ford ElDorado	Aerotech	12/5	82,173	FTA 5307	2005
52	2000	Ford ElDorado	Aerotech	12/5	78,142	FTA 5307	2005
53	2000	Ford ElDorado	Aerotech	12/5	69,761	FTA 5307	2005
54	2000	Ford ElDorado	Aerotech	12/5	67,501	FTA 5307	2005
55	2000	Ford ElDorado	Aerotech	12/5	70,957	FTA 5307	2005
56	2000	Ford ElDorado	Aerotech	12/5	68,336	FTA 5307	2005
57	2000	Ford ElDorado	Aerotech	12/5	68,890	FTA 5307	2005
58	2002	Thomas	Low Floor	22/2	N/A	FTA 5309	2012
59	2002	Thomas	Low Floor	22/2	N/A	FTA 5309	2012

Source: MesAbility, November 2002.

Existing Financial Status



Anticipated 2002 revenues are listed in Table IV-9 on the following page. A large portion of operating funds comes from the FTA in the form of grant money. Approximately $833,386 in federal funding is budgeted from Mesa County to MesAbility for transit operations, representing approximately 43 percent of the total revenue. Mesa County also provides a large portion of the budgeted total funding (30 percent) to MesAbility. The local communities provide approximately $245,000 (13 percent) of the total $1,923,421 in revenue. A relatively small portion (6 percent) of the total revenue is anticipated from fares.

Table IV-10 presents total expenditure data for GVT, along with the 2003 local match distribution. Total 2003 local match is expected to increase by approximately 2.0 percent in comparison to 2002 figures.

Table IV-9

GVT Revenue Summary 2002

TOTAL BUDGETED REVENUE	
FEDERAL SOURCES	
FTA Sec 5307 Transit Operating	$494,215
FTA Sec 5307 Cost of Contracting	$98,554
FTA Sec 5307 Periodic Maintenance	$25,000
FTA Sec 5307 Project Administration	$40,000
FTA Sec 5307 Project Administration	$10,000
FTA Sec 5311 Rural Operating	$45,450
FTA Sec 5311 Project Administration	$4,550
FTA Sec 3037 Access to Jobs	$110,617
FTA Sec 3037 Access to Jobs Proj. Admin.	$5,000
TOTAL FEDERAL SOURCES	**$833,386**
COUNTY	
Mesa County	$235,944
DHS (TANF) Rides to Work	$200,000
DHS (TANF) Access to Jobs	$200,000
In-Kind Match (for Proj Admin)	$20,000
TOTAL COUNTY	**$655,944**
CITIES	
City of Grand Junction	$200,809
City of Fruita	$30,961
Town of Palisade	$12,321
TOTAL CITIES	**$244,091**
OTHER	
Mesa State College	$50,000
Fares	$115,000
Advertising	$25,000
TOTAL OTHER	**$190,000**
TOTAL REVENUE SOURCES	**$1,923,421**

Source: RTPO, 2002.

Table IV-10 GVT Expenditure Summary 2002	
GVT BUDGETED EXPENDITURES (2002)	
Operations	$1,330,314
Maintenance	$220,408
General and Administration	$323,402
TOTAL GVT EXPENDITURES	**$1,874,124**
Project Administration	$79,550
TOTAL EXPENDITURES	**$1,953,674**
LOCAL MATCH DISTRIBUTION (2003)	
Mesa County = 72%	$664,810
City of Grand Junction = 23%	$208,841
City of Fruita = 4%	$32,199
Town of Palisade = 1%	$12,814
TOTAL LOCAL CONTRIBUTIONS	**$918,664**
Source: RTPO, 2002.	

Cost Allocation Model

Financial, ridership, and service information, presented in Table IV-11 and IV-12 below, can be used to develop internal evaluation tools for the GVT. A cost allocation model provides base information against which current operations can be judged. In addition, the model is useful for estimating cost ramifications of any proposed service alternatives.

Estimated cost information from 2002 was used to develop a two-factor cost allocation model of current GVT fixed-route and Dial-A-Ride / Paratransit operations. In order to develop such models, each cost line item is allocated to one of two service variables. The two service variables used in this model are vehicle service hours and miles. In addition, fixed costs are identified as being constant. This is a valid assumption for the short term although fixed costs could change over the longer term (more than a year or two). Examples of the cost allocation methodology include allocating fuel costs to vehicle service miles and allocating operator salaries to vehicle service hours. The total costs

allocated to each variable are then divided by the total quantity (i.e., total vehicle service miles or hours) to determine a cost rate for each variable.

The allocation of costs for the 2002 GVT ***fixed-route*** operations yields the following cost equation for the existing bus operations:

GVT Fixed Route Total Cost =

$0.17 x Vehicle Service Miles

+ $25.37 x Vehicle Service Hours

+ $278,924 for Annual Fixed Costs

The allocation of costs for the 2002 GVT ***Dial-A-Ride / Paratransit*** operations yields the following cost equation for the existing bus operations:

GVT Dial-A-Ride / Paratransit Total Cost =

$0.23 x Vehicle Service Miles

+ $25.93 x Vehicle Service Hours

+ $57,743 for Annual Fixed Costs

It should be noted that using multi-factor cost models in lieu of a fully allocated hourly cost when developing service alternatives provides a more realistic picture of estimated costs. For example, if you divide the total operating cost indicated in Table IV-11 ($1,487,297) by the total number of vehicle service hours (43,160), you get a fully allocated rate cost of $34.46 per vehicle service hour. However, using this figure to estimate the cost impacts of adding a new route during the same hours and days of service currently operated would overstate the total cost, since fixed costs would not necessarily be increased. In addition, the average speed on the Route 8 Fruita service is significantly higher than the average operating speed on Route 5A Downtown due the differing roadway speeds in the areas served. As such, using a multi-factor cost model allows service planners to more accurately estimate cost impacts of service alternatives. The LSC Team will base cost estimates for service alternatives (to be discussed in a subsequent chapter) on the multi-factor costs models presented above and in Tables IV-11 and IV-12 below.

Table IV-11

GVT Fixed-Route Cost Allocation Model, 2002 Estimated

Cost Factor		Allocation		
Expense Item	**Total**	**Vehicles Service Miles**	**Vehicle Service Hours**	**Fixed**
Permanent Employees	$828,531		$828,531	
Employee Benefits	$265,200		$265,200	
Subscriptions & Memberships	$3,113			$3,113
Ads & Publications	$6,557			$6,557
Travel & Training	$16,600			$16,600
Office Supplies & Postage	$17,285			$17,285
Equip -- Oper Supplies & Maintenance	$9,180			$9,180
Fuel	$97,316	$97,316		
Parts	$166	$166		
Tires	$10,325	$10,325		
Oil, Grease & Fluids (Laidlaw est. based	$2,590	$2,590		
Heat, Power & Water	$9,130			$9,130
Telephone Expenses	$9,047			$9,047
Professional & Technical Services	$49,144			$49,144
Transportation Services	$1,726			$1,726
Insurance & Surety Bonds	$101,939			$101,939
Buildings	$52,805			$52,805
Equipment	$5,398	$2,999		$2,399
Miscellaneous	$1,245		$1,245	
Subtotal	**$1,487,297**	**$113,396**	**$1,094,977**	**$278,924**
Percent Total Expenses	100%	7.6%	73.6%	18.8%
		Veh. Serv. Miles	Veh. Serv. Hours	
2002-03 Unit Quantities		676,415	43,160	
2002-03 Per Unit Costs		$0.17	$25.37	
Capital Expenditures	**$68,226**			
TOTAL FIXED-ROUTE BUDGET	***$1,555,523***			

Source: GVT 2002 Budget.

Table IV-12

GVT Dial-A-Ride / Paratransit Cost Allocation Model, 2002 Estimated

Cost Factor		Allocation		
Expense Item	**Total**	**Vehicles Service Miles**	**Vehicle Service Hours**	**Fixed**
Permanent Employees	$169,699		$169,699	
Employee Benefits	$54,318		$54,318	
Subscriptions & Memberships	$655			$655
Ads & Publications	$1,326			$1,326
Travel & Training	$3,400			$3,400
Office Supplies & Postage	$3,540			$3,540
Equip -- Oper Supplies & Maintenance	$2,458			$2,458
Fuel	$19,932	$19,932		
Parts	$34	$34		
Tires	$2,115	$2,115		
Oil, Grease & Fluids	$530	$530		
Heat, Power & Water	$1,870			$1,870
Telephone Expenses	$1,275			$1,275
Professional & Technical Services	$10,066			$10,066
Transportation Services	$354			$354
Insurance & Surety Bonds	$20,879			$20,879
Buildings	$10,815			$10,815
Equipment	$1,106			$1,106
Miscellaneous	$255		$255	
Subtotal	**$304,627**	**$22,611**	**$224,272**	**$57,743**
Percent Total Expenses	100%	7.4%	73.6%	19.0%
2002-03 Unit Quantities		Veh. Serv. Miles 99,233	Veh. Serv. Hours 8,651	
2002-03 Per Unit Costs		$0.23	$25.93	
Capital Expenditures	**$13,974**			
TOTAL DIAL-A-RIDE BUDGET	***$318,601***			

Source: GVT 2002 Budget.

OTHER LOCAL TRANSPORTATION PROVIDERS

Care Cars

According to the last TDP Update, Care Cars is a private company, which provides health care transportation for persons of all ages as well as unrestricted service to persons who use wheelchairs. The service area includes Grand Junction, Fruita, Delta, and Montrose. Service hours vary but are generally 8:00 a.m. to 6:00 p.m. Monday through Saturday. Fares for transportation services vary. Medical trips are charged $2.00 for the first mile and $1.50 for each additional mile. The fare for the unrestricted lift service is $2.50 for the first mile and $1.75 for each additional mile. According to the last TDP Update, Care Cars is not always able to meet the demand for service.

Center for Independence

The Center for Independence is a private non-profit agency serving 13 counties. The agency provides numerous services to assist persons with disabilities. The Center provides transportation services to clients when resources allow. According to the previous TDP, transportation services are funded through federal grant programs for vocational rehabilitation and vision-impaired programs. The Center for Independence has been contacted regarding transportation issues and current services.

Colorado West Mental Health

Colorado West Mental Health is a private non-profit agency serving persons with chronic mental illnesses across western Colorado. Transportation services are provided to clients in Mesa County during both daytime and evening hours, Monday through Friday. The previous TDP reported annual one-way passenger-trips to be approximately 10,000.

Disabled American Veterans (DAV)

Disabled American Veterans (DAV) is a private non-profit agency, which offers a nationwide network of services — free of charge to all veterans and members of their families. The DAV in Grand Junction offers free, demand-response transportation services to veterans for medical appointments. All clients must be ambulatory patients, and reservations are preferred three days in advance. Transportation services are offered from 8:00 a.m. to 4:00 p.m., Monday through Friday, year-round. The DAV has nine year-round volunteer drivers and eight seasonal volunteer drivers.

The DAV operates two vehicles—a seven passenger 2001 Ford Windstar and a seven passenger 1995 Chevy Astro Van, neither of which is equipped with a wheelchair lift. The DAV is funded by the Department of Veteran Affairs General Fund. The DAV operated 48,857 vehicle-miles and 2,936 vehicle-hours in 2001. The DAV provided 3,259 annual one-way passenger-trips in 2001.

Family Health West

Family Health West is a private non-profit agency that owns and operates several retirement housing complexes. The previous TDP reported that the agency provides demand-response service on Tuesdays and Thursdays to both residents and non-residents who are seniors or disabled persons. Service is also provided to residents as part of prescheduled program activities.

According to the previous TDP, Family Health West provides transportation using four vehicles — one van, two minivans with lifts, and one sedan. The two minivans were reportedly leased from MesAbility. An estimated 12,800 one-way passenger-trips are provided annually.

Foster Grandparent Program

Foster Grandparent Program is a program sponsored by St. Mary's Hospital. The program only transports senior volunteers to and from the volunteer's home to placement locations. Volunteers are seniors working with children with special needs in Mesa County. The volunteers no longer drive their own vehicles. Services are provided five days per week, year-round. Typical hours of transportation is from 7:15 to 9:15 a.m. and 11:45 a.m. to 2:15 p.m. daily, through the use of one 6-passenger GMC Minivan reported to be in good condition. Operating expenses are covered through various donations and grants. Approximately 3,100 annual passenger-trips are provided in approximately 11,000 vehicle-miles.

Grand Junction Regional Center

The Grand Valley Regional Center is a state agency, which operates a state home with 11 dormitories and 11 group homes. The Regional Center provides transportation to elderly and disabled residents. The Regional Center does not limit the type of trips they provide. The Center provides both fixed-route and demand-responsive transportation services 24 hours per day, seven days per week, year-round. The Regional Center operates 28 vehicles and does not charge any fare for trips. Most residents are not capable of using public transportation, and therefore rely on the Center's vehicles for travel. The Grand Junction Regional Center budgeted approximately $85,000 for transportation expenses in 2002.

Hilltop Community Resources, Inc.

Hilltop Community Resources, Inc. is a private non-profit agency that provides numerous programs including residential services for persons who have suffered head injuries, juvenile shelter and detention, and senior retirement and assisted living. Hilltop Community Resources provides program-related transportation to all clients. According to the previous TDP Update, Hilltop Community Resources operates 20 demand-response vehicles to serve clients. Res-

ervations are preferred 24 hours in advance, and the agency does not charge a fare for service. Annual operating costs for 2002 were approximately $160,272, which is funded through resident fees. An estimated 35,000 trips are provided in 86,000 miles annually.

Transportation is also provided at The Atrium retirement residence. In 2000, two vehicles were used to provide service to residents for medical, shopping, and other trips as needed.

Mesa Developmental Services

Mesa Developmental Services provides a variety of services to persons with developmental disabilities. Transportation services are provided to clients for both program and personal needs. In 2001, the agency reported operating 28 vehicles serving the areas of Grand Junction and Clifton. Mesa Developmental Services also contracts out services to MesAbility, Laidlaw, and Sunshine for client needs.

An estimated 72,000 trips are provided annually, and Mesa Development Services operates approximately 250,000 vehicle service miles annually. The agency does not charge a fare for clients and has no trip purpose restrictions. The operating budget reported in 2001 was approximately $326,000 annually.

Rocky Mountain HMO Time Bank

The Rocky Mountain HMO Time Bank is a private non-profit agency that operates the Time Bank program designed to enable clients to live independently. Transportation services are provided seven days per week generally for medical, shopping, and other various needs. In 2001, the agency reported approximately 3,100 trips are served annually with an estimated 2,900 vehicle-hours. The operating budget for transportation services in 2000 was approximately $1,800 annually. Funding for transportation is from the HMO and donation.

Sunshine Taxi, Inc. (TAZCO, Inc.)

Sunshine Taxi is a private for-profit company, which provides general taxicab services as well as package delivery and tours. Service is provided in Mesa County 24 hours per day, seven days per week. Sunshine Taxi is often contracted by local agencies to provide needed transportation to clients. The Department of Human Services provides taxi vouchers for clients who cannot use GVT for one reason or another. Service is provided to clients of Collbran Job Corps, the VA Hospital, and Mesa Developmental Services, which are billed directly for the service.

Greyhound Bus Lines

Intercity transit providers typically provide a fixed-route service to serve different cities or over much longer distances. Greyhound Bus Lines provides regularly scheduled service to and from the region. Six daily departures are available to Denver; these departures serve eastern destinations. From Grand Junction, four daily departures serve western destinations.

School Districts

Laidlaw Education Services is a private transportation provider for the Mesa County Valley School District, and also provides charter services. The agency contracts with the school district to provide transportation for students to and from school and activities. Laidlaw operates both fixed-route school bus service and charter demand-response service seven days per week, year-round. The contractor employs 30 year-round full-time drivers and 150 seasonal full-time drivers to operate the 163-vehicle fleet owned by Laidlaw.

Laidlaw typically operates from 6:00 A.M. to 6:00 P.M. daily. The provider charges $35.00 per hour for charter service with a two-hour minimum. Out of

town charters are charged $492.00 per 24-hour period, with a $25.00 charge for each additional hour. Table IV-13 provides 2002 capital costs.

Table IV-13

Laidlaw Education Service Capital Requirement

Capital	Cost
Vehicles	$812,222
Facilities	$20,671
Equipment	$22,763
Total	**$855,656**

Source: Laidlaw Education Services.

Table IV-14 provides the service performance data for the agency. Table IV-15 provides current 2002 revenue information.

Table IV-14

Laidlaw Education Service Characteristics

Service Type	Annual Vehicle-Miles	Annual Vehicle-Hours	Annual Passenger-Trips*
Fixed-Route	1,728,000	6,523	90,828
ADA Services	345,750	1,300	8,655
Demand-Response	28,740	1,677	479
Other	11,972	1,155	300
Total	**2,114,462**	**10,655**	**92,472**

** Will not sum due to double counting.*

Source: Laidlaw Education Services.

Table IV-15
Laidlaw Education Service Revenue

Source	Amount
School District	$3,178,000
School District Activities	$20,671
Charter	$67,000
Contract	$44,200
Lease	$15,800
Total	**$3,325,671**

Source: Laidlaw Education Services.

SUMMARY OF TRANSIT AGENCY PERFORMANCE MEASURES

Transit agencies and providers were contacted regarding the services they provide. Agencies were asked about the type of service, operational characteristics, service areas, and vehicle fleets. This information is summarized in Table IV-16. Many of the providers within the region provide transportation free of charge for patrons. Some providers charge a nominal fee for the service.

Approximately 681,928 annual one-way trips were provided by these agencies in 2001 and 2002. Performance measures presented are based solely upon each agency's operating and administrative budgets as presented in Table IV-16.

Table IV-16
Grand Junction / Mesa County Local Transportation Provider Summary

Transportation Provider	Fares	Operating Costs	Funding Sources	Annual Pass. Trips	Annual Miles	Annual Hours
Care Cars [1]	$2.00 1st mile; $1.50 additional mile	n/a	Fares, Medicaid, Insurance	1,500	n/a	n/a
Center for Independence [1]	Donations	n/a	Federal, Donations	n/a	n/a	n/a
Colorado West Mental Health [1]	None	n/a	Federal, Donations	10,400	n/a	n/a
Disabled American Veterans	None	n/a	Insurance	3,259	48,857	2,936
Family Health West	$3.00 Round-Trip Grand Junction. $1.50 Round-Trip Fruita.	n/a	DAV	12,800	2,300	n/a
Foster Grandparents	None	$3,000	Residence fees & MesAbility	3,100	11,000	n/a
Grand Junction Regional Center	None	$85,000	Grants, Donations	n/a	n/a	n/a
Hilltop Community Resources, Inc.	None	$160,272	Program Fees	35,000	86,000	n/a
Mesa Developmental Services [1]	None	$326,000	State, County, Conations	72,000	250,000	n/a
Grand Valley Transit	$0.50 one-way fixed route	$1,953,674	FTA, OOA, Cities, Fares, Grants, Mesa County	534,010	775,648	51,811
Rocky Mountain HMO Time Bank [1]	None	$1,800		3,100	n/a	n/a
Sunshine Taxi [1]	$2.50 1st mile; $0.30 additional 1/6 mile	$612,000		85,594	638,000	n/a
Town of Collbran [1]	Sr. $3.50 Round-Trip. Recreation fares vary.	$9,300		2,300	8,600	n/a
Town of Debeque [1]	$3.00 Round-Trip	$6,000		400	3,700	n/a
Laidlaw / School District	None	$43,126		92,472	2,114,462	10,655
Total		**$3,200,172**		**855,935**	**3,938,567**	**65,402**

Note 1: Data from 2001 TDP Update.

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CHAPTER V

Transit Needs Assessment

INTRODUCTION

This chapter presents an analysis of the demand for transit services in Mesa County based upon standard estimation techniques and public commentary from residents. The transit demand identified in this chapter will be utilized in the identification of transit service alternatives and the evaluation of the various alternatives presented in subsequent chapters of this study report. Different methods are used to estimate the maximum transit trip demand in Mesa County. The following methods were used to estimate transit demand:

- Rural Transit Demand Methodology
- Transit Needs and Benefits Study
- Modal Split Demand Estimates
- Employee Transit Use Estimates
- Department of Transportation Transit Regression Model

Feedback from residents within the community also plays a critical role in the regional planning process. Public meetings throughout the region allow citizens to express their ideas and provide suggestions to the planning document.

COMMUNITY INPUT

Community input at public meetings provides an opportunity for residents to express transit needs for their area. These needs will be recorded by the LSC Team and used in the analysis of alternatives in subsequent chapters of this study report. A goal of the Preferred Plan is to meet as many of the needs possible, providing funding is available.

Public meetings were conducted on December 9, 2002 and March 5, 2003. In addition, a number of presentations were provided to the steering committee and to jurisdictions throughout the study area. Community comments and input received from citizens at these open houses, workshops, and other

regional public meetings for the Transit Element are included in subsequent chapters of this study report.

RURAL TRANSIT DEMAND METHODOLOGY

An important source of information and the most recent research regarding demand for transit services in *rural areas* and for persons who are elderly or disabled is the Transit Cooperative Research Program (TCRP) Project A-3: Rural Transit Demand Estimation Techniques. This study, completed by SG Associates, Inc. and LSC, represents the first substantial research into demand for transit service in rural areas and small communities since the early 1980s.

The TCRP Methodology is based on *permanent* population. Thus, the methodology provides a good look at transit demand for the county. Knowing this information, the LSC Team presents the transit demand for 2000 and 2025, based on previous population projections presented in Chapter II.

TCRP Methodology Background

The TCRP study documents present a series of formulas relating the number of participants in various types of programs in 185 transit agencies across the country. The TCRP analytical technique uses a logit model approach to the estimation of transit demand, similar to that commonly used in urban transportation models. This model incorporates an exponential equation, which relates the quantity of service and the demographics of the area.

This analysis procedure considers transit demand in two major categories:

- *"Program Demand"* which is generated by transit ridership to and from specific social service programs, and
- *"Non-Program Demand"* which is generated by other mobility needs of elderly persons, persons with disabilities, and the general public, including youth. Examples of non-program trips may include shopping, employment, and medical trips.

Non-Program Demand

As with any other product or service, the demand for transit services is a function of the level of supply provided. To use the TCRP methodology in identifying a feasible maximum demand, it is necessary to assume a high supply level, as measured in vehicle service miles provided per square mile per year. The high supply level is the upper-bound "density" of similar rural services provided in this country. This assessment of demand for the rural areas, therefore, could be considered to be the maximum potential ridership if a high level of rural service were made available throughout Mesa County.

For Mesa County, a reasonable maximum level of service would be to serve every portion of the county with four round-trips (eight one-way trips) daily, Monday through Friday. This equates to approximately 2,400 vehicle service miles of transit service per square mile per year. This is at the upper range of observed rural systems. However, the rural character and level of provided transit service would reduce the vehicle service miles of service to approximately 1,000 vehicle service miles per square mile per year, the lower bound. This would give a more accurate estimate of a reasonable level of service. Both the upper and lower bounds are presented.

Applying a reasonable level of service density to the population of the county, 1,000 vehicle service miles of transit service per square mile, yields the 2002 estimated *lower bound of* transit demand for the general population including youth, as well as the elderly and mobility-limited populations, as shown in Table V-1. The 2002 potential demand for the entire Mesa County for elderly transit service is 10,110 annual one-way passenger-trips; disabled demand is 2,510 annual one-way passenger-trips; and general public demand is 590 annual one-way passenger-trips. Mesa County's estimated total transit demand for 2002, using the TCRP method, is 25,830 annual one-way passenger-trips. This ridership level would be desired by the elderly, mobility-limited and general public populations if a reasonable level of transit service could be provided. Rural transit demand estimates, using the TCRP methodology, for 2010 and 2025 are provided in Tables V-2 and V-3.

Table V-1

TCRP Method of Rural Demand Estimation – 2000 Estimates

Census Tract	Area Description	Estimated Annual Passenger-Trip Demand: Elderly	Mobility Limited	Elderly + Mobility Limited	General Public	TOTAL	Estimated Daily Transit Demand: #	Regional %	Daily Demand Density (Trips per Sq. Mile per Day)
0015.02	Northwest corner of Mesa County	2,840	530	3,370	210	**6,950**	27	41.3%	0.07
0018.00	Northeast corner of Mesa County	1,970	330	2,300	100	**4,700**	18	27.9%	0.02
0019.00	South portion of county from I-70 to county line	1,950	630	2,580	20	**5,180**	20	30.8%	0.01
Rural Study Area Total		**6,760**	**1,490**	**8,250**	**330**	**16,830**	**66**	**100%**	**0.10**

Source: LSC Transportation Consultants

Table V-2

TCRP Method of Rural Demand Estimation – 2010 Estimates

Census Tract	Area Description	Estimated Annual Passenger-Trip Demand: Elderly	Mobility Limited	Elderly + Mobility Limited	General Public	**TOTAL**	Estimated Daily Transit Demand: #	Regional %	Daily Demand Density (Trips per Sq. Mile per Day)
0015.02	Northwest corner of Mesa County	3,450	650	4,100	260	**8,460**	33	41.3%	0.09
0018.00	Northeast corner of Mesa County	2,400	410	2,810	130	**5,750**	23	28.1%	0.02
0019.00	South portion of county from I-70 to county line	2,360	760	3,120	30	**6,270**	25	30.6%	0.01
Rural Study Area Total (Not Including Grand Junction, Fruita or Palisade)		**8,210**	**1,820**	**10,030**	**420**	**20,480**	**80**	**100%**	**0.12**

Source: LSC Transportation Consultants

Table V-3

TCRP Method of Rural Demand Estimation – 2025 Estimates

Census Tract	Area Description	Estimated Annual Passenger-Trip Demand					Estimated Daily Transit Demand		Daily Demand Density (Trips per Sq. Mile per Day)
		Elderly	Mobility Limited	Elderly + Mobility Limited	General Public	**TOTAL**	#	Regional %	
0015.02	Northwest corner of Mesa County	4,760	560	5,320	360	**11,000**	43	41.4%	0.11
0018.00	Northeast corner of Mesa County	3,280	380	3,660	180	**7,500**	29	28.2%	0.03
0019.00	South portion of county from I-70 to county line	3,240	790	4,030	30	**8,090**	32	30.4%	0.02
Rural Study Area Total		**11,280**	**1,730**	**13,010**	**570**	**26,590**	**104**	**100%**	**0.16**

Source: LSC Transportation Consultants

Total demand for 2025 is estimated to be 43,110 annual one-way passenger-trips for the study area. The 2002 *upper bound,* using 2,400 vehicle service miles of service per square mile, yields a total demand of approximately 33,420 annual one-way passenger-trips for the rural portion of the county.

Program Trip Demand

The methodology for forecasting demand for program-related trips involves two factors.

- Determining the number of participants in each program.
- Applying a trip rate per participant using TCRP demand methodology.

The program demand for Mesa County was calculated from data provided from various program-related agencies. The data were collected for Head Start, Developmental Services, Nursing Homes, Group Homes, Job Training, and Mental Health Services. The participant numbers were reported by individual agencies and are also available through the Regional Head Start office and the Department of Human Services. The existing program demand estimates are approximately 415,110 annual trips for Mesa County if a very high level of service could be provided. Table V-4 provides the program-related transit demand data. The majority of the need is concentrated in the urban areas, as would be expected.

Of the total trips, approximately 85 percent (354,000) are needed in the urban areas of the county.

Summary of TCRP Methodology

Combining the rural program estimates and rural non-program estimates—the total existing reasonable rural transit demand for Mesa County, using the TCRP Methodology, is approximately 86,940 annual one-way passenger-trips.

Table V-4

Mesa County Program-Related Transit Demand

Program Type	Feasible Number Participants	Annual Feasible Number Rides		
		Urban	Rural	**Total**
Development Services: Adult	179	67,000	8,280	**75,280**
Development Services: Child Welfare	748	149,120	18,430	**167,550**
Group Home	159	89,970	7,820	**97,790**
Headstart (3 - 5 years)	240	59,960	3,160	**63,120**
Job Training	12	1,440	200	**1,640**
Nursing Home	792	9,150	580	**9,730**
Total Potential Ridership		**376,640**	**38,470**	**415,110**

Note: Demand estimates based on the methodology presented in "TCRP Report 3: Workbook for Estimating Demand for Rural Passenger Transportation."

TRANSIT NEEDS AND BENEFITS STUDY (TNBS)

The Colorado Department of Transportation completed a *Transit Needs and Benefits Study* (TNBS) for the entire state in 1999. An update of the existing transit need was performed in 2000 using 1999 data, which replaced the 1996 data from the original study. Transit need estimates were developed for the entire state, for each region, and on a county-by-county basis.

The unmet need estimates in the TNBS incorporated needs related to households without transportation, seniors, persons with disabilities, and resorts. Program trips for the Mesa County area are those transportation needs associated with specific programs (such as mental health services, Head Start, Development Services programs, Senior Nutrition, or Sheltered Workshop programs) reported by the Colorado Department of Human Services.

The LSC Team updated the TNBS transit need estimates using the recently released 2000 census numbers. Table V-5 provides a summary of the needs using the 1996, 1999, and 2000 data.

Table V-5
2002 Transit Needs Summary
(TNBS Methodology)

Methodology	Rural General Public	Disabled	Program Trips	Urban Area	ANNUAL TRIPS	Annual Trips Provided	Unmet Need
TNBS Grand Junction Region	44,789	2,609	415,110	1,295,500	1,758,017	681,928	61%

Source: LSC, 2002.

Unmet Needs

As presented in Table V-5, annual transit need estimates for Mesa County were 44,789 annual one-way passenger-trips for the general public including youth and seniors, 2,609 one-way passenger-trips for persons with disabilities, and 415,110 program one-way passenger-trips. The total transit need in 2002 for Mesa County is estimated at 1,758,017 annual one-way passenger-trips. The table indicates that approximately 39 percent of the existing transit need is being met, with 61 percent of the transit need for the region unmet. The TNBS estimates that transit need in the year 2020 will be approximately 2,517,000 annual one-way passenger-trips for the entire county.

The TNBS approach used a combination of methodologies and aggregated the need for Mesa County. However, the approach used factors based on statewide characteristics and is not specific to each of the five rural and resort counties. The TNBS level of need should be used as a guideline to the level of need and as a comparison for the other methodologies.

MODAL SPLIT DEMAND ESTIMATION

The modal split demand estimation technique is based upon 2000 Census employee modal split percentages. Table V-6 provides the estimated transit demand based upon Census modal split percentages. The modal split method of

Table V-6

Modal Split Method of Demand Estimation

Census Area	Description	Population [1] 2000	Population [1] 2010	Estimated Transit Demand [2] 2000	Estimated Transit Demand [2] 2010	2010 Demand Density	% of 2010 Regional Demand
Urban Core of Mesa County							
	Fruita Census Place	6,611	8,030	116,030	140,930	23,890	82.2%
	Grand Junction Census Place	42,225	51,280	741,090	900,020	29,220	100.5%
	Palisade Census Place	2,636	3,200	46,260	56,160	51,050	175.6%
	Urban Core (Fruita, Grand Junction, Palisade)	**51,472**	**62,510**	**903,380**	**1,097,110**	**29,024**	**99.8%**
	Urban Periphery	**45,626**	**55,410**	**650,880**	**790,460**	**n/a**	**n/a**
	Total	**97,098**	**117,920**	**1,554,260**	**1,887,570**	**29,024**	
Rural Mesa County							
0015.02	Northwest corner of Mesa County	5,272	6,400	57,890	70,270	180	0.6%
0018.00	Northeast corner of Mesa County	3,112	3,780	34,170	41,500	40	0.14%
0019.00	South portion of county from I-70 to county line	4,042	4,910	44,380	53,910	30	0.10%
	Subtotal Rural Mesa County	**12,426**	**15,090**	**136,440**	**165,680**	**52**	**0.2%**
Study Area Total		**109,524**	**133,010**	**1,690,700**	**2,053,250**	**29,076**	**100%**

Note 1: 2000 data based on 2010 US Census population figures and 2025 based on LSC estimates using State of Colorado population growth projections.
Note 2: Demand estimates assume that the percentage of employees using transit is 1.37 percent in the urban area and 0.86 in the rural area.
Note 3: Demand density is measured in terms of one-way passenger-trips per square mile per year.

Source: LSC Transportation Consultants, Inc.

demand estimation shows a 2000 transit need of approximately 1,683,180 annual one-way passenger-trips if a very high level of service could be provided. Of this need, approximately 99 percent is needed within the urban core of Mesa County. This need is expected to increase to an estimated 2,044,000 one-way passenger-trips annually for the county by 2010.

POTENTIAL EMPLOYEE TRANSIT DEMAND

Table V-7 provides the estimated employee transit demand based upon the total number of employed persons in the urban core area. Demand estimates assume that the percentage of employees using transit as derived from mode split data from the Census. Total demand based upon employment for the urban core is approximately 182,270 annual transit trips in 2000. Estimated demand for 2010 is approximately 217,800 annual one-way passenger-trips. Estimated county demand in 2000 is approximately 555,290 annual one-way passenger-trips for employees.

WELFARE-TO-WORK ESTIMATES

The Department of Human Services currently contributes funding to Grand Valley Transit through Temporary Assistance for Needy Families (TANF) funds. Currently, the department contracts with GVT in the amount of approximately $400,000 for client transportation. Using the average cost per passenger-trip for GVT would equate to approximately 76,000 annual one-way passenger-trips for client job access.

Table V-7

Employee Transit Use Method of Urban Demand Estimation

Census Area	Employment [1]		Estimated Transit Demand [2]		2010 Demand Density [3]	% of 2010 Regional Demand
	2000	2010	2000	2010		
Fruita Place	2,902	3,520	17,410	21,120	3,580	9.7%
Grand Junction Place	19,892	24,160	139,740	169,720	5,510	15.0%
Palisade Place	1,261	1,530	25,120	30,480	27,709	75.3%
Urban Core Total	**24,055**	**29,210**	**182,270**	**221,320**	**36,799**	**90%**
Mesa County Total	**55,529**	**67,430**	**555,290**	**1,343,230**	**404**	

Note 1: 2000 data based on 2000 US Census population figures and 2010 based on LSC estimates using State of Colorado population growth projections.

Note 2: Demand estimates assume that the percentage of employees using transit as derived from mode split data from the Census

Note 3: Demand density is measured in terms of one-way passenger-trips per square mile per year.

Source: LSC Transportation Consultants, Inc.

DEPARTMENT OF TRANSPORTATION TRANSIT NEED REGRESSION MODEL

The United States Department of Transportation (DOT) has developed a regression model for estimating transit demand based on certain demographic categories. The model the following demographic categories to estimate transit demand:

- Total Population
- Total Number of Elderly (65 Years and Older)
- Total Number of Zero-Vehicle Households
- Minority Population (All Non-White Races)

Based upon the DOT transit need regression model, Mesa County has an estimated 2002 transit need of approximately 1,147,619 annual one-way passenger-trips if a very high level of service could be provided.

TRANSIT DEMAND SUMMARY

Various transit demand estimation techniques were used to determine Mesa County's current overall transit need and future transit need. The various methods for estimating current demand are summarized below. It should be noted that Mesa County's total need ***is not*** the sum of all these estimates; rather these techniques give a picture of the various needs, and estimations, in the region.

Method	**2002 Annual Demand**
▪ Employee Transit Need Method	555,290
▪ Modal Split Method	1,683,180
▪ TNBS	1,758,017
▪ TCRP Model	681,928
▪ DOT Regression Model	1,147619

Table V-8 provides a summary of Mesa County transit demand using the Employee Transit Need Method, Modal Split Method, and TCRP Model. This summary is based upon annualized ridership estimates for 2002. Transit demand using these methods estimates an approximate need of 1,510,420 annual one-way passenger-trips for Mesa County. It is estimated, through the various methodologies, that in 2010, transit need is likely to exceed 1,800,000 annual one-way passenger-trips.

Table V-8

Summary of Mesa County Transit Demand

URBAN ESTIMATES	Type of Trip					
	Work[1]	College[2]	Other Non-Program[3]	Total Non-Program	Program	**TOTAL**
Existing Urban Demand Estimates						
Urban Core	182,270	190,870	721,110	1,094,250	376,640	**1,470,890**
Existing Urban Ridership						
Grand Valley Transit – Urban[4]	182,100	57,670	284,090	523,860	10,150	**534,010**
Existing Urban Unmet Demand						
Urban Core	170	133,200	437,020	570,390	366,490	**936,880**
Percent of Existing Urban Demand Met						
Urban Core	99.9%	30.2%	39.4%	47.9%	2.7%	**36.3%**

RURAL ESTIMATES	Type of Trip					
	Elderly	Mobility Limited	General Public	Total Non-Program	Program	**TOTAL**
Existing Rural Demand Estimates						
Rural Mesa County	6,760	1,490	330	8,580	38,470	**47,050**
Existing Rural Ridership						
Grand Valley Transit -- Rural	0	0	0	0	0	**-**
Rural Mesa County	6,760	1,490	330	8,580	38,470	**47,050**
Percent of Existing Rural Demand Met						
Rural Mesa County	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Current Mesa County Total Demand						**1,517,940**

2010 TOTAL STUDY AREA ESTIMATES			
	Total Non-Program	Program	**TOTAL**
2010 Demand Estimates			
Urban Core	1,320,740	457,380	**1,778,120**
Rural Mesa County	10,450	46,720	**57,170**
Subtotal	1,331,190	504,100	**1,835,290**
2010 Unmet Demand If Transit Service Are Unchanged from 2000			
Urban Core	796,880	447,230	**1,244,110**
Rural Mesa County	10,450	46,720	**57,170**
Subtotal	807,330	493,950	**1,301,280**

Note 1: Based upon employee trip estimation methodology.

Note 2: Based upon survey of college student transit trip rates. Future college demand based on 2 percent annual growth in number of FTEs.

Note 3: Mode split methodology minus employee trip methodology for urban core, TCRP methodology in rural areas.

Note 4: Total ridership annualized based upon January through August 2002 operating results.

Source: LSC Transportation Consultants

CHAPTER VI

Service Alternatives

INTRODUCTION

The basis for any transit plan is the development of an effective and appropriate service strategy. The types of service provided, their schedules and routes, and the quality of service can effectively determine the success or failure of a transit organization. Based upon the service plan, capital requirements, and funding requirements, the appropriate institutional and management strategies can be determined. It should be noted that the operating cost estimates presented in this chapter are based upon the cost model presented in Table IV-11 in Chapter IV, factored up 3 percent to account for annual inflation.

SERVICE ALTERNATIVES

Status Quo

A good starting point for the evaluation of GVT service alternatives is the consideration of the impacts of the "status quo" – if current services remain unchanged over the upcoming planning period. The largest single factor that can be expected to impact the GVT system over this period is growth in population, in particular the growth in population groups most likely to use transit services. As presented in Chapter II, the population is expected continue to increase in Mesa County – at a rate far exceeding the expected population growth rate in the State of Colorado as a whole. As such, the upward trend in population growth suggests that demand for transit services can be expected to increase in the future.

The capacity of the existing GVT system to accommodate an increase in ridership, however, is limited. Particular runs during specific times of day are currently at "crush load" capacity. In particular, Route 9 experiences standing loads during the afternoon peak period, and Routes 5 and 7 periodically

encounter near-capacity loads. Thus, the system has a limited capacity to accommodate growth in demand without adding more service. Additionally, the GVT system is currently not in compliance with the Americans with Disabilities Act with regard to providing complementary paratransit service in Fruita or Palisade. In short, the ADA requires that complementary paratransit service must be offered within ¾ mile of all *fixed-route*[1] transit services. In short, operating the current service plan into the future would result in continued capacity constraint challenges on the busy routes and continued non-compliance with Federal requirements. For this reason, the status quo alternative is not considered to be a viable option.

Consolidate GVT & School District Transportation Services

As presented in Chapter IV, the Mesa County Valley School District provides student transportation in the region, using a contractor-provided fleet of 163 vehicles. Given the similar missions of the GVT and the Mesa County Valley School District transportation department – to provide passenger transportation – a reasonable service alternative is to consolidate the two transportation programs in an attempt to achieve economies of scale.

The biggest challenge in consolidating these two transportation programs is that the peak passenger periods are the same for both services. As presented in Chapter IV, the peak morning (6:45 A.M. to 7:45 A.M.) and afternoon (2:45 P.M. to 4:45 P.M.) periods of GVT ridership correspond exactly with the bell times of area schools. Not surprisingly, many of the riders on GVT fixed-route services are school-aged children, as evidenced in the on-board surveys detailed in Chapter III. Nonetheless, no excess capacity currently exists on either program's vehicles. As such, consolidation can only occur if the selected provider's fleet is expanded, or if the school bell times can be changed significantly. The first scenario is not currently feasible given existing funding

[1] It should be noted that complementary paratransit service is not required under the ADA for commuter, rural route or route deviation services.

programs and the need to procure approximately 160 buses necessary for consolidation.[2]

According to discussions with school district officials, the school board recently changed school bell times to be consistent district-wide, and the likelihood of altering these schedules is very low. The current bell times are as follows:

- Elementary Schools – 9:00 A.M. to 3:25 P.M.
- Middle Schools – 7:45 A.M. to 2:55 P.M.
- High Schools – 7:40 A.M. to 3:00 P.M.

This schedule does not allow significant "stacking" of bus runs. It should be noted that the vast majority of services are dedicated to elementary school transportation, as 105 runs are provided daily. It should also be noted that elementary school children typically do not share rides with middle or high school pupils in order to provide a safe riding environment. In general, elementary school pupils do not ride on general public buses, given the need to provide supervision and security to young children.

These issues represent significant hurdles toward implementation of this alternative. Nonetheless, two feasible options exist under this alternative: consolidation of specialized services only, and consolidation of Middle School and High School runs with general public GVT fixed-route services.

Consolidation of GVT and Pupil Specialized Transportation Services

The school district has indicated no desire to provide public transportation services in the near future. As such, this option only considers the scenario of GVT providing this service within the existing GVT service area. It should be noted that MesAbility is currently under contract with the school district to

[2] Laidlaw's existing fleet of traditional school buses are not appropriate for fixed-route services, given the lack of ADA access, relatively uncomfortable passenger amenities and livery.

provide ten specialized transportation runs per day; Laidlaw operates the remaining 28 runs.

Under this option, GVT would assume operation of all specialized runs. This would require an additional ten minibuses be procured, at a cost of $60,000 each. As presented in Table VI-1 below, this option would require operating an additional 259,310 annual vehicle service miles, based upon discussions with school district officials. The operating cost for this option would cost on the order of $570,170, based on GVT's estimated current fully allocated per vehicle service mile. It should be noted that this increase would likely require additional GVT administration and oversight staff resources, estimated at $35,000 annually. Total operating and administrative costs would therefore be on the order of $605,170. Ridership can be estimated by applying the existing paratransit passenger-trips provided per vehicle service mile, factored up 10 percent to account for economies of scale. As such, it is estimated that 8,710 additional annual one-way passenger-trips would be provided during the 175 days of service.

The advantage of this option is that specialized public transportation services would be provided by one provider. The disadvantages are that additional vehicles would need to be procured, the consolidation would likely not reduce the overall number of administrative positions between the two organizations (GVT and the school district), seasonal use of vehicles represents a relatively poor use of capital resources, and disabled pupils would be required to ride with general public paratransit riders. It should be noted that this analysis does not assume provision of aides on the buses, which is generally beyond the scope of public transit operations.

TABLE VI-1
Mesa County Transit Service Alternatives, Estimated 2004 Ridership and Cost Analysis

Alternative Option/Details	Operating Characteristics: Additional Vehicles [1]	Total Annual: Veh. Serv. Miles	Total Annual: Veh. Serv. Hours	Total Annual: Operating Days	Total Annual: Operating Cost	Ridership Impact (One-Way Trips): Daily	Ridership Impact (One-Way Trips): Annual	Annual: Farebox Revenue	Annual: Subsidy Required
Consolidate GVT & School Specialized Transportation [2]	10	259,310	N/A	175	$605,170	293	51,250	N/A	$605,170
Consolidate GVT & Middle/High School Transportation	15	164,559	10,500	175	$302,340	399	69,830	$17,460	$284,880
Extend Service Until 8:15 P.M.	0	45,811	3,060	255	$91,060	27	6,810	$1,700	$89,360
Fixed-Route Weekday Service Frequency Improvements									
Double Frequency on All Routes	11	593,469	37,868	255	$1,090,380	1,030	262,570	$65,640	$1,024,740
Double Peak Period Frequency on All Routes	11	219,803	14,025	255	$403,840	373	95,170	$23,790	$380,050
Double Frequency on Routes 5, 7 & 9, All-Day	4	215,807	13,770	255	$396,500	522	133,190	$33,300	$363,200
Double Peak-Period Frequency on Routes 5, 7 & 9	4	79,929	5,100	255	$146,850	189	48,280	$12,070	$134,780
Implement Sunday Service	0	92,445	6,175	50	$177,070	862	43,100	$10,780	$166,290
Express Service Between East and West Transfer Centers	0	8,421	0	302	$1,430	(3)	(800)	($200)	$1,630
Revise Route 5 to Serve Mesa Mall	0	33,071	0	302	$5,620	22	6,510	$1,630	$3,990
Implement Redlands Service									
Weekday and Saturday Redlands Fixed-Route Service	1	106,029	4,552	302	$136,970	40	12,170	$3,040	$133,930
Twice-Weekly Lifeline Redlands Service	1	5,082	468	104	$13,090	20	2,080	$650	$12,440
Cost-Saving Alternatives									
Eliminate Non-Productive Routes									
Eliminate Route 2 Patterson Avenue	(1)	(52,989)	(2,968)	302	($86,560)	(106)	(31,880)	($7,970)	($78,590)
Eliminate Route 3 Orchard Avenue	(1)	(45,798)	(2,968)	302	($85,340)	(126)	(37,940)	($9,490)	($75,850)
Eliminate Route 8 Fruita	(1)	(85,817)	(2,968)	302	($92,140)	(78)	(23,590)	($5,900)	($86,240)
Subtotal	*(3)*	*(184,604)*	*(8,904)*	*302*	*($264,040)*	*(310)*	*(93,410)*	*($23,360)*	*($240,680)*
Interline Route 3 and Route 8, Using One Bus	(1)	(65,807)	(2,968)	302	($88,740)	(58)	(17,410)	($4,350)	($84,390)
Eliminate Saturday Service	0	(92,445)	(6,175)	50	($177,070)	(1,164)	(58,210)	($15,140)	($161,930)
Come Into Compliance with ADA on Routes 4 & 8									
Provide Additional Paratransit Service	1	47,862	3,918	302	$110,510	5	1,370	$340	$110,170
Provide Commuter Service on Routes 4 & 8	0	(48,497)	(1,943)	302	($59,020)	(68)	(20,570)	($5,140)	($53,880)
Provide Route Deviation Service on Routes 4 & 8	0	N/A	N/A	302	N/A	(19)	(5,840)	($1,460)	$1,460

Note 1: Excluding spares, which can only be calculated for the system as a whole
Note 2: Since the school district compensates the contractor on a per mile basis, GVT's fully-allocated per mile cost is used to estimate the annual operating cost of this alternative

Source: LSC Transportation Consultants, Inc.

Consolidation of GVT and Middle/High School Pupil Transportation

Under this option, GVT would provide transportation for Middle and High School students as part of the general public fixed-route system. It should be noted that USDOT requirements dictate that exclusive pupil transportation cannot be provided using FTA Section 5307 funds. As such, this service must remain open to the general public.

It is assumed herein that the number of GVT buses operated during the peak morning and afternoon periods would need to be increased by 15 buses to reasonably replace the capacity provided by the 47- to 77-passenger school buses. Fixed-route buses appropriate for this service would cost on the order of $210,000 each. It should be noted that the existing GVT fixed-route service would not provide the same level of service that the school district currently provides, and many students would be required to walk a considerable distance to and from a GVT bus stop. In essence, this would be a "tripper" service for the existing fixed-route service.

As presented in Table VI-1, this option would require that an additional 164,559 vehicle service miles and 10,500 vehicle service hours be operated. This operating cost is derived by applying the vehicle service miles and hours by the per unit figures presented in Table IV-11 in Chapter IV. This service level equates to a requirement for an additional $302,340 in annual operating funds. The impact to annual ridership cannot be estimated at this time without further data from the school district. The consultant will continue to seek this information for incorporation in the final Transit Element report. It is assumed herein that GVT will negotiate with the school district to determine final operating and capital subsidy responsibilities should local officials desire to implement this service option.

The advantage of this option is that service for all users would be enhanced during peak morning and afternoon periods. The disadvantages are that a large capital outlay would be required to expand the GVT fleet, the level of service for Middle School and High School students would be reduced, this service would

not accommodate school charter services,[3] and the total number of administrative staff would likely not be materially reduced between the two agencies. This analysis assumes that the school district would provide the funding necessary to implement this service alternative.

Extend Service Until 8:15 P.M.

According to a review of answers provided during the recent on-board passenger survey, the greatest number of respondents stated a desire for later evening service. The current fixed-route service ends at 7:15 P.M., which is relatively early in comparison to other small urban transit systems in the region. As such, a reasonable service alternative is to provide service later into the evening.

The service day end times of other non-resort, small-urban / rural fixed-route transit providers in the region are as follows:

- 6:45 P.M. Loveland Jitterbus
- 7:00 P.M. Greeley Bus
- 9:40 P.M. Ride Glenwood Springs
- 9:45 P.M. Logan Transit District (Utah)
- 10:45 P.M. Durango Lift and Colorado Springs Transit[4]
- 2:45 A.M. Transfort[5] (Ft. Collins)

As such, a reasonable alternative is to provide one additional run on all fixed-routes and one additional hour on the paratransit service. In short, weekday GVT service would be operated until 8:15 P.M. Under this service alternative, the existing fleet of 12 buses (eleven fixed-route buses and one paratransit bus)

[3] School charter services include transportation of teams to sporting events and other school-related activities.

[4] The majority of SpringsTransit services end at 6:45 P.M., although most routes are also offered until 10:15 P.M. at a reduced service level.

[5] The majority of Transfort services end at 6:45 P.M., although two "night owl" services are offered significantly later in the evening.

would operate one additional hour each. This equates to an additional 45,811 annual vehicle service miles and 3,060 annual vehicle service hours. This would require an additional $87,750 in annual operating funds for operation of the buses. An additional $3,310 in dispatch costs is also assumed. In total, the annual operating cost of this service alternative would be $91,060.

Ridership can be estimated by applying a bell curve of existing ridership by hour to the additional evening hour of service. As such, annual ridership is anticipated to increase by 6,810 one-way passenger-trips, or 27 per day, under this service alternative. Annual farebox revenues can be estimated by applying the existing per passenger average fare of $0.26 to this ridership level, which equates to $1,770 in annual revenues. This service alternative would require an annual subsidy of $89,290.

The advantages of this alternative are that access to transit services would be increased in the region and no additional vehicles would be required. The disadvantage is the additional subsidy required.

Fixed-Route Weekday Service Frequency Improvements

According to a review of answers provided during the recent on-board passenger survey, the second greatest proportion of respondents stated a desire for more frequent fixed-route service. The current fixed-route service plan calls for hourly headways, which is typical for fixed-route services provided in small urban areas. Nonetheless, a reasonable service alternative is to evaluate service frequency improvements. As presented below, four options exist for GVT fixed-route services.

Double Frequency on All Routes

Under this service option, an additional ten vehicles (not including spare buses) would be used to double the service frequency throughout the entire service

day.[6] In short, this option would reduce the wait time between buses from every 60 minutes to every 30 minutes. As presented in Table VI-1, this option would increase annual vehicle service miles by 593,469 and vehicle service hours by 37,868. This equates to an additional annual operating cost of $1,090,380. Ridership can be estimated by applying an elasticity analysis to existing ridership. As such, this option is estimated to increase annual ridership by 262,570 one-way passenger-trips. This additional ridership would increase passenger farebox revenues by $68,270. The resulting annual subsidy would be $1,022,110.

The advantages of this service option are the convenience of the service would be greatly enhanced and the ridership would be "distributed" over a greater number of runs, thereby reducing the instances of crush-loads. The disadvantages are the additional operating and capital funding required. The additional eleven vehicles (not including additional spare vehicles) required for this option may also exceed the capacity of the existing operating facility, which would require either expanding the existing parking site or acquiring an off-site parking facility. The latter scenario could increase annual operating costs slightly due to the need to shuttle vehicles between the two sites.

Double Peak Period Frequency on All Routes

Under this option, 30-minute service would only be provided during the morning and afternoon peak periods. For the purposes of this analysis, the peak periods are defined as 6:30 A.M. to 8:30 A.M. and 2:30 P.M. to 5:00 P.M. As presented in Table VI-1, this option would increase annual vehicles service miles by 219,830 and vehicle service hours by 14,025. This increased service level would require an additional $403,840 in annual operating revenues. Ridership under this option is estimated at 95,170 one-way passenger-trips, or 373 per day. Annual farebox revenues under this option are estimated at

[6] It is assumed herein that the Route 9 "tripper bus" would be used as part of this fleet expansion.

$24,740, resulting in an annual subsidy requirement of $379,100. This option would require an additional eleven vehicles, not including spares.

The advantages of this service option are the convenience of the service would be greatly enhanced and the ridership would be "distributed" over a greater number of runs, at a lower cost than under the all-day option discussed above. One disadvantage is the additional operating and capital funding required for this service option. In addition, as presented in Table IV-4 in Chapter IV, the GVT fixed-route ridership is relatively flat – no significant peaks are experienced. Thus, the expected benefit of enhanced GVT peak period service is less than would otherwise be expected for a transit system with significant peak period ridership. In addition, operating peak period service results in a relatively poor use of capital resources, as buses would remain idle during the majority of the day. Finally, an inconsistent schedule can confuse some riders who are accustomed to a consistent schedule throughout the service day.

Double Frequency on Routes 5, 7 & 9, All-Day

Under this option, the frequency would be doubled on those routes with the highest daily ridership – Routes 5, 7 and 9 – throughout the service day. As presented in Table VI-1, this option would require an additional four buses (not including spares) operating 215,807 annual vehicle service miles and 13,770 vehicle service hours. This additional service would require an additional $396,500 in annual operating funds. Ridership under this service option is estimated at 133,190 additional one-way passenger-trips, or 522 per day. This additional ridership would generate $34,630 in annual farebox revenues. The annual subsidy requirement would therefore be $361,870.

The advantage of this alternative is that additional resources would be directed toward those routes with the highest ridership. In addition, rider confusion would be minimized, as the service level would remain consistent throughout the service day. The disadvantages are the additional operating and capital funding required.

Double Peak-Period Frequency on Routes 5, 7 & 9

Under this final service frequency improvement option, service would be doubled on Routes 5, 7 and 9 during peak morning and afternoon periods (as defined above). As presented in Table VI-1, this option would require operation of an additional 79,929 annual vehicle service miles and 5,100 vehicle service hours. This equates to an additional $146,850 operating funding requirement. Additional ridership is estimated at 42,280 one-way passenger-trips, or 189 per day. The resulting marginal annual subsidy is estimated at $134,300, based on an estimated $12,550 in annual passenger farebox revenues.

The advantage of this option is that additional service would be focused on those well-performing routes during peak ridership periods. The disadvantages are the additional operating and capital funding required, and the potential riders confusion caused by an inconsistent schedule.

Implement Sunday Service

Many respondents to the recent on-board surveys stated a desire for Sunday service. Under this service alternative, service would be provided during the same daily span of service as the current Saturday service.

The fleet would not have to be expanded to provide Sunday service, since the existing fleet would be used. This analysis assumes that 13 vehicles (11 fixed-route and 2 paratransit) would be operated over a 9.5-hour service day. This service level equates to an additional annual 92,445 vehicle service miles and 6,175 vehicle service hours. As such, the annual operating cost would be increased by $177,070.

Ridership can be estimated by applying a 50 percent “rule of thumb” ratio of Sunday to Saturday ridership experienced on small urban systems. As presented in Table VI-1, this service alternative is anticipated to increase annual ridership by approximately 42,250 one-way passenger-trips, or 845 per

Sunday. This ridership would generate $10,990 in annual farebox revenues, leaving an annual subsidy requirement of $166,080.

The primary advantage of this service alternative is that access to employment, shopping, recreational and ecclesiastical opportunities would be increased. In addition, no additional vehicles would be required. The disadvantages are the additional operating subsidy required, and GVT might encounter challenges in recruiting a sufficient number of drivers willing to work on Sundays.

Express Service Between East and West Transfer Centers

The GVT currently operates out of three transfer points: Mesa Mall, Coronado Plaza and Orchard Avenue / 12th Street. However, traveling between the Coronado Plaza and Mesa Mall transfer points requires one transfer and 55 minutes of total travel time. In order to provide enhanced service between the neighborhoods on the east and west sides of the current Grand Junction service area, a reasonable service alternative is to implement an express service that connects these three passenger facilities via North Avenue and Business Interstate 70, using the existing resources dedicated to the Route 2 Patterson Road service.

The Route 2 Patterson Road service is currently the least efficient local route within Grand Junction city limits. As presented in Table IV-7 in Chapter IV, Route 2 only achieved a farebox recovery ratio of 3.9 percent and required a subsidy per passenger-trip of $6.42. In comparison, the fixed-route system achieved an overall farebox recovery ratio of 5.9 percent and a subsidy per passenger-trip of $4.15. Fixed-route service on the east-west corridor between the Coronado Plaza and Orchard Avenue / 12th Street transfer points is somewhat redundant, since Routes 2, 3 and 9 operate along this corridor.

Under this service alternative, the resources currently dedicated to Route 2 would be used to provide express service. The bus would depart the Coronado Plaza transfer point at 10 minutes past each hour, provide limited stop service along North Avenue to the Orchard Avenue / 12th Street transfer point (arriving

at 25 minutes past each hour). The bus would then provide limited stop service along North Avenue and Business 70 to the Mesa Mall transfer point, arriving at 40 minutes past each hour. See Figure VI-1 below for details of this route. The bus would layover for five minutes at Mesa Mall, and would depart at 45 minutes past each hour.

The number of annual vehicle service hours would remain the same as the existing Route 2 service, although the per-run trip length would increase by 2.1 vehicle service miles. As such, annual operating costs would increase by $1,430. Ridership can be estimated by summing the anticipated ridership impacts to each route, assuming the following:

- 50 percent of existing Route 9 riders could benefit from limited stop express service along North Avenue, due to increased capacity and reduced travel times.

- 20 percent of existing Route 7 riders would use the express service between the Orchard Avenue / 12th Street and Mesa Mall transfer points, ("local" service in the neighborhoods between these two points would not be provided by the express route).

- 10 percent of existing Route 2 riders would use either Route 3 or 9 along the Coronado Plaza to Orchard Avenue / 12th Street corridor. This assumes that 90 percent of the existing Route 2 passenger-trips would be eliminated.

As detailed in *Forecasting Incremental Ridership Impacts from Bus Route Service Changes*,[7] reducing the in-vehicle travel time for those riders who would benefit from the new express service will increase ridership by an estimated 25.7 percent. In total, this service alternative would reduce overall annual ridership by approximately 800 one-way passenger-trips, or 3 per day. The resulting impact to the annual subsidy would be an increase of $1,640.

[7] NCTRP Project 40-2A, September 1991.

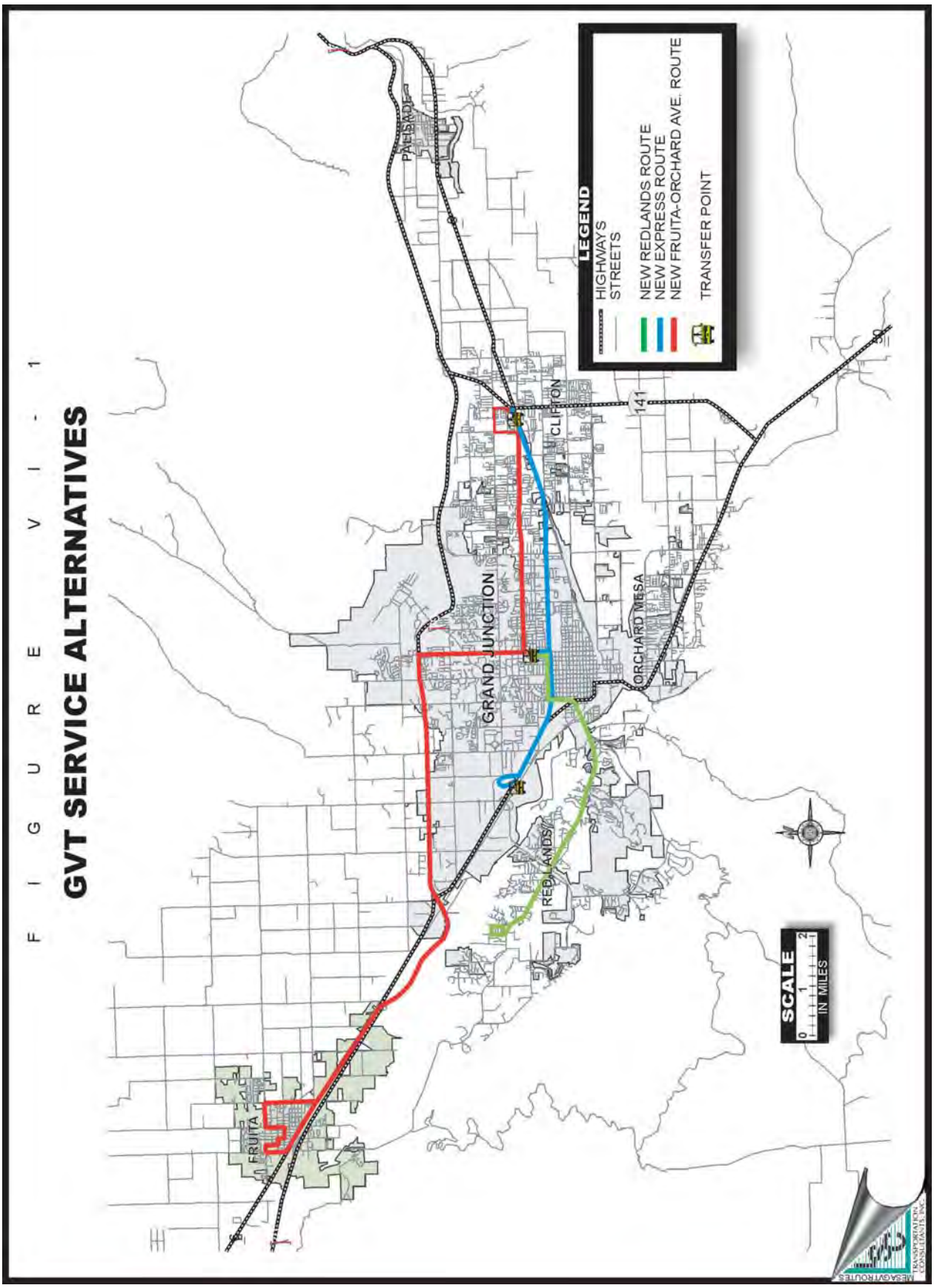
FIGURE VI-1
GVT SERVICE ALTERNATIVES
LEGEND
HIGHWAYS
STREETS
NEW REDLANDS ROUTE
NEW EXPRESS ROUTE
NEW FRUITA-ORCHARD AVE. ROUTE
TRANSFER POINT
PALISADE
CLIFTON
GRAND JUNCTION
ORCHARD MESA
REDLANDS
FRUITA
141
50
6
SCALE
0 1 2
IN MILES
MESA GVT ROUTES
TRANSPORTATION CONSULTANTS, INC.

The advantage of this service alternative is that the travel experience of those traveling along the Coronado Plaza to Orchard Avenue / 12th Street corridor would be improved. However, this advantage is outweighed by the loss of transit access to persons living along Patterson Road.

Revise Route 5 to Serve Mesa Mall

According to discussions with GVT officials, many riders have requested that the two Route 5 buses provide service to the Mesa Mall transfer point. Given the existing 15-minute layover at the GVT offices, sufficient running time exists to revise Routes 5A and 5B to serve the Mesa Mall transfer point.

Under this service alternative, 4.8 miles per run would be added to the existing route. As presented in Table VI-1, this service alternative would increase annual operating costs by $5,620. The revised route is presented in Figure VI-1 above. Ridership can be estimated by reviewing the trip patterns of survey respondents. In total, 12.8 percent of Route 5 and Route 7 riders' origin or destination was the Mesa Mall. Performing a service elasticity analysis on the existing Route 5 and 7 ridership results in an additional 6,510 one-way passenger-trips, or 22 per day. The resulting annual marginal subsidy would be $3,930.

The advantages of this service alternative are that improved access to Mesa Mall can be provided at a relatively low operating cost and no additional vehicles would be required. The disadvantage is that the layover would be eliminated.

An option under this alternative would be to operate transit service to other unserved areas, such as the Riverside area, Redlands area or the new commercial developments along Highway 6. GVT should continue to work with MesAbility staff and the public to determine if any of these other areas warrant further consideration for service.

Implement Redlands Service

Under the current service plan, no fixed-route service is provided in the Redlands area.[8] Two options exist under this alternative: traditional Weekday and Saturday fixed-route service, and twice weekly checkpoint deviation service. Both options would require operating one additional bus.

Weekday and Saturday Redlands Fixed-Route Service

Under this option, the bus would depart the Orchard Avenue / 12th Street transfer point at 45 minutes past each hour, and travel along the corridors presented in Figure VI-1. As presented in Table VI-1, this service option would operate 106,029 annual vehicle service miles and 4,552 vehicle service hours, requiring an additional $136,970 in annual operating funds.

Ridership can be estimated based upon demographics of the Redlands area and a similar neighborhood in the study area. In general, the Redlands area is characterized as having low proportions of populations with a high propensity to use public transit. As presented in Table II-2 in Chapter II, the Redlands area has the following population characteristics:

- *Population Density*: 538 persons per square mile (1,363 overall in Grand Junction).
- *Proportion of Elderly*: 21.6 percent (same as Grand Junction overall).
- *Proportion of Mobility-Limited*: 2.7 percent (3.7 percent in Grand Junction as a whole).
- *Proportion of Residents Below Poverty*: 1.8 percent (11.4 percent in Grand Junction).

- *Number of Zero-Vehicle Households*: zero (a total of 1,534 households, or 8.6 percent of total, in Grand Junction had no access to an automobile).

These proportions are roughly one-half of those within the Clifton area. Assuming that the per capita trip rate in the Redlands area would also be one-half of that in the Clifton area, an estimated 12,170 annual one-way passenger-trips would be provided under this service option, or 40 per day.[9] This additional ridership would generate $3,160 in passenger farebox revenues, leaving an annual subsidy requirement of $133,810.

The advantage of this service option is that service would be provided to an area not currently served by traditional fixed-route service. The disadvantage is the substantial operating and capital subsidy required, given the low anticipated ridership.

Twice-Weekly Lifeline Service

Under this option, one minibus would provide checkpoint deviation service in the Redlands area, two days per week. Checkpoint deviation service is operated between two fixed endpoints on a fixed schedule over a predefined route, with widely spaced bus stops. The driver will deviate up to ¾ of one mile in response to passenger requests for a pick-up or drop-off. Persons boarding and deboarding at the predetermined bus stops would be offered the same base fare as the GVT fixed-route service, although persons requesting a deviation would be charged an additional $0.50 per deviation ($0.25 for riders with a Medicaid card).

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[8] Paratransit service is provided for senior citizens and persons with transportation disabilities in the Redlands area. In addition, weekly route deviation service is provided to this area, regardless of the rider's age or disability status.

[9] Route 10 Clifton provided 41,052 annualized passenger-trips last year. If this figure is divided by the 11,856 residents living in the two census tracts in the Clifton area, the annual per capita transit trip rate is 3.5 passenger-trips.

Under this option, a total of three roundtrips would be operated per service day. Each run would operate between the Redlands neighborhood, Mesa Mall and downtown Grand Junction. As presented in Table VI-1, this option would require an additional 5,082 annual vehicle service miles and 468 vehicle service hours. The marginal annual operating cost would be $13,090.

Ridership can be estimated by applying the experience of transit systems that have replaced low-performing fixed-route services with demand response service. As detailed in *Traveler Response to Transportation System Changes*,[10] demand response services typically provide 55 percent of the daily ridership on the former fixed-route service in the first six months of service, but that daily ridership equated the fixed-route amount at the end of the first year. Since only three roundtrips would be provided each service day under this option (in comparison to 14 under the fixed-route option discussed above), this analysis assumes that only 50 percent of the daily fixed-route ridership would be achieved. As such, an estimated 2,080 one-way passenger-trips would be provided under this option. The resulting annual subsidy would be $12,410.

The greatest advantage of this option is that the annual operating subsidy would be far less than under the traditional fixed-route alternative discussed above. The disadvantages are the additional administrative oversight required for this new type of service, the potential need for driver split shifts, and a relatively poor use of capital equipment.

Cost-Saving Alternatives

The GVT service does not have a long-term dedicated local funding source for area transit services, although a short-term inter-local agreement identifies minimum allocations from Mesa County, the City of Grand Junction, the City of Fruita and the Town of Palisade. FTA Section 3037 and TANF funds provide approximately 26.8 percent of systemwide funding. However, these funding

[10] TCRP Project B-12, March 2000.

sources are discretionary in nature and might not be considered reliable, long-term funding sources. As such, it is wise to consider cost-saving service options should future financial shortfalls require reductions in service. A number of options are presented below.

Eliminate Non-Productive Routes

A review of Table IV-7 in Chapter IV indicates that Route 8 Fruita, Route 2 Patterson Road and Route 3 Orchard Avenue are the least efficient routes within the GVT fixed-route system. A reasonable option is to eliminate one or more of these relatively inefficient services. It should be noted that this analysis only considers the cost and ridership impacts of service elimination; social and political impacts are not considered herein.

As presented in Table VI-1, eliminating all three of these routes would decrease the annual subsidy requirements of the GVT system by $264,040 annually. An estimated total of 93,410 one-way passenger-trips would be eliminated if all routes were eliminated. Finally, the peak number of buses required for fixed-route services would be reduced by one bus for each route eliminated. This affects the future capital funding requirements of the GVT fixed-route program, as these buses would not need to be replaced when they reached the end of their economically useful lives.

The advantages of this option are that the least efficient routes would be eliminated and the future capital needs would be reduced, since fewer future replacement vehicles would be procured. The disadvantage is the reduced access to transit services along these corridors. It should be noted that elimination of one of the three routes operating along the Coronado Plaza to Orchard Avenue / 12th Street corridor would still allow riders to walk to a bus stop on one of the remaining routes, although the resulting service quality reduction would certainly adversely affect those along the route eliminated.

Interline Route 3 and Route 8, Using One Bus

The current service plan calls for consistent service for all GVT fixed-routes, regardless of relative transit demand in the area served. Many transit agencies provide reduced service levels in areas of relatively low demand. As such, a reasonable cost-saving option is to reduce the service levels in Fruita and along Patterson Road in Grand Junction.

Under this option, the Route 3 Orchard Avenue and Route 8 Fruita services would be provided every two hours, using one bus. The routes would be inter-lined at the Orchard Avenue / 12th Street transfer point. To allow the Fruita route to be completed within 60 minutes, the bus would no longer provide service to the Mesa Mall, instead operating on Interstate 70 between the 12th Street and Fruita interchanges. The Route 3 Orchard Avenue route would operate under the current service plan, except it would provide 120-minute headways instead of the current 60-minute headways. This scenario is presented graphically in Figure VI-1.

As presented in Table VI-1, annual vehicle service miles would be reduced by 65,807 and vehicle service hours would be reduced by 2,968. As such, annual operating costs would be reduced by $88,740. The impact to annual ridership can be estimated using an elasticity analysis on the existing ridership on these two routes. It is estimated that annual ridership would be reduced by approximately 17,410 one-way passenger-trips, or 58 per day. This ridership reduction would eliminate $4,530 in annual farebox revenues, resulting an annual subsidy reduction of $84,210.

The greatest advantages of this option are the operating and capital cost-savings. In addition, residents along these two routes would still be provided access to transit services, albeit at a lower level of service. Finally, the number of peak vehicles would be reduced. The greatest disadvantage is the lower level of service for residents along these two routes.

Eliminate Saturday Service

As presented in Table IV-5 in Chapter IV, Saturday service provides approximately 7.3 percent of total systemwide ridership. However, Saturday service requires approximately 11.0 percent of total operating costs. As such, a reasonable option is to eliminate this relatively inefficient service.

As presented in Table VI-1, this option would reduce annual operating costs by approximately $177,070. The impact to ridership on both the fixed-route and paratransit service is estimated at 38,800 annual one-way passenger-trips. Applying the average fare by service to the estimated elimination of trips by service equates to a reduction in annual farebox revenues of $10,410. The resulting subsidy reduction under this option would be $166,660.

The advantage of this cost-saving option is the reduction in annual operating subsidy requirements. The disadvantage is the reduction in access to transportation services for area residents.

Come Into Compliance with ADA on Routes 4 & 8

The Americans with Disabilities Act (ADA) requires that complementary paratransit service be offered to eligible transportation disabled persons living within ¾ of one mile of all fixed-route services. The GVT is not currently in compliance this requirement, since complementary paratransit is not offered along the Route 4 Palisade and Route 8 Fruita corridors. Three options exist to come into compliance with this ADA service requirement: increase the GVT paratransit service level, change these two rural routes to commuter service, or change these two rural routes to route deviation service. These latter two service design options are exempt from the complementary paratransit service requirements.

Provide Additional Paratransit Service

This option is relatively straightforward, but expensive. Given the relatively low ridership experienced on the existing paratransit service, the additional resources provided by one additional paratransit vehicle operated on both weekdays and Saturdays would provide sufficient capacity to meet the ADA complementary paratransit needs along the Routes 4 and 8 corridors.

Under this option, an additional 47,862 annual vehicle service miles and 3,918 vehicle service hours would be operated. This increased service level would require an additional $110,510 in annual operating funds. Ridership is estimated by applying the existing paratransit per capita trip rates in the existing service area to the existing per capita fixed-route ridership in the Palisade and Fruita areas. In total, this new service would provide an additional 1,370 annual one-way passenger-trips, or 5 passenger-trips per day. The estimated operating subsidy for this option would be $110,150, and one additional vehicle would be required.

The disadvantages of this option are the relatively large operating and capital subsidies required and the need to procure an additional vehicle. The advantage is that GVT would come into compliance with the ADA by providing eligible transportation disabled residents in the GVT service area with a higher level of paratransit service.

An option under this alternative is to eliminate the existing Dial-A-Ride program, and to use these resources to enhance the paratransit service. GVT staff is currently studying this potential service alternative.

Provide Commuter Service in Fruita and Palisade

As detailed in the ADA, commuter services are exempt from the complementary paratransit service requirement. Given the relatively low transit demand in Fruita and Palisade, a reasonable option to replace the existing fixed-route service in these two communities with commuter service.

Fixed-route service is generally defined as operating over the same route according to a reasonably consistent, pre-established schedule. Commuter service is defined as peak period service designed to meet the work or bell time schedules of employees and/or students. Under this option, only the five roundtrips that correspond to existing peak periods would be provided daily in each community. Two runs would be operated during the morning peak period, one during the mid-day, and two in the afternoon peak period on both weekdays and Saturdays. As presented in Table VI-1, this option would reduce annual vehicle service miles operated by 48,497, and annual vehicle service hours would be reduced by 1,943. The resulting impact to annual operating cost would be a reduction of $59,020.

The impact to ridership on these two routes can be estimated by factoring down the current ridership attained during those hours that service would be eliminated under this option. In total, 20,570 one-way passenger-trips would be eliminated annually, resulting in a reduction in annual farebox revenues of $5,350. The annual subsidy reduction would therefore be $53,670.

The advantages of this option are that commuters and students would still be provided service during peak periods, and the service would be provided using the existing fleet. In addition, this service revision would meet the requirements of the ADA without increasing the annual operating and capital subsidy funding requirements. The disadvantage is the reduced access to services for residents in the Fruita and Palisade areas.

Provide Route Deviation Service on Routes 4 & 8

Another service design option that would bring the GVT into compliance with ADA requirements is to replace the fixed-route services in Fruita and Palisade with route deviation service. In short, route deviation service is a hybrid of fixed-route and demand response services, wherein vehicles will deviate from the fixed-route to pick-up or drop-off passengers upon request.

Under this option, the bus stops along Routes 4 and 8 would be spaced relatively further apart than under the current service plan, and route deviations up to ¾ of one mile would be accommodated. Spacing the bus stops further apart would reduce running time along these routes, which will allow sufficient time to provide requested deviations. If it is determined that insufficient operating time is provided by reducing the number of bus stops, the "local" service currently provided in both Fruita and Palisade could be curtailed slightly to provide additional running time. These areas would still be provided with route deviation service. Deviations would be scheduled by either calling dispatch one hour in advance or requesting a deviation when boarding the bus.

To meet the requirements of the ADA, deviations must be offered to all passengers, regardless of age or disability status. The ADA allows transit providers to charge ADA eligible passengers up to twice the fixed-route fare for deviations, although the deviation fare for non-ADA eligible passengers can be set at any rate the agency determines to be appropriate. This analysis assumes that persons boarding and alighting at predetermined bus stops would be charged the base fare, ADA eligible passengers would be charged double the base fare for each deviation, and general public riders would be charge three times the base fare for deviations.

As presented in Table VI-1, this option would not increase annual operating funds. However, due to the relatively less convenient nature of the service, it is estimated that ridership will decrease by roughly 10 percent. As such, annual ridership would be reduced by approximately 5,840 one-way passenger-trips, or 19 per day. The resulting increase in annual subsidy would be $1,520.

The advantages of this option are that GVT would come into compliance with the ADA with minimal impact to the annual operating subsidy, and no additional vehicles would be required. The disadvantages are that the convenience of the service would be reduced for some Fruita and Palisade riders, additional driver and dispatcher training would likely be required, and the service revision could confuse some riders.

CHAPTER VII

Capital Alternatives

INTRODUCTION

Before transit services can be provided, a myriad of capital items are required. These capital items required for public transit service consist of vehicles, vehicle maintenance facilities, passenger amenities such as shelters and benches, and office equipment. Indeed, many capital elements will be required to maintain and potentially expand transit services over the coming years, as discussed below.

VEHICLE ALTERNATIVES

The size and types of the fleets were presented in Chapter IV. The GVT currently has a fleet of 19 fixed-route/paratransit minibuses, two low-floor fixed-route buses, and five full-size fixed-route buses. Of the 27 revenue vehicles, 25 will reach the end of their useful economic lives during the short-range Transit Element Plan period. Depending on the selection of the service alternatives presented in the previous chapter, a Capital Plan will be presented that will identify an appropriate vehicle acquisition schedule for each entity.

In Fiscal Year 2003-04 dollars, buses appropriate for fixed-route services cost approximately $210,000 each. These estimates do not assume the vehicles will use alternative fuels, though a low-floor design is assumed. The additional cost per bus for alternative fuel-powered buses is assumed to be $40,000. The smaller vehicles appropriate for demand response service cost on the order of $60,000 each, assuming a diesel-powered cutaway van with ADA-accessibility features. Given the high passenger loads on GVT fixed-route services, this analysis assumes that vehicles similar to the two recently-delivered Thomas

low-floor buses will be pursued in the future to replace existing fixed-route buses when they reach the end of their economically-useful lives.

Alternative Fuels

To reduce pollution from mobile sources, the United States Environmental Protection Agency (EPA) has adopted a variety of regulations as required by the Clean Air Act Amendments (CAAA) of 1990. In general, the requirements include:

- An in-use fleet average requirement for oxides of nitrogen (NOx) that will encourage the retirement of the oldest, dirtiest diesel buses. This requires a minimum active fleet average of 4.8 grams per brake horsepower-hour (g/bhp-hr) of NOx. This requirement is the same for either path (diesel or alternative fuel).

- A particulate matter (PM) retrofit requirement, with an emphasis on the dirtiest buses, to reduce diesel PM emissions. This requires that an after-treatment device that demonstrates 85 percent conversion efficiency be installed on engines that meet specified requirements. This requirement is the same for either path.

In terms of local requirements, staff from the Mesa County RTPO stated that no local requirements for alternative-fueled vehicles have been implemented for transit vehicles that operate in the GVT service area. Mesa County is not currently considered by the Colorado Department of Public Health and Environment to be a non-attainment area for any of the EPA's covered pollutants.

In order to develop a working concept of the different alternative fuels, their advantages and disadvantages, and their potential application for Mesa County transit providers, the following review of the six relatively common alternative fuels is presented below.

Methanol

Most of the methanol used commercially in the United States is manufactured from natural gas, making it economical to use. The tailpipe emissions of methanol are generally considered to be about half as reactive as an equal mass of emissions from gasoline or diesel fuel, promoting its use to reduce ozone in urban areas, such as Los Angeles.

By volume, methanol has slightly more than half the energy content of diesel fuel and slightly more than half the energy content of gasoline. Due to the above characteristics, a methanol engine will consume a little over twice the volume of fuel per mile of service, as compared to a diesel engine.

Transit authorities in Los Angeles and Seattle have in recent years retired their methanol programs due to the fuel's highly corrosive properties. After spending $102 million since 1989 on methanol buses, Los Angeles County transit officials declared their methanol anti-pollution program a failure. Authorities from the Metropolitan Transportation Authority (MTA) cited that the buses are prone to costly mechanical repairs. Officials of the Seattle Metro eliminated their methanol demonstration program after a trial period of five years. Test results of the program indicated that severe engine malfunctions were experienced on the buses at 60,000 and 70,000 miles, largely attributed to the corrosive nature of the fuel.

Ethanol

While not being as corrosive as methanol, the major use of ethanol is currently limited as an octane additive and oxygenate for gasoline. According to *Information Update*,[1] the cost of ethanol is almost twice as much as that of methanol, making its use limited as a motor vehicle fuel. Aside from the fuel's economic drawbacks, ethanol produces lower carbon monoxide (CO) emission

[1] Detroit Diesel Corporation, February 1992.

rates than gasoline, has a higher energy density than methanol, and has a lower toxicity than either methanol or gasoline.

Compressed Natural Gas (CNG)

The strength of CNG as an alternative fuel for transit buses is that it is generally less expensive per unit of energy than gasoline or diesel fuels, although the gap in price has closed considerably over the past two years. The fuel also has the potential to reduce NOx emissions and PM when compared to diesel. However, CNG engines still emit higher concentrations of HC and CO than recent diesel engines – two greenhouse gases that contribute to global warming.

Many people – both inside and outside the transit industry – perceive CNG as the future fuel of choice. Others see CNG as a stopgap measure that can be used to reduce vehicle emissions until other technologies (hydrogen fuel-cell or combustion-electric hybrid) are developed further. Indeed, the decision to pursue CNG comes down to the underlying goals of the agency considering alternative fuels, the local politics, the financial resources of the agency, and the commitment of decision-makers.

Historically, the weakness of CNG is its difficult storage requirements. CNG is stored in high-pressure cylinders at pressures up to 3,000 pounds per square inch. The high weight, volume, and cost of the storage tanks for CNG have been a barrier to its commercialization as an alternative fuel. The recent development of lighter aluminum tanks, however, has reduced this disadvantage to some degree.

The advantages of a CNG bus are no visible pollution and quieter operation. The problems encountered with CNG include the inconsistent quality of local CNG supplies, limited range of CNG vehicles, and continued industry concerns regarding reliability.

According to a 1996 Department of Energy report, a CNG bus costs between $35,000 to $50,000 more than a comparable diesel bus. This is due to the higher cost of the engine itself and the higher cost of the fuel tanks. In addition, a dedicated fast-fill CNG refueling facility for GVT's fleet would cost between $600,000 and $2,000,000 depending upon the ultimate capacity of the facility (economies of scale might be realized if a fueling facility could be shared with other CNG vehicle users). Additional costs would be incurred to upgrade the new maintenance facility with required safety features (as discussed below) and to provide emergency response equipment and training, although some of these features were designed into the new maintenance facility completed in 1999.

In a 1996 Department of Energy report, Pierce Transit (Tacoma, Washington) estimated that CNG engines are about 20 percent less efficient than diesel engines on a per gallon equivalency, which reduces the range of CNG buses. Typically, CNG buses smaller than 35 feet in length are unable to accommodate enough fuel tanks to operate a full urban cycle service day without refueling.

There is no consensus in the industry regarding the impact of CNG fueling on vehicle reliability. In the same 1996 Department of Energy report, Pierce Transit noted no large difference in reliability between CNG- and diesel-powered buses. The main problem they encountered in the beginning of their CNG program was difficulty with the fuel control system – a problem they note has been resolved for the most part by advances in the technology and continued training of maintenance staff. Indeed, CNG technology is still saddled somewhat with the reliability problems that surfaced in the late 1980s when it was still very much in its infancy – especially when dual-fuel technology was still the state-of-the-art. The technology truly has come a long way since then, and reliability appears much improved.

However, in a 1999 report the Contra Costa County Transit Authority (CCCTA) noted that engine manufacturers encounter CNG-related warranty claims that are between 50 percent and 250 percent higher than their diesel counterparts. This has proven to be a particular problem for agencies that are not located close to a CNG engine warranty provider. CCCTA also cited experience by BC

Transit in British Columbia, Canada. BC Transit started a two year comparison of 25 1996 New Flyer CNG-powered buses and 25 1996 New Flyer diesel-powered buses, all with Detroit Diesel engines. Results for the CNG fleet were as follows: the roadcall rate was 4½ times higher, parts and labor costs were 132 percent higher, and overall maintenance costs were 61 percent higher. Based upon this information, CCCTA has chosen to pursue "clean diesel" technology.

It should be noted that no fast-fill CNG fueling facility currently exists in Mesa County. Furthermore, the availability of maintenance staff with expertise regarding CNG engines is limited – staff trained specifically on CNG engines has proven essential in avoiding both dependability problems as well as increases in emissions.

Liquefied Natural Gas (LNG)

LNG has only recently received attention as an alternative fuel. The potential advantages of the fuel lie in its economic considerations, where the fuel's processing costs are much less than that of the other gaseous fuels. LNG also has a greater potential to reduce NOx and HC emissions when compared to diesel and gasoline fuels. Currently, the biggest obstacles facing LNG are the lack of availability and its storage and handling facility requirements.

Liquefied Petroleum Gas (LPG)

The advantages and disadvantages of LPG (commonly referred to as propane) are similar to those of natural gas. The advantage of LPG is that gasoline engines can be easily converted, due to its high heating and high-octane characteristics. LPG is also well established in its transit fleet applications. According to Alternative Transportation Fuel in the United States (R.F. Webb Corp., June 1989), approximately 350,000 LPG transit vehicles were in operation in the United States. In 1995, the Department of Transportation estimated over 750,000 LPG transit vehicles would be in operation by year 2000.

The disadvantages of the fuel are in the engine performance of transit vehicles using the fuel. According to the above citation, the conversion of a gasoline engine to LPG will usually cause a 10 to 15 percent power loss.

Hybrid Electric

An emerging vehicle propulsion technology that has recently gained national interest is hybrid electric systems. Under this arrangement, battery-powered electric motors drive the wheels; the batteries are charged using a small internal combustion engine (diesel-, gasoline- or alternative-fueled) to power an electric generator. This arrangement provides near-zero emissions, as the engine operates within a very narrow and efficient operating range.

According to a recent report in Metro Magazine, operating costs for a hybrid electric system are typically lower in comparison to conventional diesel- or CNG-powered arrangements due to greater fuel economy and reduced break wear (the batteries are also charged through regenerative breaking, which tends to slow the vehicle while it recoups energy). In addition, hybrid electric buses provide better acceleration and quieter operation than conventional internal combustion engine propulsion systems. Another benefit of hybrid electric technologies is that it does not require a large infrastructure investment that is required for CNG or LNG technologies. However, the cost of a full-size heavy-duty hybrid electric vehicle is currently between $80,000 and $100,000 greater than a comparable conventionally powered vehicle. In addition, conventional sealed-gel lead acid battery systems typically last only two to three years, and replacement units cost on the order of $10,000 to $15,000. Better battery technology currently exists that could extend battery life (i.e., nickel metal hydride), but this technology currently costs several times that of lead-acid batteries.

Hybrid electric propulsion systems are currently being tested at several large transit programs, most notably at New York City Transit. This agency has been testing 10 pre-production 40-foot hybrid electric buses since 1999, with

generally positive results. New York City Transit currently has another 325 Orion VII hybrids on order. Other agencies currently testing hybrid technologies include Sunline Transit in Thousand Palms (California), the Los Angeles County Metropolitan Transportation Authority, the Orange County Transportation Authority, Omnitrans in San Bernadino, TriMet in Portland (Oregon), King County Metro Transit in Seattle, the Southeastern Pennsylvania Transportation Authority in Philadelphia, and New Jersey Transit.

Full electric vehicles and hydrogen-powered buses are two other emerging technologies that are being tested by several transit agencies, although many experts consider these technologies to be on the leading edge of current understanding. Considerable research is still necessary regarding the life cycle costs and benefits of these technologies before they should be considered as viable options for small transit agencies.

Diesel Fuel

Diesel-fueled engines have traditionally dominated the transit vehicle marketplace with their fuel efficiency and durability. From an air quality perspective, diesel engines have very low tailpipe emissions of CO and other organic gases. The concern from an air quality perspective, however, has been the emission rates of NOx and PM.

Due to increasing environmental pressure to reduce the above emissions, the Environmental Protection Agency, working in concert with the American Public Transit Association, has developed stringent NOx and PM regulations. The final Clean Air Amendments permit the use of clean diesel in urban buses, provided that the clean diesel engines meet the PM standards imposed by the CAAA. In partial response to the 1990 CAAA amendments for cleaner burning fuels and the continued development of the previously mentioned alternative fuels, the traditional diesel fuel engine has made great strides toward evolving with a cleaner burning particulate trap and catalytic converter technology.

Since the CAAA imposed regulations, diesel engine manufacturers have been successful in lowering NOx and PM tailpipe emissions by employing in-cylinder control techniques. Similarly important is that manufacturers have maintained the fuel's economy.

Summary

As discussed above, no local requirements for alternative-fueled vehicles have been implemented in Mesa County. Due to the substantial grades on some of the existing fixed-routes, moreover, the reduction in power associated with the current CNG engines would have a negative impact on transit operations. Furthermore, many small transit agencies' experience with CNG-fueled has not been encouraging, particularly regarding the fuel-delivery problems encountered during inclement weather. The Gold Country Stage system in Nevada County, California, which has similar terrain as GVT's current service area, has experienced maintenance cost per mile figures for their fleet of nine CNG-powered buses to be similar to buses at or past their economic useful lives. Indeed, the Gold Country Stage's CNG-powered buses cost (on average) 38.5 percent more to operate than their diesel-powered buses. The Gold Country Stage is currently seeking buyers for their CNG-powered buses so that they may pursue traditional gasoline- and diesel-powered vehicles.

Barring fleet-wide conversion to alternative fuels, a number of steps can be taken to substantially reduce the air quality impacts of gasoline- and diesel-fueled transit buses. Various transit systems have been successful in reducing PM emissions through the application of modern gasoline and "clean-diesel" technology. In particular, the utilization of a low sulphur diesel fuel has proven to reduce the average annual PM emissions of a transit coach from 935 pounds to 260-300 pounds – roughly a 70 percent reduction. In addition, installation of an electronically controlled fuel injection system and specially designed transmission has dropped emission levels by 120 pounds of PM annually, for a total reduction in emissions of 87 percent. All of GVT vehicles currently use these technologies.

GVT and the GVRTC should remain open to the ideas of alternative fuels. However, each would have a greater impact on local air quality through the purchase of modern gasoline and diesel equipment that meet stringent EPA requirements, and by applying the dollars saved in maintenance costs to the provision of transit services that take auto trips off of the regional roadways.

FACILITY ALTERNATIVES

Construction of a Long-Term Operations/Maintenance Facility

The transit operations facilities currently provided by GVT as part of its operations agreement with the Mesa County RTPO has a number of shortcomings. The largest shortcoming is that many of the vehicles used for GVT public transit services are parked in a remote parking lot. This can cause operational problems when mechanical defects are discovered during the driver's vehicle inspection process: since the vehicles are stored at the operations facility, either the faulty vehicle must be shuttled to a maintenance vendor (if it can be moved) or a technician must be dispatched to the remote parking lot to repair the vehicle. This situation causes an inefficient use of staff resources. Secondly, the vehicles are parked in a low-security parking area adjacent to the operations facility. This parking area is in plain view of South Avenue, subjecting the vehicles to vandalism. In addition, operations staff cannot see the vehicles from the dispatch office, which could further compromise the security of the vehicles. Lastly, neither of these facilities is secured with long-term leases, which could cause an operational disruption if the lease is lost. To address these shortcomings, the RTPO should consider constructing a long-term operations, maintenance and administrative facility.

Under this capital alternative, a long-term operations, maintenance and administrative facility will be developed near the core of the service area. This facility would be constructed using public funds, and would either be a purpose-built new facility or conversion of an appropriately zoned building. The facility would provide adequate parts storage, meet safety requirements, and

provide necessary equipment, facilities, and room for maintenance activities. Functional areas should be located in an efficient and safe proximity to each other. The GVT system, as a small operator, should develop a facility that will accommodate multi-purpose activities rather than a facility with many areas for specialized activities, which is often the rule at medium and large transit agencies. Adequate facilities must be provided for the following functions:

- Operations employee office space.
- A driver/mechanics' room, serving as both a locker area and as a lunch room.
- A radio/dispatching area, assuming room for future AVL/real-time dispatching equipment and personnel.
- A money room, located on the bus service line.
- A multi-purpose room of 150 square feet, which would be used as a training/meeting room.
- A vehicle maintenance area, providing three general maintenance bays.
- Bulk storage space.
- Separate parts storage space (including tires).
- A tire repair area with cage.
- A separate welding shop, constructed to OSHA standards.
- A battery storage room.
- Transit vehicle parking.

- Employee and visitor vehicle parking.

- A bus service island, with a service lane including a bus washing facility. (Vehicle inspections will be done in the general maintenance bays, as opposed to a separate area.)

Ideally, the facility layout will provide for separate vehicular movements by mode (transit vehicles vs. private automobiles). Transit vehicle circulation should be in a single direction for safety and space considerations. A service lane bypass should be included to maintain efficient through-flow of transit vehicles, thus avoiding the potential bottleneck of the service line. Transit vehicle parking should be provided in a stacked configuration to conserve space, while providing for quick pullout maneuvers.

With recent changes in federal regulations regarding hazardous waste contamination, a thorough review of relevant environmental regulations is warranted prior to serious consideration of obtaining an alternative facility site. Prior to legal site acquisition proceedings, it is strongly recommended that an environmental inspection and assessment be obtained by the RTPO on any site it is seriously considering. Responsibility for cleaning up environmental contamination conveys with ownership of land. The cost of clean up is often extremely expensive; it is not uncommon for the cost of clean up to exceed the land and project costs combined.

Table VII-1 below presents probable costs for such a new facility. As presented, this project is anticipated to cost on the order of $1,731,850. Note that this cost figure assumes that County-owned land can be used at no cost to the transit program.

Transfer Point Improvements

The attractiveness, convenience, and safety provided at transfer points are key element sin both the public's perception of a transit service as well as the attractiveness of the service to the passengers. Other than the quality of the

TABLE VII-1: Mesa County
Transit Operations/ Maintenance Facility Cost Estimate
Fiscal Year 2003-04 Dollars

	Quantity		Sq. Feet	Units	Cost/ Unit	Cost
Vehicle Maintenance/ Storage/ Washing						
Mechanic Bays	4	Bays	3,200	SF	$70.00	$224,000
Washing	1	Bay	800	SF	$70.00	$56,000
Wash Equipment	1	Unit	–	EA	$80,000	$80,000
			4,000			$360,000
Operations Space						
Dispatch/Administratior	1		1,500	SF	$110.00	$165,000
Locker Room	1		200	SF	$110.00	$22,000
Restrooms	2		300	SF	$110.00	$33,000
Break/Training Room	1		500	SF	$110.00	$55,000
Mechanical Room	1		100	SF	$110.00	$11,000
Circulation	1		300	SF	$110.00	$33,000
Subtotal			2,900	SF		$319,000
Total Transit Operations Building			6,900			$679,000
Parking and Circulation [1]			68,310	SF	$8.00	$546,480
Lighting and Landscaping						$40,000
TOTAL CONSTRUCTION COST						**$1,265,480**
Soft Costs						
Design and Engineering					10%	$126,550
Site Preparation, Contingency					15%	$189,820
Furnishings and Shop Equipment						$150,000
Land Costs – Assumed to be provided at no cost						–
TOTAL PROJECT COST						**$1,731,850**

Note 1: Parking for 35 buses, 2 staff vehicles and 40 employee/guest autos, plus circulation drives.

Source: LSC Transportation Consultants, Inc.

buses, the transfer points are what both the riding and the non-riding public see and use on a day-in/day-out basis.

At present, the key GVT transfer points provide the minimum necessary to be considered adequate, but do little to improve the image of the service in the community or to attract discretionary riders. In recent years, many similar transit systems have improved transfer facilities into extensive (and expensive) staffed off-street transit centers, with capital costs in the range of several million dollars apiece.

The existing Orchard Avenue / 12th Street transfer point appears to be too small to pursue adding substantial capacity. In addition, the Coronado Plaza transfer point lacks adequate passenger amenities. As such, a reasonable alternative is to improve these facilities. Two options are presented below: replace the existing Orchard Avenue / 12th Street transfer point with a downtown transit center, and improve the amenities at the Coronado Plaza transfer point.

Construct a Long-Term Transit Center

Under this option, a new transfer center would be constructed at or near the existing Orchard Avenue / 12th Street transfer point. A transfer center should be designed to encourage and expedite the transfer to buses of users of other modes of transportation, as well as the transfer of passengers from one bus route to another.

Transfer centers should have amenities to make use of the facilities more pleasant. Amenities that may be useful at such a facility include the following:

- *Bus shelter(s) and bench(es).* Three to four shelters with benches (the number will depend on demand) should be provided at the facility for the convenience of the passengers. Shelters should be designed to provide the opportunity for protection from winds in all directions, as well as protection from strong, low-angle sun exposure near the end of the day.

- *Lighting*. The facility must be well lit, to ensure the safety and convenience of the passengers. The lighting requirements for a specific facility will depend on the layout of the facility.

- *Bicycle racks and/or bicycle lockers*. Bicycle parking and storage should be located near the bus shelter/passenger loading area.

- *Landscaping*. Landscaping will make the facility more attractive to both current and potential users. Landscaping should be placed where it will not interfere with the safety and personal security of the passengers. Generally, landscaping should be focused on the entrances to the facility and the perimeter of the site. When placing landscaping in the passenger waiting area it is important that the landscaping not interfere with the ability of the waiting passengers to see around them.

It would not currently be appropriate to provide an enclosed facility with climate controlled indoor waiting space and restrooms. While these amenities would be a benefit to the passengers, they would incur additional staffing costs by requiring on-site staffing for security reasons.

When designing an enhanced transfer center, several factors should be evaluated. Important factors to consider when designing a transfer center include the following:

- *Provision of Adequate Land Area*. In addition to providing space for passenger loading and bus bays, a transfer center must also accommodate vehicle circulation, interior space, any setbacks required by local regulation, and landscaping.

- *Vehicle Access*. Given the relatively high number of transit vehicle movements through a passenger facility over the course of the day, safe and efficient transit access to and from adjacent arterial streets is a crucial consideration. Delays to transit vehicles (such as left turn movements onto busy streets or within busy parking lots) can cause

substantial delay to the entire transit system. Vehicle travel paths must also be carefully designed to minimize conflict with pedestrians.

- *Environmental Impact*. Transit passenger facilities must also be designed to avoid or minimize any potential negative impact of their construction or operation. Any significant impacts associated with a facility will require mitigation, which can often become a large proportion of the total project cost. These potential impacts can include the following:

  - Noise (particularly with respect to nearby residential land uses)
  - Air Quality
  - Wetlands
  - Historic Properties/Parklands
  - Displacement of Existing Land Uses
  - Water Quality
  - Flooding
  - Endangered Species
  - Aesthetics
  - Safety/Security
  - Traffic
  - Parking
  - Ecologically Sensitive Areas
  - Land Use/Local Plans

For proper systemwide bus circulation, buses should be able to enter the transit center from all major street directions. The location should, if possible, facilitate left hand turns from one-way streets and right-hand turns from two-way streets for safer movement. Circulation into the site should separate automobile and bus traffic to ease access for both. When feasible, access points should be a minimum of 150 feet from the centerline of the nearest intersection to avoid traffic conflicts. Two access points located on different streets should be provided to the facility whenever possible. Vehicle and pedestrian access should be designed to minimize conflict between buses and pedestrians.

In addition to the passenger loading bays, it is often beneficial to provide at least one parking location for an out-of-service transit bus. This can allow one vehicle to be traded out for another without affecting traffic flow around the center. Parking for transit staff, and for drivers stopping for transit information, should also be considered.

Table VII-2 presents a summary of the probable costs to build a facility sufficient for up to ten vehicles at a time. These costs include approximately $700,500 for construction of the facility. It should be noted that this analysis assumes that land for this project would be donated by one of the GVT funding partners. Other costs bring the total cost to an estimated $875,630, as the table indicates. Selecting a site for a new transfer facility is beyond the scope of this study.

Implement Passenger Amenity Improvements at the Coronado Plaza Transfer Point

In light of financial realities, an expensive full transit center is not appropriate at the Coronado Plaza transfer point. However, there are a number of modest improvements that merit consideration at this site.

At a minimum, two passenger shelters and four passenger benches should be considered. In addition, paved pathways and protected landscaping would reduce the pedestrian trampling that currently occurs at this site. These improvements would expand the capacity to shelter passengers in inclement weather, and provide a more attractive environment for passengers. For both passenger convenience and security, adequate lighting should be provided at this site, including lighting within the passenger shelters. While GVT does not operate evening services, a substantial proportion of existing riders use the system during hours of darkness during the winter months. These improvements would cost on the order of $25,000.

TABLE VII-2: Mesa County Transit Center Cost Estimate
Fiscal Year 2003-04

	Quantity	Units	Unit Cost	Cost
Shelters	10	Each	$8,000	$80,000
Bus Bays & Traffic Circulation	38,500	Sq. Ft.	$8.00	$308,000
Pedestrian Platform/ Plaza/ Shelter Space	12,500	Sq. Ft.	$20.00	$250,000
Landscaping				$30,000
Bicycle Racks				$2,500
Lighting				$25,000
Building Permit, Utility Tap Fees				$5,000
TOTAL CONSTRUCTION COST				**$700,500**
Soft Costs				
Design and Engineering			10%	$70,050
Site Preparation, Contingency			15%	$105,080
Project Management			Provided by County Staff	
Land Costs – Assumed to be provided at no cost				–
TOTAL PROJECT COST				**$875,630**

Source: LSC Transportation Consultants, Inc.

PASSENGER AMENITIES

The "street furniture" provided by the transit system is a key determinant of the system's attractiveness to both passengers and community residents. Bus benches and shelters can play a large role in improving the overall image of a transit system, and in improving the convenience of transit as a travel mode. In addition, they increase the physical presence of the transit system in the community. More importantly, shelter is vital to those waiting for buses in harsh weather conditions. In addition, passengers could benefit by installing passenger amenities at major bus stops, particularly adjacent to regional shopping centers, medical facilities and social service agency facilities.

Adequate shelters and benches are particularly important in attracting ridership among the non-transit-dependent population – those that have a car

available as an alternative to the bus for their trip. Preference should be given to locations with a high proportion of elderly or disabled passengers and areas with a high number of daily boardings. Many regional transit agencies have had benches provided by advertising firms at no cost to the agency. Lighting and safety issues are equally important along major highways. With evening service, adequate lighting can be an important additional amenity and safety consideration. This could range from overhead street lighting to a low power light to illuminate the passenger waiting area.

The cost of modern glass and steel shelters averages approximately $8,000 for most areas, and appropriate transit benches range from $550 for a vinyl-clad "stretched" steel bench to $1,500 for ornate iron and wood benches. Maintenance and repair of vandalism to bus benches (with the exception of wood benches) and shelters is a very minor cost since they are designed to be very resistant to vandalism. As a result, cleaning and maintenance costs are minor.

The Mesa County RTPO has been very successful recently in partnering with a private advertising firm to provide bus stop shelters and benches at key bus stops throughout the service area (primarily in the city of Grand Junction). These shelters are provided and installed by the vendor at no cost to the RTPO, and the vendor provides a portion of the advertising revenues to the RTPO as part of the operating agreement.

BICYCLE/PEDESTRIAN FACILITIES

At one end of their trip or the other, virtually all transit passengers also travel on foot or on bicycle as part of their transit trip. A key element of a successful transit system, therefore, is a convenient system of sidewalks and bikeways serving the transit stops.

Each GVT fixed-route bus currently feature Sportworks bicycle racks, which can accommodate up to two bicycles simultaneously. Although riders have

submitted requests for additional bicycle capacity, no viable on-bus bicycle rack currently exists. Nonetheless, GVT should work with local bicycle advocacy groups to monitor the on-bus bicycle rack market to ascertain if viable units become available in the future. Some transit agencies follow a policy of providing the driver with the discretion to allow passengers to carry bicycles onboard the bus when passenger loads allow. However, GVT's high level of passenger activity would substantially limit the periods in which this would be feasible. Bringing bicycles onboard the vehicle also can increase cleaning costs (to both the vehicles as well as to other passengers), can increase the potential for accidents, and can increase the potential for conflicts GVT services

In addition, the Mesa County RTPO should continue to work with the branches of the public works and planning departments of the various jurisdictions to review construction plans and scheduling priorities for pedestrian and bicycle improvements to best coordinate with transit passengers' needs. The need for bicycle racks at bus stops with high bicycle activity is strong, and the cost of modern bus stop bicycle racks is on the order of $750 each (including installation). The cost of procuring and installing bicycle racks could be defrayed if local community groups would donate the racks and/or labor to install them.

ADVANCED PUBLIC TRANSIT SYSTEM TECHNOLOGIES

Recent advances in communication and communication technologies have impacted all segments of modern society, and have found new applications in the transit industry. These technologies have come to be known as Advanced Public Transportation Systems (APTS). For purposes of Mesa County's transit environment, there are three promising technologies within the APTS umbrella that have been developed over recent years: Automatic Vehicle Location (AVL) systems, Demand Responsive Dispatching (DRD) capabilities, and Automated Transit Information (ATI) systems.

Automatic Vehicle Location (AVL)

Originally developed in the trucking and package delivery industries, AVL has increasingly found application within transit services. Indeed, only four transit agencies in the United States used AVL technologies in 1991 and this number increased to 61 by 1999, with an additional 93 in the planning stage. AVL employs in-vehicle transponders and a central geographic mapping system using geopositioning satellites to locate, track and monitor vehicles. The central computer system automatically or manually (by the dispatcher) polls one or more vehicles. The polled vehicle transmits the longitudinal and latitudinal coordinates, time/date and other information if available (such as riders on board, etcetera) back to the central computer. The dispatcher knows the vehicle's location based on triangulation of the signals received from the global positioning satellites. A computer screen in the dispatch office displays a map indicating vehicle location, with an accuracy of plus or minus fifty feet. This map can also display direction of travel, on-time status (a different color for vehicles operating behind schedule, for example), and potentially the number of passengers on board.

Early transit AVL systems relied on electronic "signposts," consisting of monitors placed throughout a transit system that could detect and report to the center computer the passage of a specific vehicle. Between signposts, vehicle location could only be estimated based upon the schedule. This strategy proved to be cumbersome (as route changes would require modifications of the signposts), and not adequate for demand-response services. Later systems attempted to use LORAN-C radio receivers; this system, however, is often susceptible to electromagnetic interference. In recent years, however, the development of relatively low-cost Global Positioning System (GPS) technologies using satellite triangulation to identify location has largely replaced these other technologies.

The Regional Transportation District in the Denver area has recently implemented an AVL system for 833 fixed-route buses, as well as 66 supervisor vehicles, at an estimated cost of $10,400,000. The Dallas Area Rapid Transit

system is installing an AVL system for a total of 844 buses, 216 commuter coaches, 245 demand-response vans, and 300 supervisor vehicles. Similar systems have been installed in the following locations: Chicago; Baltimore; Rochester, Pennsylvania; and Portland, Oregon. A traffic signal priority system has been successfully implemented as part of Portland's AVL system.

AVL technologies open up a range of additional services and benefits:

- The Americans with Disabilities Act requires transit systems to provide voice announcements prior to major transit stops, to allow the visually impaired to more easily use transit services. Drivers, who are often more than busy coping with traffic congestion, find it difficult to consistently provide these announcements. With AVL, vehicle location and direction of travel can be used to trigger a computer processor on a transit vehicle to automatically make a synthesized announcement, and also potentially to display a message inside the vehicle.

- An important benefit in larger urban systems is the ability for drivers to trigger a silent alarm, which automatically dispatches police to a bus. The response time to criminal activity on a bus is greatly reduced.

- Pre-emption of traffic signals to allow quick passage for transit vehicles is also possible. Tying the GPS system into the traffic signal's computer can trigger an extended green indication for buses approaching a signal. This option could potentially be used for all buses, or be limited to those buses operating behind schedule or those carrying relatively high passenger loads. The ability to identify vehicle location in "real time" is critical to the success of any advanced technology transit service, particularly if deviated fixed-route service is to be provided.

- Finally, Automatic Passenger Counters (APC) record passenger activity by bus stop and time of day. The cost of this technology has decreased substantially over the past several years, equating to $1,000 to $1,200 per bus if installed at the same time the AVL system is installed.

Demand Responsive Dispatching (DRD)

DRD technologies use the computing speed of modern computers to match incoming ride requests with available vehicle capacity to most efficiently assign vehicles to serve passenger requests. This can be a very demanding computing task, as the number of potential combinations of passenger assignments to even a small fleet of vehicles can be extremely large: the computer must assess the time required under each potential assignment within a few seconds, taking into consideration the travel time impacts on passengers already aboard the vehicles, as well as the potential for transfers.

Since the demand is constantly changing with new ride requests and rides being completed, the system must readjust the optimum utilization of the fleet of vehicles continually. How the system knows to assign a ride request to a particular vehicle is based on several factors. These include vehicle location, vehicle load, vehicle destination, and caller location and destination. The system may also consider specific needs of the current passengers if the system is programmed to do so. Ride requests can be generated from a number of sources, including phone requests (either using a human operator or through a voice mail system), a "touch pad" at specific transit stops, or specialized touch pads at important trip generators (such as social service facilities or lodging properties).

A variety of software packages have been developed to allow "real-time" dispatching to varying degrees. With names such as "ParaMatch™," "EasyRides®," "MIDAS-PT," "ParaLogic," "PASS," many of these systems have been designed for demand response systems for elderly persons and persons with disabilities. GVT has experimented with the Trapeze software system, but it has not achieved the goals initially hoped it would.

Some of these dispatching programs allow data to be relayed to the driver via radio frequency communications to a liquid crystal display text screen mounted next to the dashboard, commonly called mobile data terminals (MDTs). This

data is continually updated to display the driver's next several pickup and delivery points. If Mesa County RTPO officials seek to fully activate the MDTs currently installed on GVT buses, it should ensure their current (or future new) dispatch program communicates appropriately with these units.

Automated Transit Information (ATI)

Once AVL and DRD technologies are put in place, it is a relatively straightforward process to automatically provide passengers with "real-time" information regarding transit services. Provided with vehicle location, vehicle travel speed, and the passenger's desired service point, a computer can readily estimate the number of minutes before service is actually provided. This information can be disseminated in a number of ways:

- Automated phone systems can be used to provide information. Transit passengers in the Ottawa, Ontario area, for example, can call Ottawa-Carlton Transit, punch in their bus stop number and desired route, and be provided with the next several service times at their stop. Riders can also access this information via the Internet.

- Video terminals placed in transit terminals and shopping malls are also used to provide "real time" arrival and departure times in Halifax, Nova Scotia and Broward County, Florida. A similar system is currently installed at various locations around Anaheim, California (including the Anaheim Stadium and the Hilton) providing real-time traffic congestion information. Overseas, real-time information is already widely provided in Stockholm, Sweden, and Osnabruck, Germany.

Potential APTS Applications for Mesa County

A number of factors indicate that the innovations in transit technologies have a high potential for successful application at the GVT:

- The complexity of the local transit services makes efficient connections between services very important. The availability of AVL would be a great help to dispatchers in directing efficient connections between various GVT routes. The importance of this information may well grow in the future, as increasing congestion along the transit routes reduces schedule reliability.

- With aging of the population, demand for demand response services is expected to grow substantially. AVL and MDT technology would be extremely useful in maximizing the efficiency of demand response services, particularly with regard to service to the more outlying portions of the GVT service area.

It should be noted that GVT previously attempted to incorporate APTS technologies a few years ago. This effort included DRD and AVL technologies. However, these technologies were never fully implemented (the mobile data terminals were never fully operational), and the benefits achieved are not considered to be worth the expense that was incurred. At present, experience at other similar-sized transit services indicates that the GVT's current services are near the "critical mass" at which APTS technologies can be cost-effective. However, if local decision-makers decide to again pursue these technologies, it will require a concerted effort by all stakeholders. As presented in Table VII-3 below, the cost to implement AVL (including software and a new radio communications system), APC and voice annunciators is anticipated to cost on the order of $505,200.

TABLE VII-3: Mesa County AVL Technology Cost Estimate

Fiscal Year 2003-04 Dollars

Technology	Cost Experience Range Low	High	Unit of Costs	Assumed Per Unit Cost	Current # Vehicles[1] Fixed	Demand Response	Total Cost
GPS-based AVL	$6,000	$10,000	per vehicle	$8,000	12	3	$120,000
GPS-based APC	$1,000	$1,200	per vehicle	$1,100	12	–	$13,200
GPS-based Annunciator	$3,000	$9,000	per vehicle	$6,000	12	–	$72,000
AVL Software/Communications	$250,000	$400,000	lump sum	$300,000	–	–	$300,000
					Total Estimated AVL Cost		**$505,200**

Note 1: The number of vehicles is based upon the current GVT fleet, and does not consider fleet changes required to implement any new service alternatives.

Source: LSC Transportation Consultants, Inc.

Consider On-Board Surveillance System

Several respondents to the on-board passenger survey indicated a need to address behavior problems, particularly loud and abusive language by teen-age riders. One technology that has been implemented by transit and school bus agencies across the country is the use of on-board surveillance cameras. The leading technology uses a digital recording system that can simultaneously record several cameras at once. The Logan Transit District in Logan, Utah recently implemented a system that records activity in the rear of the bus (which is particularly difficult for the driver to monitor), the entrance and exit stairways, and the driver's area. The system also includes voice recording abilities. This system cost approximately $2,000 per bus, plus approximately $2,500 for software and hardware needed at the operations base for transferring and storing the data. It is estimated that it would cost on the order of $40,500 to implement a similar system on GVT's fleet.

Recent advancements allow agencies to monitor driver actions, such as brake and throttle use, engine idling time and brake retarder use. Leading edge technologies allow agencies to monitor activity from a central base using radio frequency transmission, which is particularly useful for security purposes.

Consider Traffic Signal Priority

The provision of AVL technology opens the possibility of "traffic signal preemption" technologies that provide additional signal "green time" as buses approach traffic signals. Many transit systems operating along congested roadways have found this technology provides a substantial benefit, as buses can operate over shorter schedules and the amount of "make up time" provided in the schedules to accommodate traffic signal delays can be reduced. As a result, the capital and maintenance costs associated with the preemption system can, under specific conditions, be more than offset by operational cost savings.

Rather than always providing buses with a green signal, these systems simply extend the length of green time up to a predetermined limit as buses approach the signal. They are designed to not unduly impact overall traffic delays. Tri-Met's (Portland, Oregon) Opticom light emitter system cost approximately $1,000 per bus in 2002, plus $400 per bus for installation. This system is credited with improving on-time performance and cutting operating costs. A similar system may be beneficial for the GVT, particularly along the North Avenue and 12th Street corridors. The total cost of this alternative would be on the order of $20,400 for the County's fleet of 19 fixed-route buses.

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CHAPTER VIII

Management & Institutional Alternatives

FORM A RURAL TRANSPORTATION AUTHORITY

In April 1997, the Colorado Legislature enacted a statute allowing the formation of a Rural Transportation Authority, under Colorado Revised Statute 43-4-601. Prior to this new law, only the Denver RTD was legally enabled to establish and operate a transit district in the state. In short, this statute allows the formation of a governmental unit that can "act" like a municipality in that it can enter into contracts, administer state and federal grants, collect sales tax and other revenues, own real and personal property, issue revenue bonds, and operate a transit system. A reasonable alternative is to form a Rural Transportation Authority (RTA) in Mesa County, encompassing the current service area identified in the existing inter-local agreement between Mesa County, Fruita, Grand Junction and Palisade. Formation of an RTA is completed by written agreement

Currently, the only other established RTA is in the Roaring Fork Valley. This RTA provides transit services between Glenwood Springs and Aspen, and administers three distinct transit programs: the Roaring Fork Transit Authority (RFTA) service along Highway 82, local service in Aspen, and the local Ride Glenwood service in Glenwood Springs. In addition, the RTA oversees the rail-planning program. Funding for this RTA is very complicated, since it includes portions of three counties and several incorporated towns/cities. Each entity collects sales tax revenues according to the sales tax rate approved by its citizens, motor vehicle registration fees, and other funding sources somewhat unique to resort areas.

Transit services in the Roaring Fork Valley were initially provided through the City of Aspen. However, as more complex and regional transit services were implemented, an inter-local agreement was executed which recognized RFTA as a distinct entity. As services became even more complex and potential for rail services began to be explored, local officials worked with the state legislature to

enact enabling legislation in order to form an RTA. The RTA formation process in the Roaring Fork Valley was begun in 1998, although it was not formally completed until 2001.

Forming an RTA is very complex, will require buy-in from local elected officials and community leaders, and is a very time-consuming process. If local officials in the Mesa County area wish to form an RTA, it would be prudent to seek the counsel of the myriad experts employed by RFTA during its formation. Alternately, local officials could seek to refine the existing inter-local agreement as conditions change in the region. At a minimum, parties to the agreement should consider meeting on an annual or semi-annual basis to discuss challenges currently facing transit services administered by the Mesa County RTPO and opportunities for improving services.

IMPLEMENT PARATRANSIT SUBSCRIPTION PROGRAM

Subscription service, also commonly referred to as a "standing order," is typically provided for the convenience of demand-response riders desiring service on a regular basis for work, school, medical, grocery and similar, recurring daily or weekly trips. This program eliminates the need for passengers to call daily or weekly to schedule a trip. In addition to providing a convenience to the passenger, this strategy makes dispatching an easier process. However, it does have the potential of resulting in assigning too much of the available service capacity to regular riders with subscriptions, thereby unduly limiting the ability of occasional ridership to book trips.

The Americans with Disabilities Act (ADA) permits subscription service so long as the resulting subscription trips do not comprise more than 50 percent of the available trips within a locally defined window (typically between 60 and 120 minutes), unless non-subscription capacity exists. Although the ADA strictly prohibits waiting lists for individual ride requests, waiting lists to put a rider in the subscription program are expressly permitted. The ADA also expressly prohibits a pattern of trip denials to ADA-eligible persons – whether subscription riders or not.

The greatest advantage of subscription service is that trip planning is easier for both the operations scheduler and the subscription rider. In addition, subscription service tends to increase the productivity of the GVT paratransit service program since schedulers can better group rides together. To a lesser degree, the driver and scheduler can better "learn" the special travel needs of the subscription rider and make respective accommodations. The greatest disadvantage of subscription service is that it can lead to a greater number of turndowns and individual trip denials during the peak scheduling periods; a pattern of ADA trip denials is strictly prohibited by the ADA.

The manner in which transit agencies manage their subscription program varies, as evidenced by the following examples:

- Blacksburg Transit (Virginia) allows up to 50 percent of subscription trips within a one-hour window, and permanent schedules must be re-evaluated at least once per year so that all passengers will have an equal opportunity for busy time slots. Passengers wishing to change a subscription must give two weeks notice to the Paratransit office. Any changes in a passengers' schedule (i.e., vacation or break), must be called into the Paratransit office at least two weeks in advance to allow other passengers to schedule trips in those time slots. No trips are cancelled automatically due to weather or school closings; passengers are responsible for calling the office to ensure each cancellation. Passengers cancelling one-third (33 percent) or more of their subscription trips in one month may lose their time slot.

- Clark County (Nevada) also allows up to 50 percent of subscription trips within a one-hour window. Subscription service is defined as similar trips over an extended period of time for trips, which are made at least three times per week for a minimum period of six months – all trips departing at the same time and going to or from the same address. New subscription service requests are accommodated when the new request fits into the subscription scheduling. Changes in current subscription

reservations, including such changes as address and time, will be treated as a new subscription request.

- DART (Dallas, Texas) limits subscription trips for riders traveling to the same place at the same time at least three times a week for a minimum period of 90 days. DART reserves the right to restrict and/or prioritize subscription trips to maintain a maximum level of 50 percent, when there is no excess demand capacity available. DART terminates any subscription service to anyone who cancels 50 percent or more of the time during any 30-day period, or if there is a consistent pattern of cancellations of any part of a subscription. New subscription service requests and changes to existing subscriptions will be accepted beginning the 1st Monday of each month for five working days (excluding holidays), from 9:00 A.M. until 3:00 P.M. only.

- Metro ACCESS (Seattle, Washington) scheduled over 430,000 subscription trips a year in King County in Fiscal Year 2000-01, which accounted for 43 percent of the total number of ACCESS passenger trips. However, almost one out of four of these scheduled trips were not used because the person did not call in advance to cancel the ride. This equated to over 100,000 trips a year that went unused and might have meant a trip denial or refusal for another potential rider. As such, ACCESS recently implemented a policy that states if a rider cancels over half of their subscription trips in a month, they could lose that scheduled status and have to start requesting one trip at a time.

- Redding Area Bus Authority (California) provides subscription service in Shasta County. A review of June 2000 demand response driver trip sheets indicated that 21 percent of all trip windows had subscription rates equal to or greater than 50 percent. A few daily windows were particularly high – the 10:30 A.M. window had rates higher than 50 percent in 19 out of 22 weekdays, and the 8:30 A.M. window had rates higher than 50 percent in 16 out of 22 weekdays. Additionally, on six occasions all trips provided within the respective window were

subscription trips. Nonetheless, no trip denials were recorded during the fiscal year and operations staff desired that the program continue.

While these examples provide useful information regarding existing subscription programs, an extensive review of the paratransit literature did not yield any empirical case studies that detail the effects of implementing a subscription service in a transit program that did not already have one.

It is reasonable to consider amending the existing GVT paratransit service dispatch program. Participants who cancel more than 50 percent of their scheduled trips within a calendar month or who violate a locally-adopted no-show policy (i.e., three no-shows in a six-month period or 8 percent of monthly trips) would be required to re-apply to the program. The GVT would develop a "Subscription Service Application" form that would include the following information:

- the passenger's name,
- the passenger's ADA eligibility status,
- the passenger's special needs (if any),
- the desired departure times for both the origin and return trip,
- the desired days of the week for service,
- duration of the service request, and
- telephone number(s) dispatchers can call in case of a scheduling difficulty.

As allowed under the ADA, GVT would establish a waiting list for interested participants. The GVT would need to amend its paratransit service policy to include the details of this program.

Based upon the Consultant's experience in other transit systems providing subscription service, the hourly productivity of subscription service is estimated to be 5 percent greater than those systems that do not offer subscription service. Assuming from the review of trip logs that 50 percent of existing individual trips "convert" to subscription trips, this indicates that overall GVT paratransit service productivity would increase by roughly 2.5 percent. Over the course of a year, therefore, total weekday paratransit ridership would increase by approximately 90 annual one-way passenger-trips. No additional vehicles would be necessary under this alternative, nor would there be an increase in operating costs.

MARKETING PROGRAM

Marketing in its broadest context should be viewed as a management philosophy focusing on identifying and satisfying customers' wants and needs. The basic premises of successful marketing are providing the right product (or service), offering it at the right price, and adequately promoting or communicating the existence and appropriateness of the product or service to potential customers. Unfortunately, for too many persons the word "marketing" is associated only with the advertising and promotional efforts that accompany "selling" the product or service to a customer. Instead, such promotional efforts are only a part of an overall marketing process. Without a properly designed and developed product or service offered at the right price, the expenditure of promotional monies is often ill advised.

Obviously, the marketing program must fit within budgetary limitations of any organization. According to the American Public Transit Association, transit providers typically budget between 0.75 and 3.0 percent of their gross budget on marketing promotions (excluding salaries), with the majority around 2.0 percent. Although this is slightly less than most private sector businesses, public sector organizations can rely more heavily on media support for their public relations programs. In Fiscal Year 2001-02, the GVT spent $6,560 for

Ads and Publications, which represents approximately 0.4 percent of the operating budget.

Improve Service Quality

A key precept of marketing is to provide a quality "product." In the case of public transit, a reputation of providing quality service both encourages increased ridership and increases public support for transit; both tax-based funding and increased fares become more acceptable when service quality is high. A key "marketing" effort, therefore, is to begin other measures discussed in this document to improve service quality, including the need for enhanced passenger amenities and replacement of aging vehicles. Solving this problem – and subsequently changing the public perception of service quality through a marketing program – is undoubtedly the most important marketing strategy available to Mesa County transit providers. According to discussions with Mesa County officials and the results of the recent on-board passenger survey, area residents have stated their desire to improve transit services, both in terms of expanded levels of services and reliability. See the discussion under the *Service Alternatives* chapter for details on the anticipated costs and benefits of improved service.

It should be noted that any improvements GVT can make in washing buses on a regular basis will greatly improve the image of public transit in the region. It is generally accepted in the industry that the public perceives a clean bus as a safe bus. Many agencies attempt to wash the exterior and sweep the interior of each bus used in service on a daily basis. In addition, many agencies ensure that each bus is "detailed" at least weekly or as needed to clean up after a passenger incident. A vehicle "detailing" generally includes washing the interior windows, wiping down the walls and mopping the floors.

Improved Bus Schedule

GVT services are detailed in the *GVT System Maps & Timetables*. This is a 28-page, 7" by 8½" four-color handbook, using standard 20-lb. legal paper (folded

in half). The handbook is reasonably well laid-out and informative. However, the maps are not to scale and the print resolution is relatively low. In addition, these media are not available in alternative accessible formats (Braille, cassette or large-type). Finally, the system map does not include the route numbers (only the route colors). One suggested change is to upgrade the quality of the map, and to work with regional independent living centers (such as the Center for Independence) to develop these media in alternative formats.

Evaluation of Marketing Efforts

The most essential, and most often overlooked, element of a marketing plan is an evaluation effort. Evaluation should be performed in terms of the stated marketing objectives. This process should provide the data and procedures by which the success of the marketing program can be determined. In addition to statistical data (such as ridership) collected over the year, this should include a survey of the general public establishing the level of public awareness and image regarding the service. This evaluation process is crucial, as it allows future objectives, strategies and tactics to be refined.

Improved Internet Website

The GVT currently maintains a website that provides an overview of current services and contact information. The greatest shortcoming of the website is the lack of an easily printed map/schedule. GVT could consider developing a link to an Acrobat Reader portable document file version of the map/schedule information with a Macromedia Flash feature, which will facilitate zooming to a particular area on the map, as well as printing by website users.[1] The Modesto Area Express website provides a good example of this feature.[2]

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[1] These products are used for illustrative purposes only. If Mesa County officials select this alternative for implementation, it should investigate products that are appropriate for GVT's needs.

[2] See http://www.modestoareaexpress.com/system_maps.htm for details.

SERVICE MONITORING

The need to minimize costs and maximize the efficiency of the service requires that sound business practices be followed in a transit service organization. Just as one would not run a retail store without knowing exactly what items are selling, it is imprudent to operate transit service without knowing which routes and which runs are attracting ridership. Similarly, the quality of the service provided must be closely monitored.

Mesa County's contractor does a relatively good job of collecting and reporting service data in its monthly report, as required in the operating contract. The RTPO executive director reviews these reports monthly, and the contractor's general manager presents the information to transit advisory board. However, the following periodic and on-going data categories would be helpful in assessing service quality and assist in future service planning:

Potential Additional On-Going/Monthly Reporting Items

- *On-Time Performance* – Comprehensive records of on-time performance are useful in determining proper scheduling and ensuring quality service. At a minimum, road supervisors should be required to do a standardized observance of on-time performance as part of their service checks. This data should be entered into spreadsheets to allow tracking. In addition, on-time performance surveys should be conducted at least twice per year, whereby drivers radio in their arrival and departure times at major stops.

- *Paratransit Trip Refusals and Denials* – This information is not currently being reported in the monthly reports. It is worthwhile to assess this information, particularly if a pattern of ADA trip denials begins to occur (trip denials are forbidden under the ADA). The contractor should be required to report the total number of trip denials and trip refusals by passenger category (ADA, non-ADA elderly/disabled, and general public). If a pattern of ADA trip denials begins to emerge, Mesa County can take

steps to resolve the problem with such measures as adding additional service or increasing the efficiency of existing services.

- *Other Reporting Requirements* – Two other performance measures are not included in the monthly reports, as listed below:

  - Preventable vehicle accidents per 100,000 miles traveled.
  - Passenger Injuries Per 100,000 miles traveled.

Potential Periodic Reporting Items

- *Annual Passenger Survey* – Onboard surveys are a vital source of planning information regarding the ridership and the purpose of their transit trip. In addition, surveys are the single best way to gain "feedback" regarding the service. Funding for annual onboard surveys should be a priority. Questions that should be addressed in the annual passenger survey include the following:

  - Day and date that the survey is completed,
  - Time at which the survey is completed,
  - Route that the passenger is traveling,
  - Passenger gender,
  - Passenger age (0-14, 15-18, 19-24, 25-44, 45-59, 60 and above),
  - Whether the passenger is disabled, and if so, if the passenger uses a wheelchair,
  - Residency status,

- Origin of trip (major intersection near trip origin) and trip destination (major intersection near trip destination),

- Purpose of trip, typically categorized as work, shopping, recreational, social, educational or other,

- Rating of the transit service (poor, fair, good, very good, excellent), and

- Suggestions for improvements in transit service.

- *Boarding and Alighting Counts* – It is worthwhile, on at least an annual or biannual basis, to conduct a daylong count for boarding and alighting by stop for each of the services operated. To some degree, the contractor collects this information during conduct of the random National Transit Database surveys. However, this data does not provide a comprehensive picture of passenger activity. Given the high passenger loads during peak periods on the various services, it will be necessary to use office staff or temporary labor to ride each of the buses and conduct the survey. There are a number of useful pieces of information that can be gleaned from a boarding and alighting count:

  - Identify the most important stops;

  - Rank bus stops for potential passenger amenities, such as shelters or benches; and

  - Identify the section along the route where the maximum load occurs. This information is very important in identifying the appropriate vehicle size for the service, as well as to track the service quality issues, such as passenger overcrowding.

EDUCATION PROGRAM FOR INSTITUTIONAL USERS OF THE PARATRANSIT SERVICE

Another means of improving service quality of the GVT paratransit service is a program to educate institutional users (such as social service agencies and medical offices) with regard to the requirements and limitations of the program. Specifically, institutions, passengers, and the program could benefit if greater knowledge is available regarding factors such as the following:

- The availability of capacity on the service in various times of the day. The ability of institutions to take advantage of relatively "slack" periods of the day in scheduling their client's trips can reduce frustration with the service, and can improve the overall productivity of service by providing more even demand for service.

- Reservation procedures and passenger eligibility. Providing "official" information regarding service policies will minimize the confusion generated by "word of mouth" information.

- The impact that last-minute changes in pickup times has on the system. A greater understanding of the program's difficulty in rescheduling return trips from medical appointments, in particular, would encourage more timely completion of paratransit passenger's appointments.

- The costs associated with paratransit service, and the financial limitations of the program. This information would foster an improved understanding of the abilities and limitations of the program.

To some degree, Mesa County and GVT are already undertaking this type of effort. Indeed, each organization has a good working relationship with the various social service agencies in the region, and in some cases have negotiated mutually beneficial service contracts. Nonetheless, at a minimum, written information should be developed and distributed to major paratransit trip

destinations. Preferably, Mesa County and GVT staff would make presentations at social service agency staff meetings and to professional organizations.

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CHAPTER IX

Financial Alternatives

The crux of any issue regarding the provision of public service is the matter of funding. Provision of a sustainable, permanent funding source has proven to be the single greatest determinant in the success or failure of transit service.

A wide number of potential transit funding sources are available. The following discussion provides an overview of these programs. This discussion will be developed in greater detail as analysis of operating and capital alternatives yield estimates of total future funding requirements.

FEDERAL TRANSIT FUNDING SOURCES

Over the last few years, the Intermodal Surface Transportation Efficiency Act (ISTEA) and subsequent Transportation Equity Act of the 21st Century (TEA-21) laws have substantially increased the Federal government's transit funding levels for smaller urban areas. In addition, changes in program requirements have provided increased flexibility in the use of Federal funds.

FTA Section 5307 Urbanized Area Formula Program

A mainstay of transit funding for smaller cities across the country is the Federal Transit Administration's Urbanized Area Formula Program 5307. These funds are provided to urbanized areas (as identified by the Census Bureau) with a population of 50,000 or more, and are for use throughout the urbanized area. For small-urbanized areas with population between 50,000 and 200,000, these funds can be used for operating assistance, at a 50 percent federal/50 percent local ratio. In addition, these funds can be used for capital procurement and associated capital maintenance on an 80 percent federal/20 percent local ratio. In FTA Fiscal Year 2001-02 (October 1, 2001 through September 30, 2002), a total of $3,207,052,091 was available nationwide, of which $658,293 was apportioned to the Grand Junction Urbanized Area. Preliminary estimates by

FTA Region 8 staff indicate that the Grand Junction Urbanized Area apportionment for Fiscal Year 2002-03 will be on the order of $864,877.

FTA Section 5309 Capital Program Funds

These grants are split into three categories: New Starts, Fixed Guideway Modernization, and Bus and Bus Facilities. Total FTA Section 5309 funding nationwide increased from a Fiscal Year 1997-98 level of $1.9 billion to a Fiscal Year 2001-02 apportionment of $2.8 billion.

In Fiscal Year 2001-02, $613,751,658 was available nationally for bus and bus facilities projects. Of this total, $7,672,725 was earmarked for projects in Colorado. Competition for these funds is extremely intense, and all funds have been earmarked directly by Congress over the past several years. Thus, if Mesa County officials decide to pursue these funds, a concerted lobbying campaign will need to be undertaken to gain support of the local Congressional delegation. It should be noted that in recent years the transit agencies in Colorado have submitted requests for projects through a statewide coalition; the Mesa County RTPO is a member of this coalition.

FTA Section 5310 Elderly and Persons with Disabilities Program Funds

FTA funds are also potentially available through the Section 5310 Elderly and Persons with Disabilities Program (largely vehicles), which is administered by CDOT. Until recently, recipients of Section 5310 funding were restricted to non-profit organizations; with passage of ISTEA, however, local governmental jurisdictions also became eligible for funding. FTA Fiscal Year 2001-02 apportionments totaled $84,930,249 nationwide ($994,098 in Colorado). Preliminary estimates by FTA Region 8 staff indicate that CDOT's Section 5310 apportionment for Fiscal Year 2002-03 will be on the order of $1,115,251. The Mesa County RTPO has applied for these funds in the past, but it has never been successful in attaining these funds.

FTA Section 5311 Nonurbanized Area Formula Program Funds

Federal transit funding for rural areas, such as service within Mesa County but outside the Grand Junction Urbanized Area, is currently provided through the

FTA Section 5311 (formerly Section 18) program for non-urbanized areas. A 20 percent local match is required for capital projects and a 50 percent match for operating expenditures. Nationwide, Section 5311 funds totaled $27,911,737 in FTA Fiscal Year 2001-02 ($2,252,560 in Colorado). These funds, administered by CDOT, are allocated on a discretionary basis, and are typically used for capital purposes. These funds are available for a maximum of three years, after which they are reverted back to CDOT if unused. The funds must be used for public transportation – they cannot be used exclusively for transportation for disabled or elderly persons. Preliminary estimates by FTA Region 8 staff indicate that CDOT's Section 5311 apportionment for Fiscal Year 2002-03 will be on the order of $2,791,089.

FTA Job Access and Reverse Commute Program Funds

The Job Access and Reverse Commute (JARC) grant program assists states and localities in developing new or expanded transportation services that connect welfare recipients and other low-income persons to jobs and other employment related services. Job Access projects are targeted at developing new or expanded transportation services such as shuttles, vanpools, new bus routes, connector services to mass transit, and guaranteed ride home programs for welfare recipients and low-income persons. Reverse Commute projects provide transportation services to suburban employment centers from urban, rural and other suburban locations for all populations. Criteria for evaluating grant applications for JARC grants include:

- Coordinated human services/transportation planning process involving state or local agencies that administer the Temporary Aid to Needy Families (TANF) and Welfare-to-Work (WtW) programs, the community to be served, and other area stakeholders;

- Unmet need for additional services and extent to which the service will meet that need;

- Project financing, including sustainability of funding and financial commitments from human service providers and existing transportation providers; and

- Other factors that may be taken into account include the use of innovative approaches, schedule for project implementation and geographic distribution.

The JARC grant program is intended to establish a coordinated regional approach to job access challenges. All projects funded under this program must be the result of a collaborative planning process that includes states and metropolitan planning organizations, transportation providers, agencies administering TANF and Welfare to Work funds, human services agencies, public housing, child care organizations, employers, states and affected communities and other stakeholders. The program is expected to leverage other funds that are eligible to be expended for transportation and encourage a coordinated approach to transportation services.

In urbanized areas with a population of 200,000 or more, Metropolitan Planning Organizations select the applicant(s). In urbanized areas with a population under 200,000 and in non-urbanized, rural, states select the applicant(s).

Funding for JARC grants is authorized at $150 million annually beginning in FTA Fiscal Year 1999-2000, including up to $10 million for Reverse Commute Grants, although only $125 million was apportioned nationally in FTA Fiscal Year 2001-02. A 50 percent local match is required, although other Federal funds can be used as part of the local match. Mesa County received $115,617 in Job Access funds in Fiscal Year 2001-02.

Congestion Mitigation and Air Quality Improvement (CMAQ)

Another source of funding for many transit services across the country has been provided by the Congestion Mitigation and Air Quality Improvement program, first authorized in ISTEA and now re-authorized through TEA-21. This funding is available to metropolitan areas that are not in compliance with federal air quality standards regarding ozone or carbon monoxide. If Mesa County is designated as a non-attainment area in the future, these funds could be accessed.

LOCAL TRANSIT FUNDING SOURCES

Fare Increase

Sooner or later, inflation requires all transit operators to consider an increase in the adult base one-way fare. Generally, all other fare categories (e.g., elderly, disabled, child, or student) are determined based on the adult base fare. The question is a hard one for the transit operator because, of course, an increase in fares can be expected to lead to a decrease in ridership.

An estimate of the expected ridership decrease can be developed using, for example, fare elasticity measures. The effects of the expected increase in fare revenues can then be balanced against the effects of the expected decrease in ridership to determine if the overall impact of the proposed fare increase is likely to be positive or negative.

Currently, Grand Valley Transit (GVT) has a base adult fare of $0.50. To consider how this fare compares with other systems, a peer comparison was conducted of current fare levels at seven existing non-resort Colorado fixed-route transit systems. As shown in Table V-1 below, these other systems have base adult fares ranging from $1.00 to $1.25, with an average of $1.03. Thus, GVT's base fare is currently lower than the peer systems analyzed. It should be noted that GVT's farebox recovery ratio was only 5.9 percent between January and August 2002. According to Fiscal Year 1999-2000 National Transit Database information, the farebox recovery ratio of the transit agencies presented in Table IX-1 below ranged from a low of 13.3 percent to a high of 23.1 percent. The average of the seven other systems was 18.6 percent. In light of this fact, a base fare increase to $1.00 should be considered a viable alternative.

To determine what effects an increase in the pass price would have on ridership and farebox revenues, a review of fare elasticities is warranted. A fare elasticity of -0.4 generally indicates a 1.0 percent fare increase would result in a 0.4 percent decrease in transit ridership. According to *Traveler Response to*

Transportation System Changes, Interim Handbook,[1] fare elasticities in the U.S. and Europe range between -0.1 and -0.6. Given the relatively high transit dependence in Mesa County, a figure of -0.45 is appropriate. Multiplying this fare elasticity by the percent increase in the base fare would result in an annual reduction in ridership of approximately 26.8 percent, or 144,180 annual one-way passenger-trips. This change would add approximately $64,440 annually in farebox revenues. These additional revenues would help generate additional locally generated funding, and help to reduce subsidy requirements.

Sales Tax

The most common form of local dedicated revenues across the country is a sales and use tax. In Colorado, municipalities and counties are able to impose a sales and use tax of up to 0.4 percent. In addition, the ability of a Rural Transportation Authority to impose up to 0.4 percent sales or use tax (or both) to fund public transportation was granted in April 24, 1997 by Colorado Revised Statute 43-4-601, generally known as the Colorado Rural Transportation Authority Law. A simple majority vote is required for passage of this tax revenue source. It should be noted that the statewide base sales and use tax is 2.9 percent.

There are many benefits to a sales tax:

- It is a relatively stable source of funding, as it is imposed on a very broad tax base and is very responsive to inflation;
- It is simple to collect, as the mechanisms to collect the tax are already in place;
- It affects all portions of the local economy equally; and
- It provides a flexible source of funding that can be used for capital, maintenance or operating, and for highway, transit, or non-motorized transportation modes.

[1] TCRP Project B-12, March 2000.

TABLE IX-1: Mesa County Fixed Route Peer Transit System Fare Comparison
Effective as of February 4, 2003

Transit System	Base Cash Fare	Discounted Cash Fare	Regular Monthly Pass	Discounted Monthly Pass	Farebox Recovery Ratio [9]
Grand Valley Transit	$0.50	$0.25	[1]	[1]	5.9%
City of Loveland Transit [2]	$1.00	$0.50	$25.00	N/A	Not Available
Ride Glenwood [3]	[3]	[3]	$20.00	N/A	Not Available
Transfort [4]	$1.00	$0.50	$19.00	N/A	22.3%
The Bus [5]	$1.00	$0.50	$25.00	$12.00	13.4%
Springs Transit [6]	$1.25	$0.60	$35.00	N/A	23.1%
Denver RTD [7]	$1.15	$0.55	$35.00	$21.00	21.0%
Pueblo Transit [8]	$0.75	$0.35	$20.00	$10.00	13.3%
Average	***$1.03***	***$0.50***	***$25.57***	***$14.33***	***18.6%***

Note 1: GVT offers daily passes for $1.50, and 10-ride ticket books. In addition, 6-month passes are offered (regular for $80.00 and youth for $60.00), as well as annual passes (regular for $150.00 and youth for $100.00).

Note 2: The City of Loveland offers discounted fares to seniors, disabled passengers, youth and low-income riders. An annual pass is offered to youth and seniors for $25.00, and various discounted ticket books are also offered.

Note 3: The City of Glenwood Springs does not offer a single-ride fare media -- only a $2.00 daily pass is offered. In addition, a 20-ride ticket book is offered for $20.00, and monthly commuter passes are offered.

Note 4: The City of Ft. Collins offers discounted passes for seniors and disabled passengers; youth ride for free. An annual pass is offered to seniors and disabled passengers for $19.00, and 10-ride ticket books are offered for $7.00.

Note 5: The City of Greeley offers discounted passes to seniors, disabled passengers and youth. Three-month passes and 20-ride ticket books are also offered for each fare category.

Note 6: The City of Colorado Springs offers discounted fares to seniors, disabled passengers and children (age 11 and younger). Students (age 12 through High School) are charged a $0.95 per ride. A summer youth ticket is offered ($15.00), and various discounted 22-ride ticket books are offered. Finally, a zone fare is chrged for all non-discounted categories.

Note 7: The Denver RTD fares presented are for local services; regional services require a higher fare. Discounted fares offered to seniors, disabled passengers and youth. Various other discounted fare media is also offered.

Note 8: The City of Pueblo offers disounted fare media to seniors and disabled passengers. In addition, a student fare category is offered ($0.50 for a single ride, and $15.00 for a monthly pass). Daily passes are also offered for $3.00.

Note 9: The farebox recovery ratio was derived using National Transit Database information for 2000. It should be noted that only urbanized areas are required to report this data. As such, Loveland and Glenwood Springs are not required to report this information.

To identify estimates of the funds that would be generated by a sales and use tax for transit over the 23-year Transit Element planning period, the historical growth in retail sales by jurisdiction was considered. Table IX-2 below presents the distribution of total retail sales for Calendar Years 1997 through 2001 for each entity within the current GVT service area (not including the unincorporated county). As presented, Grand Junction generated the greatest amount of total retail sales of any single city, followed by Fruita and Palisade. In terms of annual growth, Fruita's rate of retail sales growth was the highest (7.9 percent annual growth), although the city of Grand Junction experienced the greatest annual total growth in retail sales.

TABLE IX-2: Mesa County Total Retail Sales History
All Figures in Thousands

Entity	1997	1998	1999	2000	2001	Total 5-Year Taxable Revenues	Average Annual Growth
Fruita	$57,014	$70,378	$73,843	$79,815	$83,295	**$364,345**	7.9%
Annual Growth Rate	–	23.4%	4.9%	8.1%	4.4%		
Grand Junction	$1,673,412	$1,780,330	$1,904,660	$2,097,888	$2,198,338	**$9,654,628**	5.6%
Annual Growth Rate	–	6.4%	7.0%	10.1%	4.8%		
Palisade	$20,319	$20,186	$17,777	$19,096	$22,126	**$99,504**	1.7%
Annual Growth Rate	–	-0.7%	-11.9%	7.4%	15.9%		

Source: Colorado Economic and Demographic Information System.

Table IX-3 presents the preliminary forecasted transit sales tax revenues for the 23-year planning period if a new transit sales tax were to be implemented. The growth rate in total retail sales was conservatively estimated for each entity at 3 percent annually (the rate of inflation). Three different tax rates were examined: 0.10 percent, 0.25 percent and 0.40 percent. As indicated in the table, the jurisdictions within the current GVT service area would generate a total of approximately $335,380,180 in funding over the 23-year period if the highest tax rate allowable by law (0.40 percent) were to be implemented. The largest proportion of the total will be generated within Grand Junction, at roughly 95 percent of total funding generated by these three jurisdictions.

TABLE IX-3: Mesa County Projected Annual Transit Sales Tax Revenues
Assumes 3% Annual Growth Rate in Total Taxable Sales Receipts in Each Jurisdiction

Jurisdiction	Assumed Tax Rate	Average Annual Transit Sales Tax Revenue in Years... 2003 Through 2005	2006 Through 2010	2011 Through 2015	2016 Through 2020	2021 Through 2025	Total 23-Year Tax Revenues
Fruita							
	0.10%	$93,750	$108,680	$125,990	$146,060	$169,320	**$3,031,500**
	0.25%	$234,370	$271,700	$314,970	$365,140	$423,300	**$7,578,660**
	0.40%	$375,000	$434,730	$503,970	$584,240	$677,290	**$12,126,150**
Grand Junction							
	0.10%	$2,474,250	$2,868,330	$3,325,180	$3,854,790	$4,468,760	**$80,008,050**
	0.25%	$6,185,620	$7,170,830	$8,312,960	$9,637,000	$11,171,920	**$200,020,410**
	0.40%	$9,897,000	$11,473,340	$13,300,750	$15,419,210	$17,875,090	**$320,032,950**
Palisade							
	0.10%	$24,900	$28,870	$33,470	$38,800	$44,980	**$805,300**
	0.25%	$62,260	$72,180	$83,680	$97,010	$112,460	**$2,013,430**
	0.40%	$99,610	$115,480	$133,870	$155,190	$179,910	**$3,221,080**
Total with 0.10% Tax Rate		***$2,592,900***	***$3,005,880***	***$3,484,640***	***$4,039,650***	***$4,683,060***	**$83,844,850**
Total with 0.25% Tax Rate		***$6,482,250***	***$7,514,710***	***$8,711,610***	***$10,099,150***	***$11,707,680***	**$209,612,500**
Total with 0.40% Tax Rate		***$10,371,610***	***$12,023,550***	***$13,938,590***	***$16,158,640***	***$18,732,290***	**$335,380,180**

Source: Colorado Economic and Demographic Information System.

It should be noted that this analysis does not consider the amount of funding that would be generated in unincorporated Mesa County that could be included in the boundary of a potential Rural Transportation Authority. This effort would require a very detailed analysis that is beyond the scope of this study.

Property Tax

A new property tax is an additional feasible source of subsidy for transit services. This tax can be relatively efficiently collected. In addition, property tax tends to be progressive – those most able to pay are those that tend to be impacted. The availability of this funding source in the foreseeable future, however, is very doubtful in light of voter's traditional reluctance to increase this tax. The ability for a property tax to pass in a general election will only occur when a majority of area residents feel transit service provides a benefit to them individually.

Vehicle Registration Fees

If a Rural Transportation Authority were to be created in Mesa County, it would be able to impose up to a $10.00 vehicle registration fee on all vehicles within the legally defined Authority boundary. According to the Colorado Department of Local Affairs, a total of 43,523 vehicles were registered in the Fruita / Grand Junction / Palisade area in 2000. Assuming no growth in the number of registered vehicles in the area, a new $10.00 per vehicle registration fee would generate on the order of $435,000 annually that could be used to fund transit services.

Public-Private Partnerships

Partnerships between transit agencies and private organizations are becoming more prevalent, particularly in those cases where potential new transit services would otherwise require too high of a public subsidy and one or more organizations would reap high benefits. A reasonable option, therefore, is to request funding from any organization that would enjoy particularly high and/or distinct benefits from a requested new service to help offset the subsidy required to implement this service.

Increased Mesa College Subsidy of Transit Service

Mesa College currently receives a relatively high benefit from GVT service to and from campus, although it currently provides less than 3 percent of total operating funds. One issue that has arisen from the public meetings is that of equity – financial support versus benefits derived. As such, a reasonable financial alternative is to increase the amount of funding derived from Mesa State College sources.

A recent study of 30 transit systems that serve university campuses indicates funding is provided for transit operations through a variety of mechanisms. By far, the most common mechanism is through collection of student fees – 18 of the 30 systems studied provide prepaid or unlimited access to the transit system through student fees. The student fee ranged from a low of $8.00 per semester (University of Arkansas) to a high of $50 per semester (Texas A&M University). Other sources include parking permit revenues, parking fines, university general funds and student apartment passes. In short, it is common for universities to contribute funding for transit service provided to their campus facilities. Mesa State currently charges each student a $4.00 "Mass Transit Fee" per semester, which generates approximately $50,000 annually. This levy allows Mesa State students to ride GVT services at no charge.

Five good examples of how other universities around the country support the local transit service are:

- The University of Kentucky, Lexington has provided an annual $360,000 grant to LexTran to operate "Go Free" transit services on campus. The Go Free program allows students, staff and faculty free access on all LexTran routes. This grant amount, however, does not cover the fully allocated costs of these services or the cost of capital equipment required to operate the services. To help reduce the difference, University and LexTran officials were successful in obtaining a CMAQ grant of $1.6 million in 2002. Local officials anticipate applying for subsequent CMAQ grants to continue this valuable service.

- Fort Lewis College in Durango, Colorado contributes approximately $45,000 to "The Lift" for service to the campus. These funds are

generated through a student activity fee, which gives students a semester pass good for unlimited use of the transit system.

- The University of California at Davis provides fixed-route and commuter services both on campus and to the surrounding communities. The Unitrans system is operated as a department within the Associated Students Union, acting as a sub-recipient of the City of Davis's FTA and statewide Transportation Development Act funds. Each full-time student pays a quarterly activity fee to gain free access on all local Unitrans transit services.

- Transfort in Ft. Collins, Colorado provides fare-free service to full-time Colorado State University students. In addition, annual passes are available to CSU staff and faculty for $40 per year. During the regular school year, ten routes provide service on-campus (only four routes serve the campus during the off-season months).

- The Champaign-Urbana Mass Transit District provides about 75,000 annual vehicle service hours on the University of Illinois campus, which has an annual enrollment of 36,000 and a faculty of 12,000. On one busy campus corridor, 50 buses provide about 30,000 one-way passenger-trips daily. Fixed-routes operate from 7:00 A.M. to 3:00 A.M., and a "safe-ride" demand response service operates from 9:00 P.M. until 6:30 A.M. Approximately 5.5 million one-way passenger-trips are provided annually to and from campus. Students pay $33.00 per year for unlimited access, which equates to approximately $1.2 million annually.

Considering the current Mesa State College enrollment of approximately 5,500 students, and assuming each student attends both semesters, a $1.00 increase in the fee level would generate an additional $11,000 annually. This additional funding could cover a larger proportion of subsidy needs of transit service in the region.

CHAPTER X

Comparison of Service Alternatives

This chapter presents a comparison of the various service alternatives discussed in Chapter VI, as measured by a series of performance indicators. Not all of the indicators are applicable to each alternative; for instance, it is impossible to consider the marginal passenger-trips per hour of service for an alternative that does not change the number of hours of service. Note that the Fiscal Year 2003-04 cost figures are based upon Fiscal Year 2000-01 actual costs, increased 3 percent annually to account for inflation.

COMPARISON OF GVT SERVICE ALTERNATIVES

Table X-1 below presents a series of "performance indicators" for the various service alternatives discussed in Chapter VI. The ridership impact of the various alternatives, as measured in marginal one-way passenger-trips per year, is also presented in Figure X-1 below. As presented, the *Double Weekday Frequency on All Routes* alternative has the greatest potential to increase ridership, at 262,570 one-way passenger-trips per year, followed by the *Double Weekday Frequency on Routes 5, 7 & 9, All Day*, at 133,200 annual one-way passenger-trips. As presented in the figure, several of the service alternatives would actually reduce ridership. The range of ridership impact across the alternatives is quite wide, and other factors must be considered along with this measure before deciding which alternatives are the most advantageous.

A very straightforward financial comparison of these service alternatives – total required marginal change in operating cost – is presented in Figure X-2 below for the various alternatives. As presented, the *Double Weekday Frequency on All Routes* alternative would require the greatest annual public subsidy ($1,022,110), followed by the *Consolidate GVT & School Specialized Transportation* alternative ($605,170) and the *Double Weekday Frequency on Routes 5, 7 & 9, All Day* alternative ($379,100). Of those alternatives/options that increase annual vehicle service hours, the *Twice-Weekly Lifeline Redlands*

TABLE X-1: Mesa County Service Alternatives Performance Analysis

Estimated 2004 Performance Analysis

Alternative	Marginal Annual Passenger-Trips	Marginal Operating Cost	Marginal Annual Subsidy	Marginal Trips Per VSH	Marginal Trips Per VSM	Marginal Op. Cost Per Trip	Marginal Subsidy Per Trip	Farebox Recovery Ratio
Consolidate GVT & School Specialized Transportation	51,250	$605,170	$605,170	N/A	0.20	$11.81	$11.81	N/A
Consolidate GVT & Middle/High School Transportation	69,830	$302,340	$284,880	6.7	0.42	$4.33	$4.08	5.8%
Extend Service Until 8:15 P.M.	6,810	$91,060	$89,360	2.2	0.15	$13.37	$13.12	1.9%
Double Weekday Frequency on All Routes	262,570	$1,090,380	$1,024,740	6.9	0.44	$4.15	$3.90	6.0%
Double Weekday Peak Period Frequency on All Routes	95,170	$403,840	$380,050	6.8	0.43	$4.24	$3.99	5.9%
Double Weekday Frequency on Routes 5, 7 & 9, All-Day	133,190	$396,500	$363,200	9.7	0.62	$2.98	$2.73	8.4%
Double Weekday Peak-Period Frequency on Routes 5, 7 & 9	48,280	$146,850	$134,780	9.5	0.60	$3.04	$2.79	8.2%
Implement Sunday Service	43,100	$177,070	$166,290	7.0	0.47	$4.11	$3.86	6.1%
Express Service Between East and West Transfer Centers	(800)	$1,430	$1,630	N/A	(0.10)	($1.79)	($2.04)	-14.0%
Revise Route 5 to Serve Mesa Mall	6,510	$5,620	$3,990	N/A	0.20	$0.86	$0.61	29.0%
Weekday and Saturday Redlands Fixed-Route Service	12,170	$136,970	$133,930	2.7	0.11	$11.25	$11.00	2.2%
Twice-Weekly Lifeline Redlands Service	2,080	$13,090	$12,440	4.4	0.41	$6.29	$5.98	5.0%
Eliminate Route 2 Patterson Avenue	(31,880)	($86,560)	($78,590)	10.7	0.60	$2.72	$2.47	9.2%
Eliminate Route 3 Orchard Avenue	(37,940)	($85,340)	($75,850)	12.8	0.83	$2.25	$2.00	11.1%
Eliminate Route 8 Fruita	(23,590)	($92,140)	($86,240)	7.9	0.27	$3.91	$3.66	6.4%
Interline Route 3 and Route 8, Using One Bus	(17,410)	($88,740)	($84,390)	5.9	0.26	$5.10	$4.85	4.9%
Eliminate Saturday Service	(58,210)	($177,070)	($161,930)	9.4	0.63	$3.04	$2.78	8.6%
Provide Additional Paratransit Service	1,370	$110,510	$110,170	0.3	0.03	$80.66	$80.42	0.3%
Provide Commuter Service on Routes 4 & 8	(20,570)	($59,020)	($53,880)	10.6	0.42	$2.87	$2.62	8.7%
Provide Route Deviation Service on Routes 4 & 8	(5,840)	N/A	$1,460	N/A	N/A	N/A	($0.25)	N/A

FIGURE X-1: GVT Service Alternatives
Annual Ridership

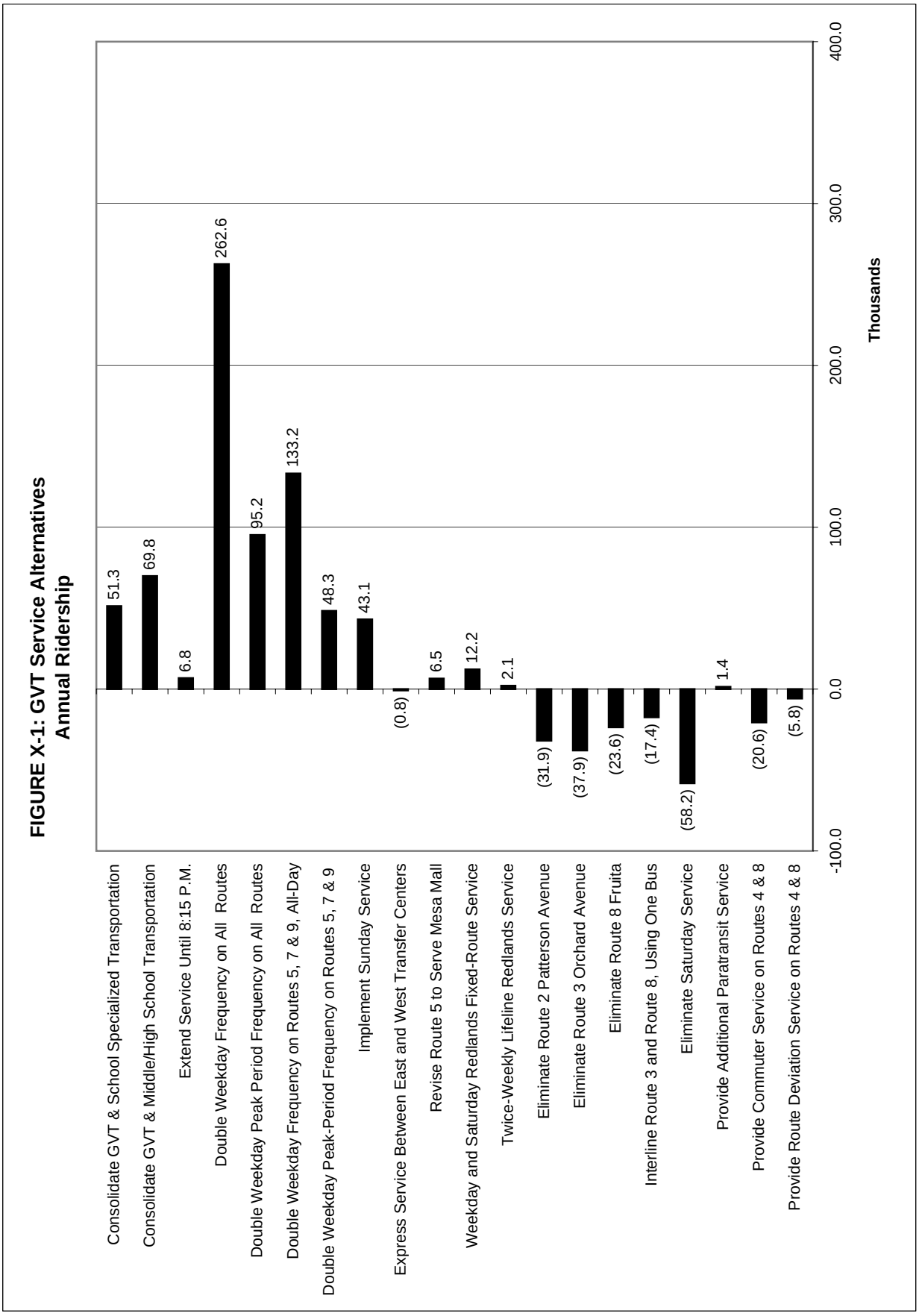
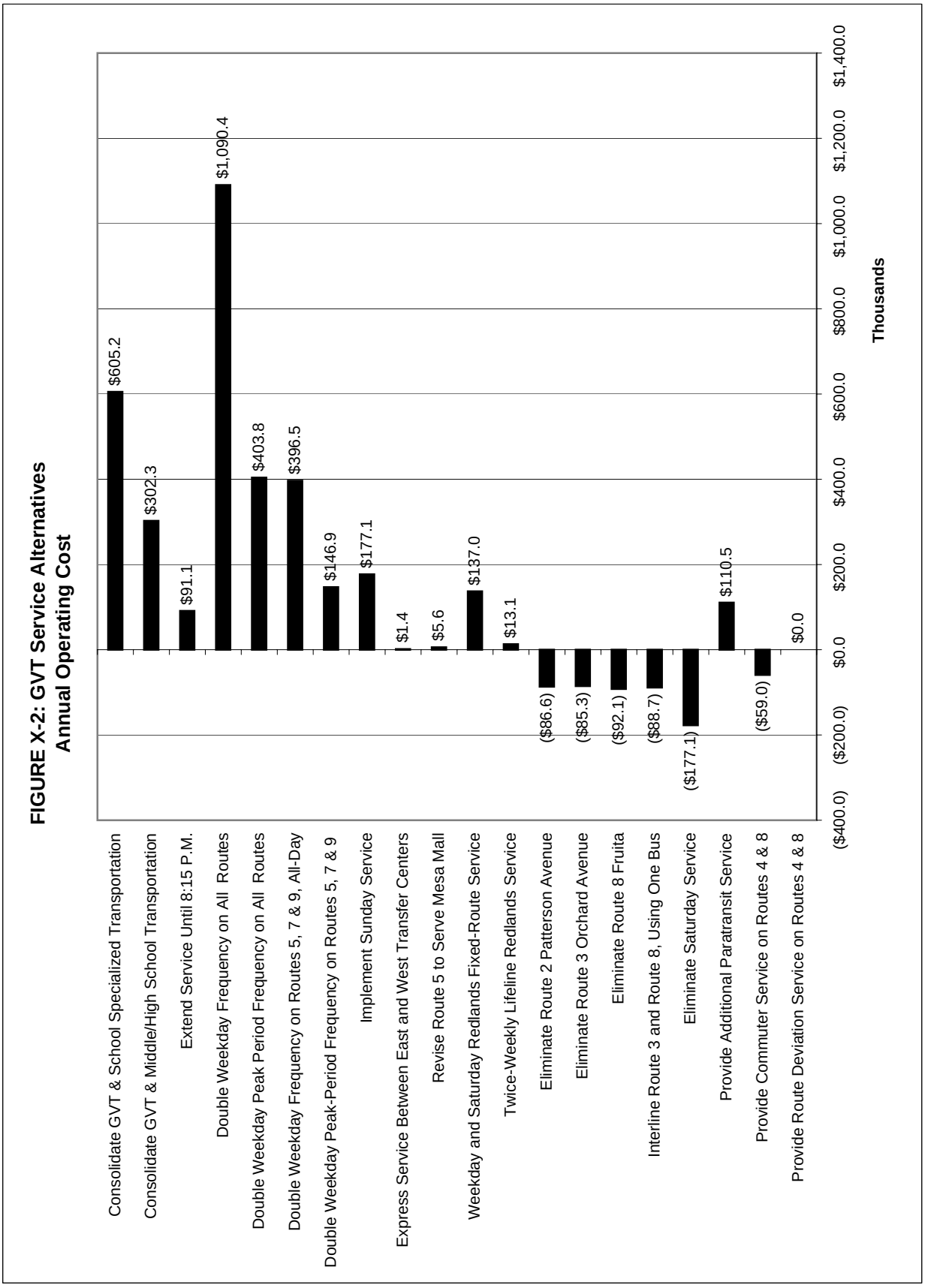


FIGURE X-2: GVT Service Alternatives
Annual Operating Cost



Service alternative would require the least amount of public subsidy ($13,090), followed by the *Extend Service Until 8:15 P.M.* alternative ($91,060) and the *Provide Additional Paratransit Service* alternative ($110,150). Several of the cost saving alternatives would reduce annual operating costs by eliminating relatively inefficient services. It should be noted that the operating cost estimates for both the *Double Peak Period Frequency on All Routes* and the *Double Weekday Peak Period Frequency on Routes 5, 7 & 9* alternatives include the marginal operating costs associated with vehicle check-in and check-out twice per day required under peak period service.

Similar to the analysis presented in Figure X-2, the marginal annual operating subsidy for each service alternative is presented in Figure X-3 below. Marginal operating subsidy is simply the annual operating cost minus the anticipated farebox revenues, and represents the amount of operating funding that must be provided by public and private sources. It should be noted that this analysis assumes that the School District would provide the subsidy required to operate both the *Consolidate GVT & School Specialized Transportation* and *Consolidate GVT & Middle/High School Transportation* alternatives.

The operating effectiveness of the alternatives, measured in terms of marginal one-way passenger-trips per vehicle service hour, is depicted in Figure X-4 below. Of those alternatives that would increase annual vehicle service hours operated, the *Double Weekday Frequency on Routes 5, 7 & 9, All Day* alternative would experience the greatest marginal passenger-trips per vehicle service hour (9.7). The *Provide Additional Paratransit Service* alternative would achieve the lowest productivity (0.3), followed by the Extend Service Until 8:15 P.M. alternative (2.2). Of those alternatives that would reduce annual vehicle service hours operated, the *Interline Route 3 and Route 8, Using One Bus* alternative would eliminate the fewest passenger-trips per vehicle service hour eliminated (5.9), followed by the *Eliminate Saturday Service* alternative (6.3) and the *Eliminate Route 8 Fruita* alternative (7.9). Another measure of operating effectiveness of the service alternatives is the number of one-way passenger-trips per vehicle service mile, as presented in Figure X-5 below.

Figure X-6 below presents the operating cost per one-way passenger-trip for the various service alternatives. As depicted, the *Provide Additional Paratransit Service* alternative would require the greatest marginal operating cost per

FIGURE X-3: GVT Service Alternatives
Annual Subsidy

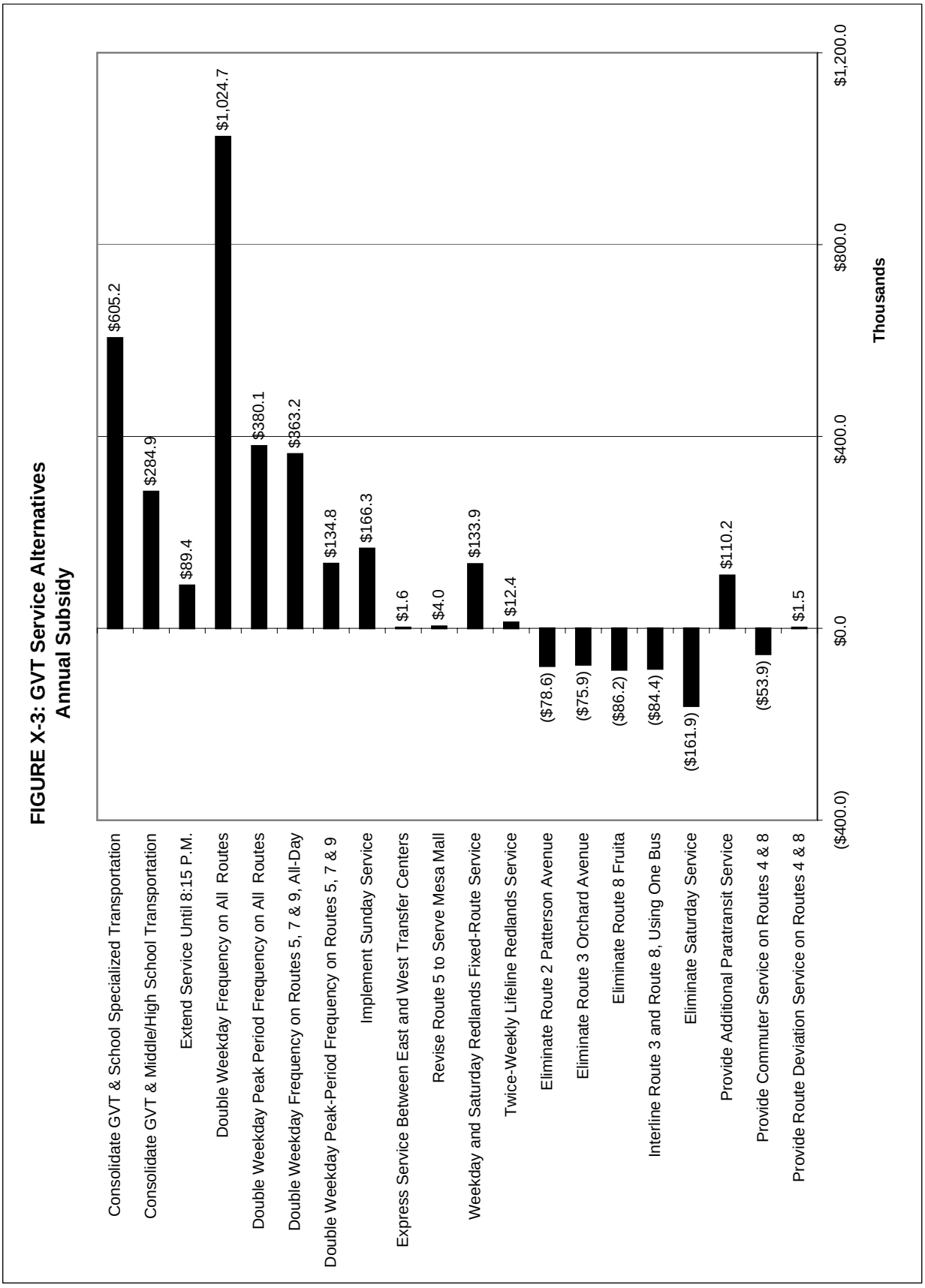
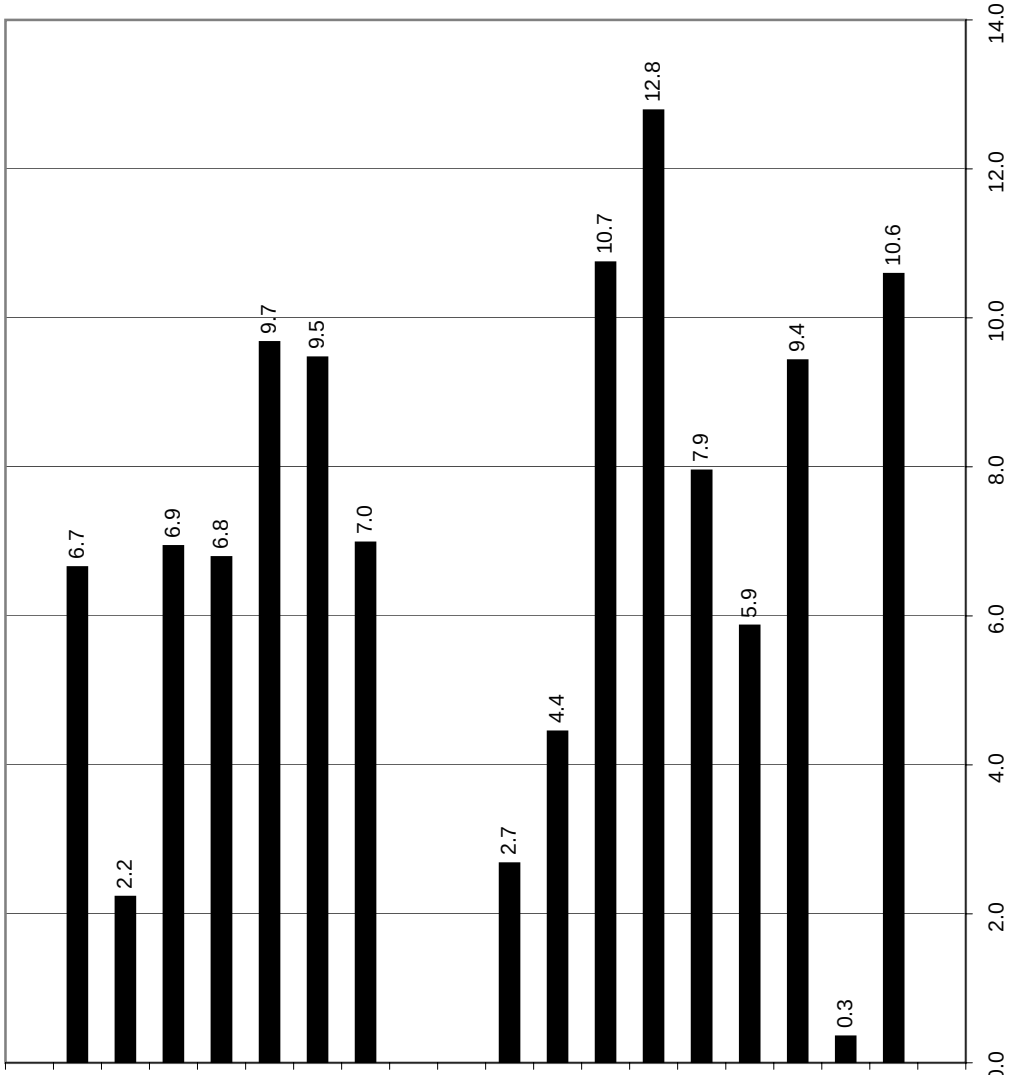


FIGURE X-4: GVT Service Alternatives
Passenger-Trips Per Vehicle Service Hour



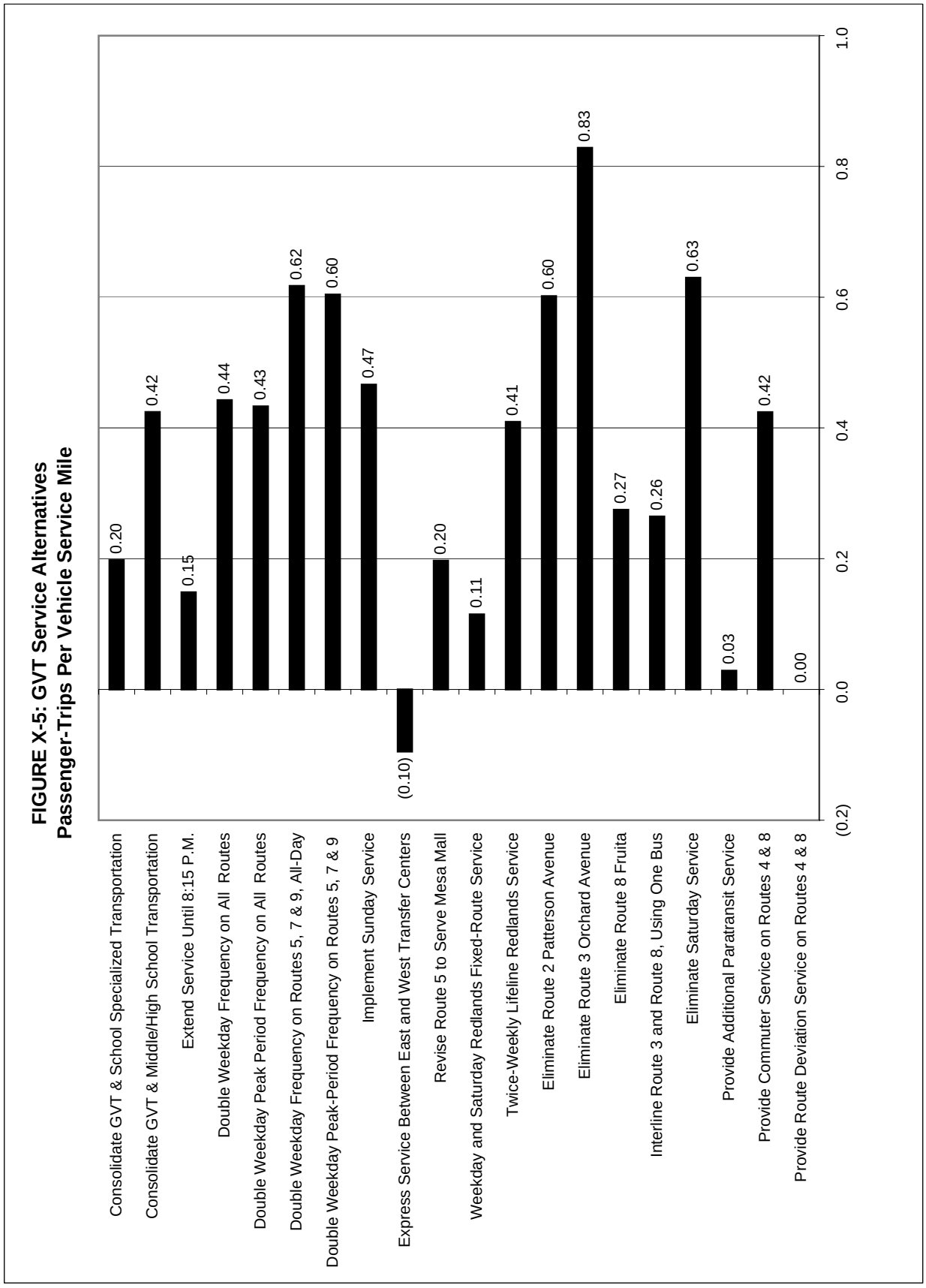
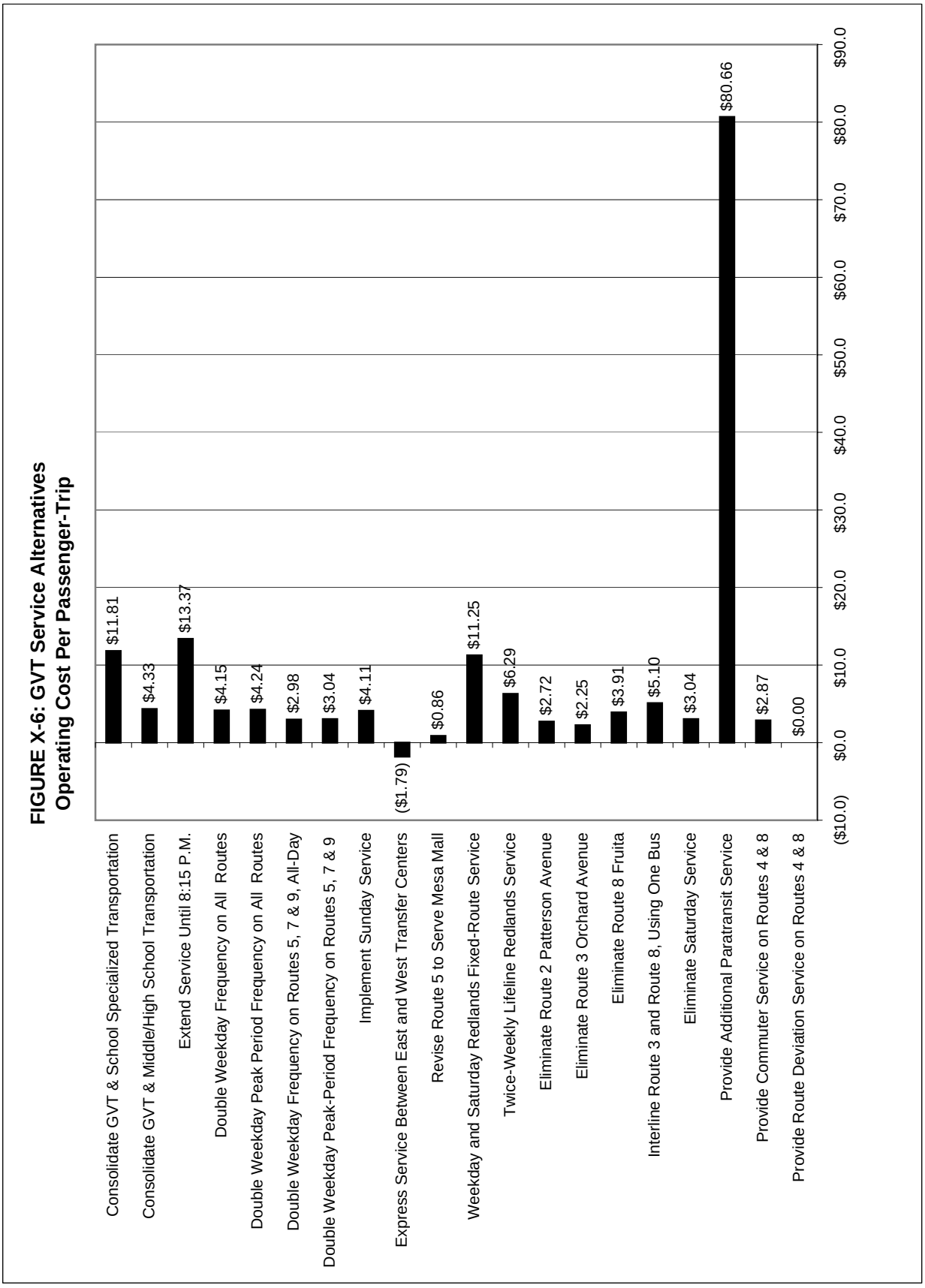


FIGURE X-5: GVT Service Alternatives
Passenger-Trips Per Vehicle Service Mile
Consolidate GVT & School Specialized Transportation
Consolidate GVT & Middle/High School Transportation
Extend Service Until 8:15 P.M.
Double Weekday Frequency on All Routes
Double Weekday Peak Period Frequency on All Routes
Double Weekday Frequency on Routes 5, 7 & 9, All-Day
Double Weekday Peak-Period Frequency on Routes 5, 7 & 9
Implement Sunday Service
Express Service Between East and West Transfer Centers
Revise Route 5 to Serve Mesa Mall
Weekday and Saturday Redlands Fixed-Route Service
Twice-Weekly Lifeline Redlands Service
Eliminate Route 2 Patterson Avenue
Eliminate Route 3 Orchard Avenue
Eliminate Route 8 Fruita
Interline Route 3 and Route 8, Using One Bus
Eliminate Saturday Service
Provide Additional Paratransit Service
Provide Commuter Service on Routes 4 & 8
Provide Route Deviation Service on Routes 4 & 8
0.20
0.42
0.15
0.44
0.43
0.62
0.60
0.47
(0.10)
0.20
0.11
0.41
0.60
0.83
0.27
0.26
0.63
0.03
0.42
0.00
(0.2)
0.0
0.2
0.4
0.6
0.8
1.0

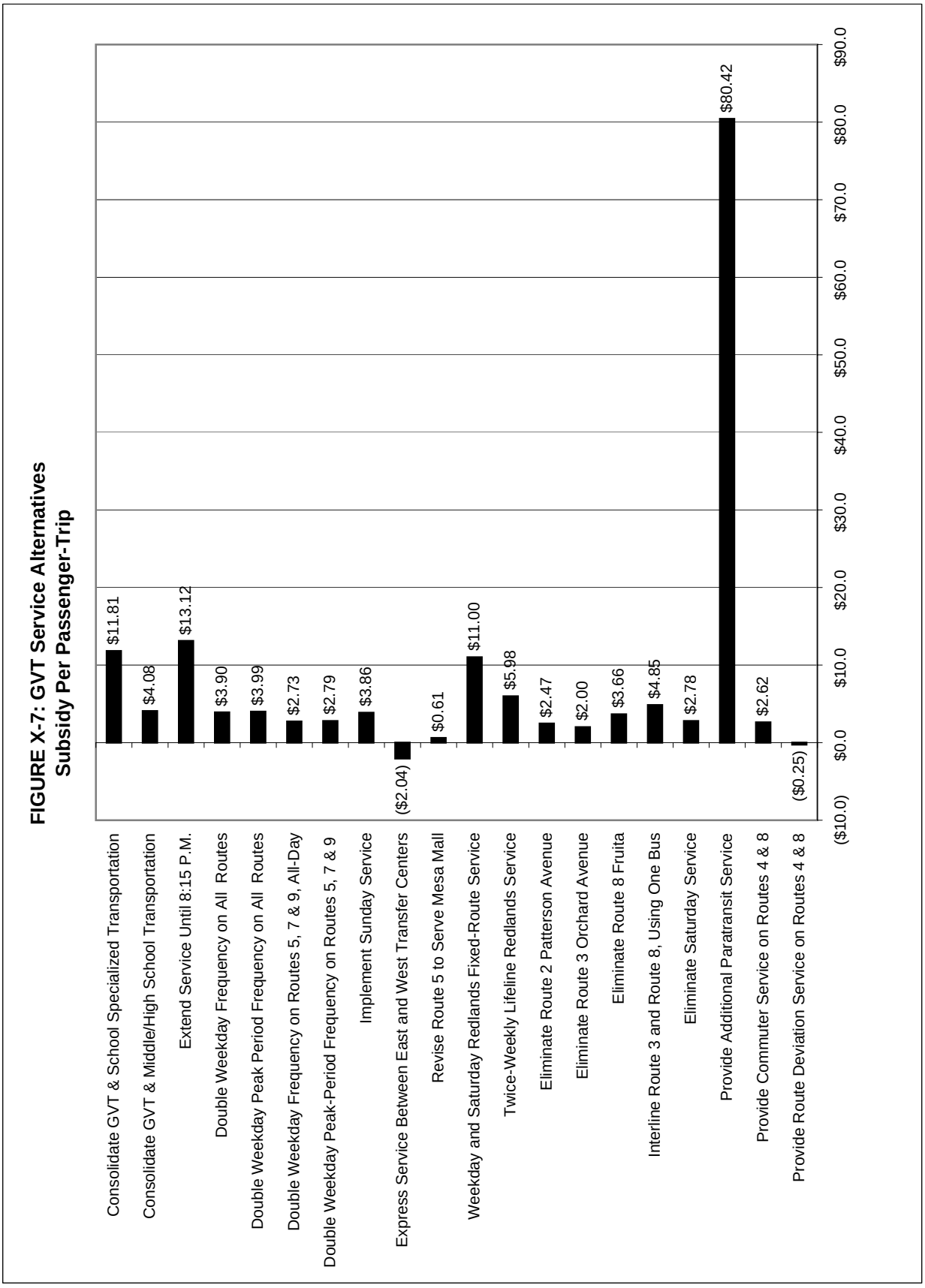
FIGURE X-6: GVT Service Alternatives
Operating Cost Per Passenger-Trip



additional one-way passenger-trip provided ($80.66), since very few additional trips would be provided and the vehicle would remain in service throughout the daily span of service. Of those service alternatives that increase annual operating costs, the *Double Weekday Frequency on Routes 5, 7 & 9, All-Day* would achieve the lowest operating cost per passenger-trip ($2.98). Of those service alternatives that reduce annual operating costs, the figures presented in the graph represent the amount of operating funding that would be saved for each passenger-trip eliminated. The *Interline Route 3 and Route 8, Using One Bus* alternative would save the greatest amount of operating costs per passenger-trip eliminated ($5.10), followed by the *Eliminate Saturday Service* alternative ($4.56) and the *Eliminate Route 8 Fruita* alternative ($3.91).

The net subsidy per marginal one-way passenger-trip provided for the various alternatives is depicted in Figure X-7 below. This "performance indicator" is probably the single best means of measuring transit alternatives, as it directly relates the "goal" of public transportation (to provide passenger-trips) to the basic resource required (public dollars). As presented in Chapter IV, the pertinent subsidy per passenger-trip figure for GVT was $5.00 ($4.15 for fixed route and $23.15 for the combined paratransit / Dial-A-Ride service). Of those alternatives that would increase annual subsidy, the *Double Weekday Frequency on Routes 5, 7 & 9, All Day* alternative would achieve a relatively small per passenger-trip subsidy ($2.72), followed by the *Double Weekday Peak-Period Frequency on Route 5, 7, & 9* alternative ($2.78) and the *Double Weekday Frequency on All Routes* alternative ($3.52). The *Provide Additional Paratransit Service* alternative would require the greatest subsidy per passenger-trip ($80.40), followed by the *Consolidate GVT & School Specialized Transportation* alternative ($69.48), and the *Extend Service Until 8:15 P.M.* alternative ($13.11). Of those alternatives that would reduce annual subsidy requirements, the *Interline Route 3 and Route 8, Using One Bus* alternative would save the greatest amount of subsidy per passenger-trip eliminated ($4.84), followed by the *Eliminate Saturday Service* alternative ($4.30) and the *Eliminate Route 8 Fruita* alternative ($3.65). The *Express Service Between East and West Transfer Center* and *Provide Route Deviation Service on Routes 4 & 8* would actually require an additional subsidy for every trip eliminated, since ridership and farebox revenues would decrease under each alternative and operating costs would remain the same.

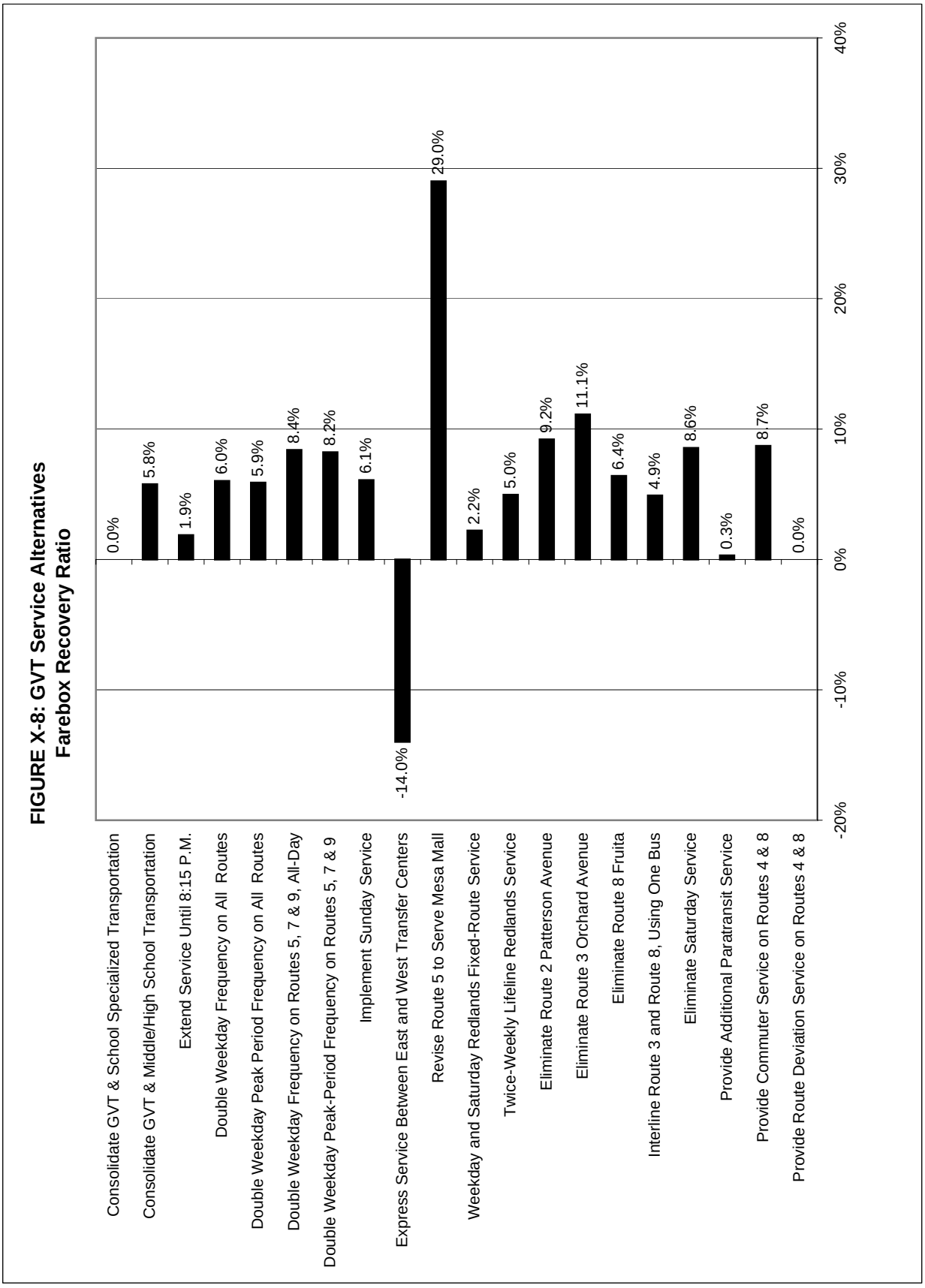
FIGURE X-7: GVT Service Alternatives
Subsidy Per Passenger-Trip



Finally, Figure X-8 below presents the farebox recovery ratio for the various service alternatives. This performance measure represents the proportion that passenger fares pay for the operating cost of providing the service. It should be noted the anticipated overall GVT farebox recovery ratio between January and August 2002 was 5.0 percent (5.9 percent for the fixed route and 0.2 percent for the paratransit service). As depicted in the graph, the *Revise Route 5 to Serve Mesa Mall* alternative would achieve the greatest farebox recovery ratio (30.1 percent), since it would increase annual farebox revenues without substantially increasing operating costs. Of those alternatives that would reduce annual operating costs, the *Interline Route 3 and Route 8, Using One Bus* alternative would reduce the farebox recovery ratio the least (5.1 percent), followed by the *Eliminate Saturday Service* alternative (5.9 percent) and the *Eliminate Route 8 Fruita* alternative (6.7 percent).

As is shown in Table X-1 and in Figures X-1 through X-8, the advantages and disadvantages of each alternative differ substantially. These performance indicators should be studied carefully before deciding which, if any, of these service alternatives should be implemented in the short term or the long term. The relative effectiveness of each service needs to be weighed against their ability to achieve the goals of the transit service, and against funding limitations.

FIGURE X-8: GVT Service Alternatives
Farebox Recovery Ratio



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CHAPTER XI
Transit Project Ranking

The transit projects previously listed in Chapters VI through X of this report will far exceed expected revenues over the next 27 years. Therefore, it is pertinent for the region to prioritize potential transit projects. CDOT also prefers some consistency among the regions in the prioritization process, including transit.

Chapter I of this report presents vision and mission statements for the region that were used to evaluate transit projects. However, since the Grand Valley Region Transportation Committee (GVRTC) has not formally adopted a project evaluation criteria ranking system, the LSC Team used evaluation criteria developed for other Colorado regions to develop an initial ranking of all projects developed during the study, and presented this initial ranking to the Study Steering Committee. The Committee then reached consensus on the final ranking, as presented in Table XI-1 below.

It must be noted that the assumption "Maintain Status Quo Service" in the region is the highest priority. Projects included under the "Maintain Existing Service" scenario include operating the existing routes during the current days and hours of operation, and replacing existing capital equipment according to industry standards. The only exception to the current operating plan is that the resources used to operate the existing Dial-A-Ride service will be used to enhance the paratransit service, and that the Fruita and Palisade services will be operated as commuter service.[1]

The "maintain status quo service" projects are therefore not ranked and will remain the highest priority for the fiscally-constrained plan. The 27-year cost

[1] Under the commuter arrangement, one mid-day run would be eliminated on the Fruita and Palisades routes, and these resources would be used to provide mid-day paratransit service for elderly and disabled patrons.

TABLE XI-1: Mesa County Transit Projects Ranked

Proj. #	Project Description	Annual Operating Cost	27-Yr. Cost [1] (2004-2030)	Rank
18	Provide Additional Paratransit Service	$110,170	$5,200,130	1
19	Provide Commuter Service on Routes 4 & 8	($53,880)	($2,526,820)	2
10	Revise Route 5 to Serve Unserved Areas	$3,990	$184,880	3
3	Extend Service Until 8:15 P.M.	$89,360	$4,204,440	4
7	Double Peak-Period Frequency on Routes 5, 7 & 9	$134,780	$6,323,190	5
5	Double Peak Period Frequency on All Routes	$380,050	$16,120,770	6
6	Double Frequency on Routes 5, 7 & 9, All-Day	$363,200	$17,037,640	7
4	Double Frequency on All Routes	$1,024,740	$43,457,500	8
23	AVL Technology	$520,360	$505,200	9
12	Twice-Weekly Lifeline Redlands Service	$12,440	$584,760	10
11	Weekday and Saturday Redlands Fixed-Route Service	$133,930	$6,300,070	11
8	Implement Sunday Service	$166,290	$7,819,710	12
20	Provide Route Deviation Service on Routes 4 & 8	$1,460	$71,530	13
1	Consolidate GVT & School Specialized Transportation	$605,170	$28,494,230	14
2	Consolidate GVT & Middle/High School Transportation	$284,880	$13,380,530	15
9	Express Service Between East and West Transfer Centers	$1,630	$77,370	16
21	Construction of a Long-Term Ops/Maint. Facility	$1,783,810	$1,731,850	17
22	Construction of a Long-Term Downtown Transit Center	$901,900	$875,630	18
13	Eliminate Route 2 Patterson Avenue	($78,590)	($3,685,150)	19
14	Eliminate Route 3 Orchard Avenue	($75,850)	($3,554,150)	20
15	Eliminate Route 8 Fruita	($86,240)	($4,049,870)	21
17	Eliminate Saturday Service	($161,930)	($7,847,240)	22
16	Interline Route 3 and Route 8, Using One Bus	($84,390)	($3,964,830)	23

Note 1: For all service alternatives, the 27-year cost indicated is the anticipated subsidy (operating cost minus farebox revenues).

estimate to maintain existing services at current service levels is $115,637,400 for capital and operating expenses.

CHAPTER XII

Long-Range Transit Element

The LSC Team has prepared this Final Report, which includes the Long-Range Transit Element for the Mesa County region. The draft Long-Range Transit Element has been reviewed and recommended by the Study Steering Committee, the GVRTC and other concerned citizens; comments on the draft report were incorporated into the Final Report, as appropriate.

The focus of the Long-Range Transit Element is on the mobility benefits of transit services in the Mesa County region. In particular, the primary beneficiaries of GVT services are transportation-disadvantaged persons – elderly persons, mobility-limited persons, low-income persons and persons without access to a private automobile. In addition, the partners that assist in the funding of GVT transit services benefit; these partners include human service agencies, medical providers, employers and employment development organizations. To a lesser degree, other beneficiaries include the general public (through increased mobility, greater access to services and reduced air pollution), private automobile users (through reduced traffic congestion) and governmental agencies (through the reduced demand for expanded roadways).

Since this report will be included as part of the overall regional transportation plan, the discussion below begins with a philosophical discussion of transit as it relates to the overall regional transportation system.

INTRODUCTION

Transportation planning was once simple. It meant more money for more roads, especially freeways; transit was often considered an afterthought and was not part of the overall regional transportation planning process. Building roads was also simpler. There was more available land, better funding, fewer environmental constraints and people clearly wanted more and better roads for

their cars. Today the situation and the regulatory climate are much more complex. Clearly there is a crisis in transportation, but the only consensus on solutions may be that there is no easy solution. There are not enough transportation funds, preservation for right-of-way is not readily practiced in communities and public opposition often arises. Yet the mobility needs of a growing population need to be met.

Making better use of our existing transportation system will require overcoming significant obstacles. Local governments and rural counties are hard pressed to maintain the existing transit and road networks. The transportation issue itself is now interlinked with many complex issues, including population growth, land use, environmental concerns and public safety. The state spending limit, budgeting process and the economics of transportation tie the issue to a myriad of often conflicting or competing interests. This report focuses on the long-range and short-range transit alternatives to meet these transportation challenges.

This chapter presents the Long-Range 2030 Transit Element for the Regional Transportation Plan. The Long-Range Transit Element includes an analysis of unmet needs, gaps in service areas, regional transit needs and a funding plan. This chapter also identifies a policy plan for the Mesa County region, which identifies policies and strategies for transit service within the region.

Transit services present opportunities for travelers and commuters to use alternate forms of ground transportation rather than personal vehicles. The communities in the county are continuously working to update the general comprehensive plans, land use plans and transportation plans within the study area. Changes in these plans are needed to meet the long-range transit needs and to develop a sustainable transit system for the future.

It should be noted that, given existing funding sources and levels, the existing level of service is not financially sustainable. As such, the LSC Team is recommending service cuts in both the short-term (as detailed in the subsequent chapter) and in the long-term (as detailed below). Alternately, local decision-makers could decide to increase local funding to maintain or even

expand services to meet current and future unmet transit needs. This decision will need to be made before the final Transit Element report is developed.

It should be noted that the public transit program has evolved quickly since GVT services were implemented in 2000 – far exceeding the service levels originally envisioned in the previous *Transit Development Plan*. The previous TDP recommended the implementation of increased demand-response services (to match 1996 levels), an enhanced user-side subsidy taxicab program, and initiation of a limited, two-bus fixed-route system. Today, an eleven-bus fixed route system and varied demand response services are provided by GVT. Nonetheless, the relatively high level of service provided by GVT has made it an important travel mode in the region, particularly for the "working poor."

This Long-Range Transit Element will attempt to build upon the successes the GVT has achieved over the past several years, while realizing the financial realities in the region. Specifically, the existing service level, or status quo, is not a viable option for two reasons: 1) the GVT is out of compliance with the Americans with Disabilities Act (ADA) with regard to the complementary paratransit service requirement, and 2) existing and projected funding sources dictate that either service cuts are necessary or additional funding is needed to ensure financial constraint. In short, the Long-Range Transit Element will serve as a roadmap for the GVRTC to guide transit-related decisions in the short- and long-term.

UNMET NEED

As mentioned previously, the existing transportation providers were presented in Chapter IV, along with the transit demand for the region in Chapter V. The following section summarizes unmet transit need for the area.

Unmet need has several definitions. This study introduces two different definitions of unmet need. The first unmet needs analysis is from the *Statewide Transit Needs and Benefits Study*, as presented in Chapter V. The second unmet needs analysis is from public input, which includes public meetings conducted during the study period and on-board passenger surveys.

Statewide Transit Needs and Benefits Study

The Colorado Department of Transportation completed a *Transit Needs and Benefits Study* (TNBS) for the entire state in 1999. An update of the existing transit need was performed in 2000 using 1999 data, which replaced the 1996 data from the original study. Transit need estimates were developed for the entire state, for each region and on a county-by-county basis. Chapter 5 presented the detailed methodology for the TNBS.

The LSC Team updated the TNBS transit needs estimates using the recently released 2000 Census data. The 2002 annual transit need estimates for the Mesa County region were 44,789 trips for the general public including youth and seniors; 2,609 trips for persons with disabilities; 415,110 program trips; and 1,295,500 urban trips.

Table XII-1 presents a summary of the TNBS methodology for the Mesa County region. The table indicates that approximately 61 percent of the existing transit need is being met with 39 percent of the transit need for the region unmet.

TABLE XII-1: 2002 Transit Demand Summary
(TNBS Methodology)

Methodology	Rural General Public	Disabled	Program Trips	Urban Area	ANNUAL TRIPS	Annual Trips Provided	Unmet Need
TNBS Grand Junction Region	44,789	2,609	415,110	1,295,500	1,758,017	681,928	39.0%

Source: LSC, 2003

The TNBS approach used a combination of methodologies and aggregated the need for the Mesa County region. However, the approach used factors based on statewide characteristics and is not specific to Mesa County. The TNBS level of

need should be used as a guideline to the level of need and as a comparison for the other methodologies.

Unmet Need Based on Public Input

The purpose of the unmet transit needs analysis is to ensure that all reasonable unmet transit needs are met. Unmet transit needs are currently defined in terms of a couple of target groups – specifically, people who are recognized as "transportation disadvantaged" and people who are "choice riders." An individual is considered "transportation disadvantaged" when his or her transportation needs are not adequately met by the private automobile. The following are examples of people who meet this definition:

- Individuals who do not own and/or operate an automobile for reasons of low income.

- Individuals who do not own and/or operate an automobile because of advanced age, physical disability and/or mental impairment.

The definition includes all individuals who, by virtue of their age, income or disability, are not adequately served by the private automobile. Transportation disadvantaged persons are the primary targets for proposals to provide or expand public transportation services. Choice riders are those persons who have a vehicle available for transportation, but opt to utilize the public transportation system for any number of reasons – environmental consciousness, saving gas, parking is too expensive, transit is convenient, etc.

The following section addressing unmet needs is based on input received from citizens at open houses, workshops and other regional public meetings. In addition, comments received during the comprehensive on-board passenger survey, as detailed in Chapter III, are summarized below. Appendix C summarizes each of the comments received.

To conclude, the second section of unmet needs is quite lengthy with many requests. The requests for service are not unrealistic and many are represented

in the proposed 2030 projects listed in the following section of this chapter. Many of the unmet needs listed above are for "choice riders" and for alternative modes of transportation.

These proposed projects support the regional goal of decreased vehicle-miles traveled and also provide enhanced service for transit-dependent riders. Increased funding beyond current levels is key to implementing the 2030 proposed transit projects. Under TEA-21, transportation plans are required to show the ability to fund all proposed projects for each mode – transit, highway, bike/pedestrian, transportation demand management and/or rail. This requirement has compelled the Mesa County region to prioritize and focus on projects that perform well and are cost-effective.

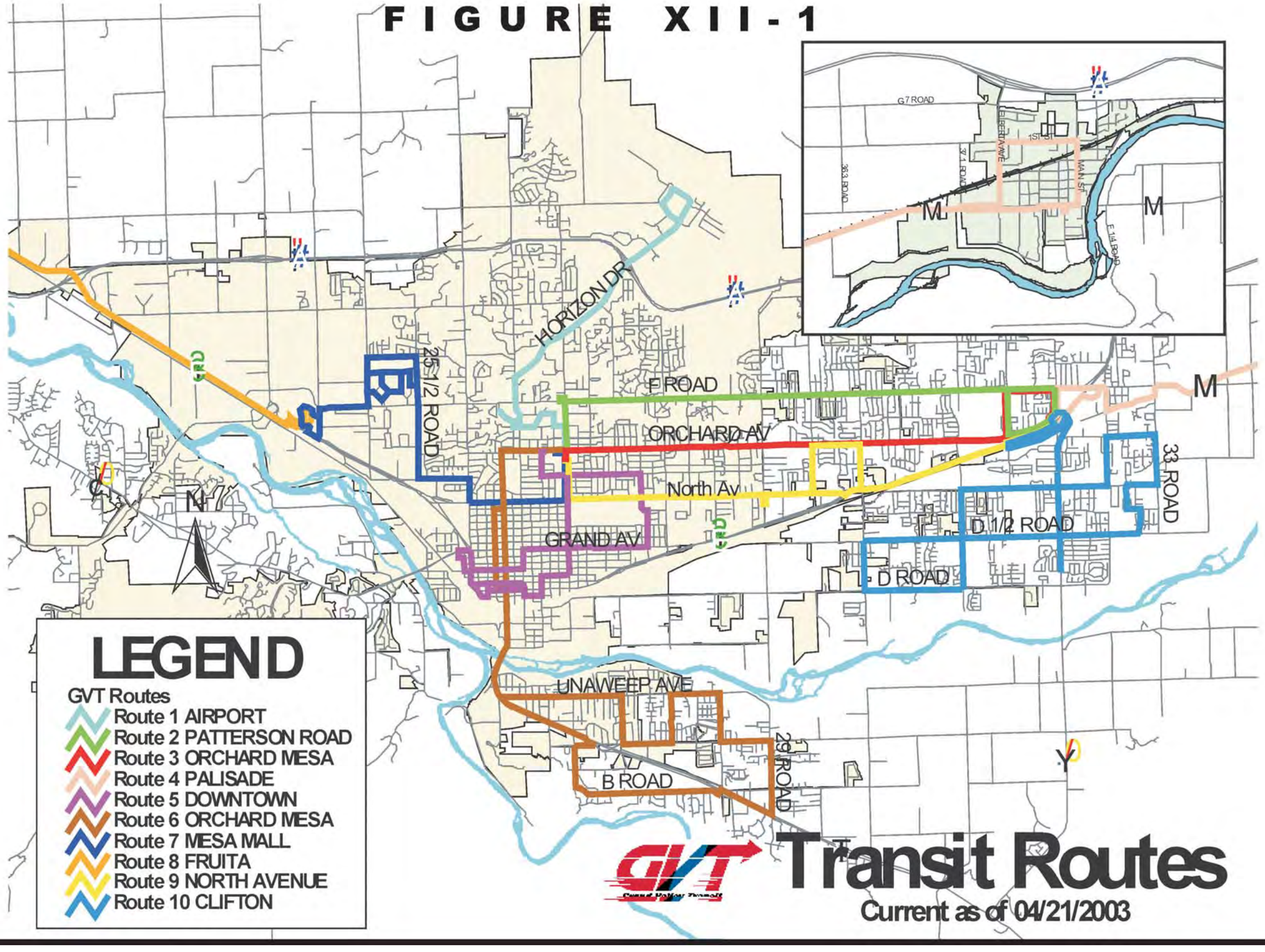
Increased congestion in the region is another reason for this long-range transit plan to include a list of unconstrained projects. These projects could be advanced through the amendment process to the constrained plan if new funds are identified. Decision-makers have flexibility to consider any of the proposed projects and requests to funding opportunities that may present themselves in the future.

GAPS IN SERVICE AREAS

Going hand-in-hand with unmet needs are gaps in service areas. The existing regional transit network was presented in Chapter IV. The data from that chapter is summarized in Figure XII-1 and used to identify gaps in the service area. As presented, the Redlands area is the only large populated area not currently served by fixed route service within the urbanized area. Service to the Redlands area and other proposed transit projects have been presented to consciously plug some of the most glaring gaps in service. The bulk of the new transit services would link the growing employment with residential areas.

Just as important, the LSC Team has examined how people currently use transit and what keeps them from doing so through conduct of public meetings and surveys of passengers. Most of the proposed transit services in response to the identified shortcomings would operate longer hours and run more

FIGURE XII-1


G 7 ROAD
LEIBERT AVE
363 ROAD
MAIN ST
E 1/4 ROAD
M
HORIZON DR
25 1/2 ROAD
F ROAD
ORCHARD AV
North Av
33 ROAD
D 1/2 ROAD
GRAND AV
D ROAD
UNAWEEP AVE
29 ROAD
B ROAD
N
LEGEND
GVT Routes
Route 1 AIRPORT
Route 2 PATTERSON ROAD
Route 3 ORCHARD MESA
Route 4 PALISADE
Route 5 DOWNTOWN
Route 6 ORCHARD MESA
Route 7 MESA MALL
Route 8 FRUITA
Route 9 NORTH AVENUE
Route 10 CLIFTON
GVT
Transit Routes
Current as of 04/21/2003

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frequently. These types of service alternatives are expensive, particularly in the early years as ridership builds, but a fast, frequent and reliable transit system is the only one that has a fighting chance of convincing commuters to abandon their cars.

There is no sugar-coating the fact that the transit services cannot come close to paying for themselves. There is justification for public support given the benefits the proposed transit projects would provide in reducing traffic – but the options for who would pay and how much, are pertinent issues and are discussed in the funding alternatives presented in a subsequent section.

Increased funding is key to implementing the 2030 proposed transit projects. Under TEA-21, transportation plans are required to show the ability to fund all proposed projects for each mode – transit, highway, bike/pedestrian, transportation demand management and rail. This requirement has compelled GVRTC decision-makers to focus on projects that perform well and are cost-effective.

Increasing traffic congestion in the region is another reason for this long-range transit plan to include a list of future projects. These projects could be advanced through the amendment process to the constrained plan if new funds are identified. Decision-makers have flexibility to consider any of the proposed projects and could change priorities if additional funding opportunities present themselves in the future.

REGIONAL NEEDS – PREFERRED PLAN

GVT and other local transportation providers were asked to submit desired operational and capital projects for the next 27 years to address long-range transit needs. The projects discussed in Chapters IV through IX and summarized in the following pages, are the 2030 Long-Range Preferred Plan for the Mesa County region. It should be stressed that these projects do not represent the Long-Range Financially-Constrained Plan, which is presented later in this chapter. The Preferred Plan is based on unrestricted funding. In short, the Preferred Plan includes an evaluation of the 27-year impacts of all

submitted projects, regardless of the funding realities in the region. These projects include enhanced services that could be implemented if substantially more funding were available. On the flip side, the LSC Team evaluated projects that would reduce funding requirements for GVT services, including elimination of services that are performing relatively poorer than the systemwide average. All of these projects are eligible for transit funding.

As discussed above, locally adopted long-range transportation plans must show the ability to fund all proposed projects. This requirement has compelled decision-makers in the Mesa County region to focus on projects that perform well and are cost-effective. The available funding is expected to be far short of meeting all the identified needs. Indeed, current transit services are not financially sustainable, given existing funding sources and levels. Nonetheless, it is important to provide a Preferred Plan that is not constrained by financial resources. Projects in the unconstrained list could be advanced through the amendment process to the Financially-Constrained Plan if new funds were identified – subject to the approved performance and environmental considerations. Under this arrangement, decision-makers have flexibility to consider new projects and to respond to funding opportunities that may present themselves in the future.

Table XII-2 presents a regional total for the financially unconstrained long-range transit projects. The transit operating projects that would enhance service for the region over the next 27 plus years have an estimated cost of approximately $144 million (not including the status quo, or "maintain existing services," option). Conversely, those projects that would reduce costs over the next 27 years total approximately $20 million. In terms of capital projects, GVT is seeking funding for slightly over $13 million, while other Mesa County providers (Debeque/Collbran Senior Services, Family Health West and Mesa Development Services) are seeking approximately $1.2 million.

TABLE XII-2: Mesa County Long-Range Financially-Unconstrained Preferred Transit Plan

Assumes 4.0 Percent Annual Inflation

Proj. #	Description	Year 2004 Annual Cost	Year 2030 Annual Cost	2004-2010 Cumulative Cost	2011-2015 Cumulative Cost	2016-2020 Cumulative Cost	2021-2025 Cumulative Cost	2026-2030 Cumulative Cost	27-Year Cumulative Cost
Grand Valley Transit Projects									
1	Low-Floor Replacement Buses	$210,000	$605,510	$900,160	$1,879,000	$0	$2,674,400	$1,211,010	$6,664,570
2	Cutaway Van Replacement Buses	$60,000	$173,000	$826,100	$1,005,070	$1,222,830	$1,487,760	$1,810,090	$6,351,850
3	Operating Cost (Maintain Existing Service)	$2,120,630	$6,114,560	$16,749,410	$15,114,820	$18,389,460	$22,373,620	$27,220,920	$99,848,230
4	Consolidate GVT & School Specialized Transportation	$605,170	$1,744,930	$4,779,850	$4,313,370	$5,247,910	$6,384,910	$7,768,190	$28,494,230
5	Consolidate GVT & Middle/High School Transportation	$284,880	$821,410	$2,250,110	$2,030,560	$2,470,450	$3,005,630	$3,656,860	$13,413,610
6	Extend Service Until 8:15 P.M.	$89,360	$257,660	$705,790	$636,890	$774,850	$942,700	$1,146,910	$4,207,140
7	Double Frequency on All Routes	$1,024,740	$2,954,700	$8,093,690	$7,303,810	$8,886,200	$10,811,410	$13,153,760	$48,248,870
8	Double Peak Period Frequency on All Routes	$380,050	$1,095,820	$3,001,720	$2,708,780	$3,295,610	$4,009,610	$4,878,350	$17,894,070
9	Double Frequency on Routes 5, 7 & 9, All-Day	$363,200	$1,047,240	$2,868,670	$2,588,740	$3,149,640	$3,831,990	$4,662,210	$17,101,250
10	Double Peak-Period Frequency on Routes 5, 7 & 9	$134,780	$388,620	$1,064,530	$960,620	$1,168,750	$1,421,990	$1,730,100	$6,345,990
11	Implement Sunday Service	$166,290	$479,480	$1,313,380	$1,185,190	$1,442,010	$1,754,470	$2,134,540	$7,829,590
12	Express Service Between East and West Transfer Centers	$1,630	$4,700	$12,910	$11,660	$14,170	$17,230	$20,940	$76,910
13	Revise Route 5 to Serve Mesa Mall	$3,990	$11,500	$31,530	$28,450	$34,700	$42,230	$51,340	$188,250
14	Weekday and Saturday Redlands Fixed-Route Service	$133,930	$386,170	$1,057,830	$954,630	$1,161,490	$1,413,130	$1,719,320	$6,306,400
15	Twice-Weekly Lifeline Redlands Service	$12,440	$35,870	$98,290	$88,740	$108,010	$131,400	$159,900	$586,340
16	Eliminate Route 2 Patterson Avenue	($78,590)	($226,600)	($620,720)	($560,150)	($681,450)	($829,070)	($1,008,700)	($3,700,090)
17	Eliminate Route 3 Orchard Avenue	($75,850)	($218,700)	($599,070)	($540,590)	($657,700)	($800,170)	($973,550)	($3,571,080)
18	Eliminate Route 8 Fruita	($86,240)	($248,660)	($681,170)	($614,750)	($747,900)	($909,900)	($1,107,050)	($4,060,770)
19	Interline Route 3 and Route 8, Using One Bus	($84,390)	($243,330)	($666,570)	($601,520)	($731,840)	($890,410)	($1,083,310)	($3,973,650)
20	Eliminate Saturday Service	($161,930)	($466,900)	($1,279,040)	($1,154,270)	($1,404,360)	($1,708,630)	($2,078,780)	($7,625,080)
21	Provide Additional Paratransit Service	$110,170	$317,660	$870,190	$785,300	$955,410	$1,162,380	$1,414,190	$5,187,470
22	Provide Commuter Service on Routes 4 & 8	($53,880)	($155,360)	($425,560)	($384,040)	($467,260)	($568,510)	($691,660)	($2,537,030)
23	Provide Route Deviation Service on Routes 4 & 8	$1,460	$4,210	$11,540	$10,410	$12,670	$15,420	$18,740	$68,780
24	Construction of a Long-Term Ops/Maint. Facility	$1,783,810	$5,143,380	$0	$0	$0	$0	$0	$0
25	Construction of a Long-Term Transit Center	$901,900	$2,600,510	$0	$0	$0	$0	$0	$0
26	Install Bike Racks at Transfer Points	$6,000	$17,300	$0	$6,000	$0	$6,000	$0	$12,000
27	AVL Technology	$520,360	$1,500,390	$0	$0	$0	$0	$0	$0
Other Providers' Projects									
28	Debeque/Collbran Senior Van Replacement	$60,000	$173,000	$66,180	$73,000	$80,520	$88,820	$97,970	$406,490
29	Family Health West Van Replacement	$60,000	$173,000	$66,180	$73,000	$80,520	$88,820	$97,970	$406,490
30	Mesa Devlopmental Service Van Replacement	$60,000	$173,000	$66,180	$73,000	$80,520	$88,820	$97,970	$406,490

POLICY PLAN

This Transit Element for the 2030 Transportation Plan has been developed with the understanding of community consensus for transportation initiatives that will enhance all elements of the Mesa County region's quality of life – while mitigating negative effects of population growth, sprawl and traffic congestion. This is particularly challenging, given the projected funding shortfalls currently facing transit services in the region.

The purpose of developing a regional vision statement and mission statement is to clearly articulate what is important to the residents of Mesa County. By clarifying a regional vision, the GVRTC can better focus the use of scarce resources to address current and long-range needs. In terms of transportation, a common vision provides a focus for implementing the type of infrastructure required to support the desired quality of life in the region.

Transportation is vital to our economy and our society. It supports economic development through the movement of goods and through access to jobs, services and other activities. However, as we entered the 21st century, concerns are growing about how to meet increasing demands for access and mobility, safe and efficient operations, the capacity of the current transportation infrastructure, environmental quality and social equity.

The negative effects of transportation activities, and the development patterns they support, include contribution to greenhouse gases and global warming, congestion, air and water pollution, inefficient land use, unequal access to transportation and ecosystem fragmentation.

There is a lack of understanding of how best to balance the often-conflicting goals of economic growth, environmental quality and sustainability. A key focus to this dilemma is how sustainable transportation and land use contribute to this balance – including policies, investments and strategies. These relationships produce environmental, social equity and economic outcomes, sometimes characterized as the "Three Es." As discussed above, progress is measured by outcomes ranging from reduced greenhouse gases to better access

to jobs. Thus, the greatest challenge for decision makers at all levels is to achieve a balance among the components, some of which may be in competition. A good resource for developing policy documents for the GVRTC is *Institutional Barriers to Intermodal Transportation Policies and Planning in Metropolitan Areas*, published by the Transportation Research Board.[1]

This Long-Range Transit Element will be a tool for the local planning staff. Specific goals of the plan will include transit projects to meet regional mobility needs, enhance economic development within the region and increase transit service to reduce single-occupancy vehicle usage.

Specific Mesa County Regional Issues

The Mesa County region, like many other areas throughout the country, is facing a host of financial, traffic congestion, environmental and economic development issues driven primarily by the continued dispersed patterns of residential and economic development. These patterns, coupled with a strong economy over the past decade, have resulted in a virtual explosion of automobile travel that has far exceeded population growth over the last decade. Some of the issues to be addressed by regional policies are listed below.

- The primary challenge facing the region is the inability to sustain existing public transit service levels in the region, given current funding sources and levels.

- Demographic characteristics (such as the aging of the population and the relatively high number of low-income Mesa County residents) are placing greater pressures on social service agencies to provide transportation for their clients throughout the region.

- Unmet transit needs in the region have been estimated at nearly one million annual trips. As such, the mobility of area residents is limited by

[1] Transit Cooperative Research Program, Report #14, 1996.

limited access to the private automobile and gaps in existing transit services.

- Traditional public transportation is becoming increasingly difficult to provide because of the continuing low-density development in the area.

- Potential future air quality issues associated with expanded automobile travel are potential threats to public health and economic development.

- The growth of the population in suburban areas has resulted in a disconnection between where most entry-level jobs are located (most entry-level jobs are concentrated in the urban Grand Junction core) and where suburban job-seekers live.

- To a lesser degree, traffic is a concern during peak travel periods in the urban area and the corridors between the communities.

Specific goals of the Long-Range Transit Element will include transit projects to ensure financial sustainability, meet regional mobility needs and enhance economic development within the region.

GVRTC Vision Statement

The Vision Statement for the 2030 Transportation Plan as used by GVRTC staff and the LSC Team is:

> ***GVRTC Vision Statement:*** Working to prioritize and coordinate regional transportation improvements and enhance public transit service through coordinated programs.

GVRTC Mission Statement

The following Mission Statement will be used by GVRTC staff when evaluating transportation issues:

> ***GVRTC Mission Statement***: To provide, through cooperative public and private efforts, effective and cost-efficient public transportation services to the extent possible and at a level supported by Mesa County residents.

GVRTC Guiding Principles

The guiding principles for the 2030 Plan to support the mission statement are listed below:

- Foster a financially sustainable transportation system that will effectively address the current and future needs of the region within fiscal constraints.
- Assure that all residents have adequate access to the process of transportation and air quality planning and project selection.
- Encourage local governments to work together as a council to develop a balanced approach to providing:
  - System capacity
  - Alternative transportation choices
  - Interconnectivity with other regions
  - Integration of transportation, land use and air quality planning

GVRTC Goals

The goals for the 2030 Transportation Plan are another important element in the success of an integrated transportation network. The goals supporting the Mission Statement and the Guiding Principles are listed below.

- To provide a safe, balanced transportation system that can move people, goods and information quickly and efficiently.
- To foster regional coordination and transportation system continuity.
- To minimize congestion on the transportation system.
- To meet the needs of the transportation disadvantaged.
- To ensure adequate maintenance of the transportation system.
- To minimize negative environmental impacts and improve air quality.
- To support land use consistent with comprehensive plans.
- To provide a positive economic impact.
- To identify funding needs and to explore and support all potential approaches to fulfill those needs.

FUNDING PLAN – FINANCIALLY-CONSTRAINED

This section presents the funding plan for the Mesa County Long-Range Financially-Constrained Plan. The revenue projections are presented along with alternative funding sources to be pursued by the agencies within the region. This Financially-Constrained Plan relies on the funding sources that are currently being used by the transit agencies or are likely to be realized over the planning horizon.

Funding for transit service within the region will come from federal and local (public and private) sources. The Transportation Equity Act for the 21st

Century (TEA-21) is the current legislation guiding the federal transit program. Under TEA-21, the Federal Transit Administration administers formula and discretionary funding programs that are applicable to the Mesa County region. Currently, no state funding is available for transit services across the State of Colorado. Senate Bill 1 will result in state funding for transit, if transit projects relate to statewide strategic priorities. The following text provides a short description of other existing funding sources.

FTA Section 5307 Urbanized Area Formula Program Funds

A mainstay of transit funding for smaller cities across the country is the Federal Transit Administration's Urbanized Area Formula Program 5307. These funds are provided to urbanized areas (as identified by the Census Bureau) with a population of 50,000 or more and are for use throughout the urbanized area. For small urbanized areas with population between 50,000 and 200,000, these funds can be used for operating assistance, at a 50 percent federal/50 percent local ratio. In addition, these funds can be used for associated capital maintenance on an 80 percent federal/20 percent local ratio. In FTA Fiscal Year 2001-02 (October 1, 2001 through September 30, 2002), a total of $3,207,052,091 was available nationwide, of which $658,293 was apportioned to the Grand Junction Urbanized Area. Preliminary estimates by FTA Region 8 staff indicate that the Grand Junction Urbanized Area apportionment for Fiscal Year 2002-03 will be on the order of $864,877.

FTA Section 5309 Capital Program Funds

These grants are split into three categories: New Starts, Fixed Guideway Modernization and Bus and Bus Facilities. Total FTA Section 5309 funding nationwide increased from a Fiscal Year 1997-98 level of $1.9 billion to a Fiscal Year 2001-02 apportionment of $2.8 billion.

In Fiscal Year 2001-02, $613,751,658 was available nationally for bus and bus facilities projects. Of this total, $7,672,725 was earmarked for projects in Colorado. Competition for these funds is extremely intense and all funds have been earmarked directly by Congress over the past several years. It should be

noted that in recent years the transit agencies in Colorado have submitted requests for projects through a statewide coalition; the Mesa County GVRTC is a member of this coalition. These funds will be used to purchase replacement buses throughout the Plan period.

FTA Section 5310 Elderly and Persons with Disabilities Capital Funds

FTA funds are also potentially available through the FTA Section 5310 Elderly and Persons with Disabilities Program (largely vehicles), which is administered by CDOT. Until recently, recipients of Section 5310 funding were restricted to non-profit organizations; with passage of ISTEA, however, local governmental jurisdictions also became eligible for funding. FTA Fiscal Year 2001-02 apportionments totaled $84,930,249 nationwide ($994,098 in Colorado). Preliminary estimates by FTA Region 8 staff indicate that CDOT's Section 5310 apportionment for Fiscal Year 2002-03 will be on the order of $1,115,251. The Mesa County GVRTC has never applied for these funds in the past, although it plans to assist area agencies (including MesAbility) and local governments that provide services to senior and disabled persons with grant applications for replacement vans during the Plan period.

FTA Section 5311 Nonurbanized Formula Program Funds

Federal transit funding for rural areas, such as service within Mesa County but outside the Grand Junction Urbanized Area, is currently provided through the FTA Section 5311 program for nonurbanized areas. A 20 percent local match is required for capital projects and a 50 percent match for operating expenditures. Nationwide, Section 5311 funds totaled $27,911,737 in FTA Fiscal Year 2001-02 ($2,252,560 in Colorado). These funds, administered by CDOT, are allocated on a discretionary basis and are typically used for capital purposes. These funds are available for a maximum of three years, after which they are reverted back to CDOT if unused. The funds must be used for public transportation – they cannot be used exclusively for transportation for disabled or elderly persons. Preliminary estimates by FTA Region 8 staff indicate that CDOT's Section 5311 apportionment for Fiscal Year 2002-03 will be on the order of $2,791,089. Mesa County received $50,000 in Fiscal Year 2001-02 for service to

the nonurbanized areas of Fruita and Palisade and these funds are programmed only for services in Fruita throughout the Plan period. It should be noted that service to Palisade is no longer eligible for FTA Section 5311 funds, since it was included in the Grand Junction Urbanized Area following the 2000 U.S. Census. However, transit services operating in areas such as the 24 Road Corridor and the Mesa Mall commercial center would still be eligible for FTA Section 5311 funding.

FTA Section 3037 Job Access and Reverse Commute Program Funds

The Job Access and Reverse Commute (JARC) grant program assists states and localities in developing new or expanded transportation services that connect welfare recipients and other low-income persons to jobs and other employment related services. Job Access projects are targeted at developing new or expanded transportation services such as shuttles, vanpools, new bus routes, connector services to mass transit and guaranteed ride home programs for welfare recipients and low income persons. Reverse Commute projects provide transportation services to suburban employment centers from urban, rural and other suburban locations for all populations. Criteria for evaluating grant applications for JARC grants include:

- Coordinated human services/transportation planning process involving state or local agencies that administer the Temporary Aid to Needy Families (TANF) and Welfare-to-Work (WtW) programs, the community to be served and other area stakeholders;

- Unmet need for additional services and extent to which the service will meet that need;

- Project financing, including sustainability of funding and financial commitments from human service providers and existing transportation providers; and

- Other factors that may be taken into account include the use of innovative approaches, schedule for project implementation and geographic distribution.

The JARC grant program is intended to establish a coordinated regional approach to job access challenges. All projects funded under this program must be the result of a collaborative planning process that includes states and metropolitan planning organizations, transportation providers, agencies administering TANF and Welfare to Work funds, human services agencies, public housing, child care organizations, employers, states and affected communities and other stakeholders. The program is expected to leverage other funds that are eligible to be expended for transportation and encourage a coordinated approach to transportation services.

In urbanized areas with a population of 200,000 or more, Metropolitan Planning Organizations select the applicant(s). In urbanized areas with a population under 200,000 and in nonurbanized, rural, states select the applicant(s).

Funding for JARC grants is authorized at $150 million annually beginning in FTA Fiscal Year 1999-2000, including up to $10 million for Reverse Commute Grants, although only $125 million was apportioned nationally in FTA Fiscal Year 2001-02. A 50 percent local match is required, although other Federal funds can be used as part of the local match. Mesa County received $115,617 in Job Access funds in Fiscal Year 2001-02.

It should be noted that these funds are discretionary in nature and Mesa County has used these funds to provide on-going funding of base level services. This could be problematic should Mesa County be unsuccessful in attaining these funds in the future – additional local funds could be required to "backfill" any funding gap.

Transit Benefit Program

The "Transit Benefit Program" is a provision in the Internal Revenue Code (IRC) that permits an employer to pay for an employee's cost to travel to work in other than a single-occupancy vehicle. The program is designed to improve air

quality, reduce traffic congestion and conserve energy by encouraging employees to commute by means other than single-occupancy motor vehicles.

Under Section 132 of the IRC, employers can provide up to $100 per month to those employees who commute to work by transit or vanpool. A vanpool vehicle must have seating capacity of at least six adults, not including the driver, to qualify under this rule. The employer can deduct these costs as business expenses and employees do not report the subsidy as income for tax purposes. The subsidy is a qualified transportation fringe benefit.

Under TEA-21, this program has been made more flexible. Prior to TEA-21, the transit benefit could only be provided in addition to the employee's base salary. With the passing of TEA-21, the transit pass may be provided as before, or can be provided in lieu of salary. In addition, the transit pass may be provided as a cash-out option for employer-paid parking for employees. To summarize, this program may not necessarily reduce an employer's payroll costs. Rather, it enables employers to provide additional benefits for employees without increasing the payroll. GVRTC and GVT staff should conduct outreach to area employers to encourage them to participate in a transit benefit program. This effort could result in increased ridership and farebox revenues.

Other Federal Funds

The US DOT funds other programs including the Research and Special Programs Administration (RSPA) and the National Highway Traffic Safety Administration's State and Community Highway Grants Program funds transit projects that promote safety. Although not included in the Financially-Constrained Plan, Mesa County could seek to attain one or more of the funding sources presented below should it not be successful in attaining or more of the discretionary funds discussed above.

A wide variety of other federal funding programs provide support for elderly and handicapped transportation programs. Some of these funding sources are currently being utilized in the region and others can be explored further, including the following:

- Retired Senior Volunteer Program (RSVP)
- Title IIIB of The Older Americans Act
- Medicaid Title XIX
- Veterans' Affairs
- Job Training Partnership Act (JTPA)
- Temporary Assistance for Needy Families (TANF)
- Developmental Disabilities
- Housing and Urban Development (Bridges to Work and Community Development Block Grants)
- Head Start
- Vocational Rehabilitation
- Health Resources and Services Administration
- Senior Opportunity Services
- Special Education Transportation
- Weed and Seed Program, Justice Department
- National Endowment for the Arts
- Rural Enterprise Community Grants, Agriculture Department

- Department of Commerce, Economic Development and Assistance Programs

- Pollution Prevention Projects, Environmental Protection Agency

LOCAL TRANSIT FUNDING SOURCES

A variety of local funds are available in the Mesa County region. Examples of local support that could be used for transit include the following: voluntary assessments of municipalities; contributions by major business associations; and taxes (sales tax, lodging tax, property tax, fuel tax, real estate tax). Many local agencies benefit from business support in the form of advertising.

Prior to discussing local funding sources, it is important to recognize the limits on statewide funding and expenditures imposed by the Taxpayer Bill of Rights (TABOR) Amendment.[2] Colorado was one of the first states to impose a statutory cap on the growth of state spending. In 1978, a cap of 7 percent was placed on the growth of general fund expenditures. In 1992, this statutory cap was changed by the Bird-Arveschaugh Amendment. That Amendment placed a cap on general fund appropriations equal to the lesser amount of 5 percent of Colorado personal income in the calendar year two years prior to the start of the fiscal year or 6 percent over the previous year's General Fund appropriation, with exceptions for federal mandates and court orders. The Bird-Arveschaugh Amendment also imposed a statutory reserve requirement equal to 4 percent of the General Fund appropriation.

The TABOR Amendment, passed in 1992, restricts the growth in state revenue and spending to inflation plus the percentage change in state population in the calendar year prior to the start of the fiscal year. The TABOR Amendment also placed a procedural constraint on the power of state government to raise taxes. Voter approval in advance is required for any new taxes, tax rate increases,

[2] This discussion regarding TABOR is taken from "The TABOR Amendment: Learning To Live Within Colorado's Tax & Spending Limits," By Dr. Barry Poulson, Senior Fellow, Independence Institute, Issue Paper Number 9-2001; December 2001

extension of an expiring tax, or tax policy change directly causing a net revenue gain. Voter approval is also required for the state to retain and spend revenue in excess of the limit. Any surplus revenue represents "excess taxation" that must be rebated to those who paid the excess taxes.

These and other local funding sources are discussed below.

- ***General Fund Appropriations***: Counties and municipalities appropriate funds for transit operations and maintenance and for transit capital needs. Monies to be appropriated come generally from local property taxes and sales taxes. Competition for such funding is tough and local governments generally do not have the capacity to undertake major new annual funding responsibilities for transit. These funds are currently being provided to fund Mesa County transit services as part of the existing interlocal agreement.

- ***Advertising***: One modest but important source of funding for many transit services is on-vehicle advertising. The largest portion of this potential is for exterior advertising, rather than interior "bus card" advertising. The potential funds generated by advertising placed within the vehicles are comparatively low. Approximately $35,000 is provided annually in Mesa County through this source.

- ***Voluntary Assessments***: This alternative requires each participating governmental entity (the cities and counties) and private businesses to contribute to funding of the system on a year-to-year basis. Governmental entities generally provide this funding out of general funds. This funding mechanism is common for areas that provide regional service rather than service limited to a single jurisdiction. An advantage of this type of funding is that it does not require voter approval. However, the funding is not necessarily reliable and may be cut off at any time.

- ***Private Support***: Currently, several private organizations provide private funding for Mesa County transit services, primarily through the direct

purchase of fare media. Financial support from private industry, though relatively small, is essential to provide adequate transportation services in the Mesa County region. This financial support should continue even if an Authority is ultimately established to ensure that adequate service is provided. Other major employers in the Mesa County region are potential sources of revenue.

- ***Transportation Impact Fees***: Traditional methods of funding the transportation improvements required by new development raise questions of equity. Sales and property taxes are applied to both existing residents and to new residents attracted by development. However, existing residents then inadvertently pay for public services required by the new residents. As a means of correcting this inequity, many communities nationwide, faced with strong growth pressures, have implemented development impact fee programs that place a fee on new development equal to the costs imposed on the community.

  Previous work by the LSC Team indicates that the levy of impact fees on real estate development has become a commonplace tool in many areas to ensure that the costs associated with a development do not fall entirely on existing residents. Impact fees have been used primarily for highways and roads, followed by water and sewer projects. A program specifically for mass transit has been established in San Francisco. A number of administrative and long-term considerations must be addressed:

  - It is necessary to legally ensure that the use on which the fees are computed would not change in the future to a new use with a high impact by placing a note restricting the use on the face of the plat recorded in public records.

  - The fee program should be reviewed annually.

- The validity of the program and its acceptability to the community, is increased if a time limit is placed on the spending of collected funds.

- TIF funds need to be strictly segregated from other funds. The imposition of a TIF program could constrain capital funding sources developed in the future, as a new source may result in a double payment.

- TIF fees should be collected at the time that a building permit is issued.

- ***Lodging Tax***: The appropriate use of lodging taxes (a.k.a. occupancy taxes) has long been the subject of debate. Historically, the bulk of these taxes are used for marketing and promotion efforts for conferences and general tourism. In other areas, such as resorts, the lodging tax is an important element of the local transit funding formula. A lodging tax can be considered as a specialized sales tax, placed only on lodging bills. As such, it shares many of the advantages and disadvantages of a sales tax. Taxation of this type has been used successfully to fund transit services in Telluride, Aspen and Durango, Colorado; Park City, Utah; Sun Valley, Idaho; and the Lake Tahoe region in California. A lodging tax creates inequities between different classes of visitors, as the tax is only paid by overnight visitors. Day visitors and condominium/second-home owners, who may use transit as much as lodging guests, do not contribute to transit. It should be noted that the City of Grand Junction currently levies a lodging tax for tourism-related promotion.

- ***Sales Tax***: A sales tax could be implemented with funds to go to transit services. Sales tax is the financial base for many transit services in the western United States. The required level of sales tax would depend upon the service alternatives chosen. One advantage is that sales tax revenues are relatively stable and can be forecast with a high degree of confidence. In addition, sales tax can be collected efficiently and it allows the community to generate revenues from visitors in the area. This source, of

course, would require a vote of the people to implement. In addition, a sales tax increase could be seen as inequitable to residents not served by transit. This disadvantage could be offset by the fact that sales taxes could be rebated to incorporated areas not served by transit. Transit services, moreover, would face competition from other services, which may seek to gain financial support through sales taxes.

- ***Ad Valorem Property Taxes for Capital Projects***: Counties are authorized (CRS Sec. 39-13-103) to impose property taxes for specific capital projects with voter approval.

- ***Rural Transportation Authority***: Legislation adopted in 1997 and amended in the 2000 session (CRS Sec. 43-4-603) provides authority for Colorado municipalities and counties (outside the RTD area) to establish RTAs. It should be noted that an RTA is not a funding "source," it is a funding mechanism. RTAs are able to impose a $10.00 annual vehicle registration fee and, with voter approval, may levy a sales tax of up to one percent and/or a visitor benefit fee (fee added to the lodging rate within the area) of up to two percent of the price of overnight lodging. Local governments have considerable flexibility in designing the boundaries of RTAs, which may include all or a portion of the areas of participating jurisdictions. An RTA is a regional, multi-jurisdictional entity that becomes a separate subdivision of the state, but which operates pursuant to an intergovernmental agreement adopted by its member governments.

  A visitor benefit fee was added to the statute in the 2000 legislative session. Extensive research would be required to estimate the funding potential from this source.

- ***Special Districts***: Colorado local governments also may create a variety of local districts including special districts (CRS Sec. 32-1-101), service authorities (CRS Sec. 32-7-101), municipal general improvement districts (CRS Sec. 31-25-601), county public improvement districts (CRS Sec. 30-20-501), municipal special improvement districts (CRS Sec. 31-25-501)

and county local improvement districts (CRS Sec. 30-20-601). Similar to the discussion above regarding RTAs, special districts are not a funding source, but a funding mechanism. In general, these districts are funded from fees or property taxes, with the exception of the county improvement district, which, with voter approval, may levy a sales tax of up to 0.5 percent. In general, these districts are limited in their usefulness as mechanisms for funding transit systems, particularly in a multi-jurisdictional setting.

- ***Local College Funding***: A strategy to generate transit revenues from campus communities is to levy a student activity fee for transit services or an established amount from the college general fund. An activity fee would have to be approved by a majority of students and would be applied each semester or quarter of school. Mesa State College currently provides approximately $50,000 annually to GVT services through a $4.00 per student per semester, which allows students free access to fixed route services.

Financial Issues Related to Institutional Arrangements

When comparing the attributes of an RTA versus a special local district transit system, the best and most versatile of the two will be the RTA, which offers more options for funding sources and much greater flexibility in designing the boundaries and makeup of a multi-jurisdictional transit system. An RTA can "act" like a municipality with its own distinct boundary – it can enter in contracts, administer state and federal grants, collect sales tax and other revenues, own real and personal property, issue revenue bonds and operate a transit system.

Forming an RTA is very complex, would require buy-in from local elected officials and community leaders, and would be a very time-consuming process. If local officials in the Mesa County area wish to form an RTA, it would be prudent to seek the counsel of the myriad experts employed by RFTA during its formation. Alternately, local officials could seek to refine the existing inter-local agreement as conditions change in the region. At a minimum, parties to the

agreement should consider meeting on an annual or semi-annual basis to discuss challenges currently facing transit services administered by the GVRTC and opportunities for improving services.

Financially-Constrained Long-Range Transit Element

This section presents the financially-constrained transit projects and the funding plan to implement those projects. The long-range projects include the continuation of existing services and a limited number of future transit projects. Table XII-3 presents the projects included in the financially-constrained plan. The estimated total for the existing services over the next 27 years is approximately $105,245,550. This Plan assumes that additional paratransit service will be implemented beginning in 2011 to meet anticipated growth it the elderly and disabled populations in the region. This analysis assumes an annual inflation rate of 4.0 percent, for both service and capital projects. This financially-constrained plan is the basis for developing the Short-Range Transit Element, presented in Chapter XIV. Other assumptions include the following:

- To account for inflation, a 3.5 percent annual increase is assumed for all Federal sources and for the Mesa State College contribution.

- For all remaining sources, a 4.0 percent annual increase is assumed.

In terms of capital projects, only replacement buses are planned; no facilities are recommended due to funding constraints. In terms of fleet make up, a total of six low- floor medium-heavy duty buses and eleven cutaway vans are recommended for GVT services. The low-floor buses would be replaced every twelve years at a 2004 cost of $210,000 each and the vans would be replaced every five years at a 2004 cost of $60,000 each.

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TABLE XII-3: Mesa County Long-Range Transit Element (Page 1 of 2)

GVT Expenses	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**15-Year Total**
Continue Existing Services	$2,113,090	$2,197,610	$2,285,510	$2,376,930	$2,472,010	$2,570,890	$2,673,730	$2,780,680	$2,891,910	$3,007,590	$3,127,890	$3,253,010	$3,383,130	$3,518,460	$3,659,200	**$42,311,640**
Provide Additional Paratransit Service	$0	$0	$0	$0	$0	$0	$0	$150,540	$156,560	$162,820	$169,330	$176,100	$183,140	$190,470	$198,090	**$1,387,050**
Improvements to Coronado Plaza	$25,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$25,000**
Low-Floor Bus Purchases (Assume 12-Year Life)																
Number of Units	2	1	1	0	0	0	0	0	0	0	0	2	2	1	1	**10**
Total Cost	$457,600	$237,950	$247,470	$0	$0	$0	$0	$0	$0	$0	$0	$704,450	$732,630	$380,970	$396,210	**$3,157,280**
Minibus Purchases (Assume 5-Year Life)																
Number of Units	0	0	6	6	0	0	0	7	6	0	0	0	7	6	0	**38**
Total Cost	$0	$0	$404,950	$421,150	$0	$0	$0	$574,800	$512,390	$0	$0	$0	$699,330	$623,400	$0	**$3,236,020**
Subtotal	*$2,595,690*	*$2,435,560*	*$2,937,930*	*$2,798,080*	*$2,472,010*	*$2,570,890*	*$2,673,730*	*$3,506,020*	*$3,560,860*	*$3,170,410*	*$3,297,220*	*$4,133,560*	*$4,998,230*	*$4,713,300*	*$4,253,500*	***$50,116,990***
GVT Funding Program Description [1]																
General Fund Appropriations [2]	$951,836	$989,909	$1,029,510	$1,070,690	$1,113,520	$1,158,060	$1,204,380	$1,252,560	$1,302,660	$1,354,770	$1,408,960	$1,465,320	$1,523,930	$1,584,890	$1,648,290	**$19,059,285**
Additional Local Contribution [3]	$0	$0	$50,000	$52,000	$54,080	$56,240	$58,490	$60,830	$63,260	$65,790	$68,420	$71,160	$74,010	$76,970	$80,050	**$831,300**
Mesa State College	$50,000	$51,500	$53,050	$54,640	$56,280	$57,970	$59,710	$61,500	$63,350	$65,250	$67,210	$69,230	$71,310	$73,450	$75,650	**$930,100**
Advertising	$40,000	$41,600	$43,260	$44,990	$46,790	$48,660	$50,610	$52,630	$54,740	$56,930	$59,210	$61,580	$64,040	$66,600	$69,260	**$800,900**
Passenger Fares [4]	$115,000	$117,250	$119,560	$121,910	$124,310	$126,760	$129,260	$132,070	$134,940	$137,870	$140,860	$143,920	$146,990	$150,120	$153,320	**$1,994,140**
Additional Passenger Fares (Fare Increases) [4]	$47,630	$50,510	$53,570	$56,810	$60,250	$63,890	$67,750	$71,850	$76,200	$80,810	$85,700	$90,880	$96,380	$102,210	$108,390	**$1,112,830**
Additional Passenger Fares (Inflation) [4]	$0	$0	$0	$0	$0	$7,630	$7,880	$8,160	$8,450	$8,750	$9,060	$9,390	$9,730	$10,090	$10,470	**$89,610**
FTA Section 5307 Urbanized Area Program	$865,000	$895,280	$926,610	$959,040	$992,610	$1,027,350	$1,063,310	$1,112,530	$1,163,470	$1,216,190	$1,270,760	$1,327,240	$1,385,690	$1,446,190	$1,508,810	**$17,160,080**
FTA Section 5309 Capital Program	$366,080	$190,360	$521,940	$336,920	$0	$0	$0	$459,840	$409,910	$0	$0	$563,560	$1,145,570	$803,500	$316,970	**$5,114,650**
FTA Section 5311 Nonurbanized Area Program	$70,000	$72,450	$74,990	$77,610	$80,330	$83,140	$86,050	$89,060	$92,180	$95,410	$98,750	$102,210	$105,790	$109,490	$113,320	**$1,350,780**
FTA Section 3037 JARC Program Funds	$100,000	$103,500	$107,120	$110,870	$114,750	$118,770	$122,930	$127,230	$131,680	$136,290	$141,060	$146,000	$151,110	$156,400	$161,870	**$1,929,580**
Subtotal	*$2,605,546*	*$2,512,359*	*$2,979,610*	*$2,885,480*	*$2,642,920*	*$2,748,470*	*$2,850,370*	*$3,428,260*	*$3,500,840*	*$3,218,060*	*$3,349,990*	*$4,050,490*	*$4,774,550*	*$4,579,910*	*$4,246,400*	***$50,373,255***
GVT Surplus/Deficit	***$9,856***	***$76,799***	***$41,680***	***$87,400***	***$170,910***	***$177,580***	***$176,640***	***($77,760)***	***($60,020)***	***$47,650***	***$52,770***	***($83,070)***	***($223,680)***	***($133,390)***	***($7,100)***	***$256,265***
GVT Cumulative Surplus	***$9,856***	***$86,655***	***$128,335***	***$215,735***	***$386,645***	***$564,225***	***$740,865***	***$663,105***	***$603,085***	***$650,735***	***$703,505***	***$620,435***	***$396,755***	***$263,365***	***$256,265***	***$6,289,566***
Other Mesa County Providers' Projects [5]																
Debeque/Collbran Senior Replacement Van	$89,360	$0	$0	$0	$0	$108,720	$0	$0	$0	$0	$132,270	$0	$0	$0	$0	**$330,350**
Family Health West Replacement Van	$89,360	$0	$0	$0	$0	$108,720	$0	$0	$0	$0	$132,270	$0	$0	$0	$0	**$330,350**
Mesa Development Services Replacement Van	$89,360	$0	$0	$0	$0	$108,720	$0	$0	$0	$0	$132,270	$0	$0	$0	$0	**$330,350**

Note 1: To account for inflation, a 3.5 percent annual increase is assumed for all Federal sources and for the Mesa State College contribution. For all remaining sources, a 4.0 percent annual increase is assumed.
Note 2: The existing interlocal agreement includes contributions from Mesa County, and the cities of Grand Junction, Fruita and Palisade; the current agreement expires in 2005.
Note 3: An additional local contribution will be required from the member jurisdictions to make the local match required for purchase of replacement buses and stabilize the 27 year operations plan.
Note 4: For the purposes of this analysis, it is assumed that ridership and farebox revenues will increase by the anticipated annual growth in population . In addition, the base passenger fare will be increased to $1.00 in 2004, and periodically thereafter to account for 4.0 annual inflation. This equates to $0.25 increases in Fiscal Years 2004, 2009, 2014, 2018, 2022,
Note 5: The other providers' van replacement projects will be funded 80 percent by FTA Section 5310 funds and 20 percent local agency funds

TABLE XII-3: Mesa County Long-Range Transit Element (Page 2 of 2)

GVT Expenses	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	***LRTE 27-Year Total***
Continue Existing Services	$3,805,570	$3,957,790	$4,116,100	$4,280,740	$4,451,970	$4,630,050	$4,815,250	$5,007,860	$5,208,170	$5,416,500	$5,633,160	$5,858,490	***$99,493,290***
Provide Additional Paratransit Service	$206,010	$214,250	$222,820	$231,730	$241,000	$250,640	$260,670	$271,100	$281,940	$293,220	$304,950	$317,150	***$4,482,530***
Improvements to Coronado Plaza	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	***$25,000***
Low-Floor Bus Purchases (Assume 12-Year Life)													
Number of Units	0	0	0	0	0	0	0	0	2	2	1	1	***16***
Total Cost	$0	$0	$0	$0	$0	$0	$0	$0	$1,127,850	$1,172,970	$609,940	$634,340	***$6,702,380***
Minibus Purchases (Assume 5-Year Life)													
Number of Units	0	0	7	6	0	0	0	7	6	0	0	0	***64***
Total Cost	$0	$0	$850,840	$758,470	$0	$0	$0	$1,035,180	$922,790	$0	$0	$0	***$6,803,300***
Subtotal	*$4,011,580*	*$4,172,040*	*$5,189,760*	*$5,270,940*	*$4,692,970*	*$4,880,690*	*$5,075,920*	*$6,314,140*	*$7,540,750*	*$6,882,690*	*$6,548,050*	*$6,809,980*	***$117,506,500***
GVT Funding Program Description [1]													
General Fund Appropriations [2]	$1,714,220	$1,782,790	$1,854,100	$1,928,260	$2,005,390	$2,085,610	$2,169,030	$2,255,790	$2,346,020	$2,439,860	$2,537,450	$2,638,950	***$44,816,755***
Additional Local Contribution [3]	$83,250	$86,580	$90,040	$93,640	$97,390	$101,290	$105,340	$109,550	$113,930	$118,490	$123,230	$128,160	***$2,082,190***
Mesa State College	$77,920	$80,260	$82,670	$85,150	$87,700	$90,330	$93,040	$95,830	$98,700	$101,660	$104,710	$107,850	***$2,035,920***
Advertising	$72,030	$74,910	$77,910	$81,030	$84,270	$87,640	$91,150	$94,800	$98,590	$102,530	$106,630	$110,900	***$1,883,290***
Passenger Fares [4]	$156,590	$159,930	$163,340	$166,820	$170,370	$174,000	$177,710	$181,500	$185,370	$189,320	$193,350	$197,470	***$4,109,910***
Additional Passenger Fares (Fare Increases) [4]	$114,950	$121,900	$129,270	$137,090	$145,380	$154,170	$163,490	$173,380	$183,870	$194,990	$206,780	$219,290	***$3,057,390***
Additional Passenger Fares (Inflation) [4]	$10,860	$11,270	$11,700	$12,160	$12,630	$13,130	$13,650	$14,200	$14,770	$15,370	$16,010	$16,670	***$252,030***
FTA Section 5307 Urbanized Area Program	$1,573,620	$1,640,700	$1,710,120	$1,781,970	$1,856,340	$1,933,310	$2,012,980	$2,095,430	$2,180,770	$2,269,100	$2,360,520	$2,455,140	***$41,030,080***
FTA Section 5309 Capital Program	$0	$0	$680,670	$606,780	$0	$0	$0	$828,140	$1,640,510	$938,380	$487,950	$507,470	***$10,804,550***
FTA Section 5311 Nonurbanized Area Program	$117,290	$121,400	$125,650	$130,050	$134,600	$139,310	$144,190	$149,240	$154,460	$159,870	$165,470	$171,260	***$3,063,570***
FTA Section 3037 JARC Program Funds	$167,540	$173,400	$179,470	$185,750	$192,250	$198,980	$205,940	$213,150	$220,610	$228,330	$236,320	$244,590	***$4,375,910***
Subtotal	*$4,088,270*	*$4,253,140*	*$5,104,940*	*$5,208,700*	*$4,786,320*	*$4,977,770*	*$5,176,520*	*$6,211,010*	*$7,237,600*	*$6,757,900*	*$6,538,420*	*$6,797,750*	***$117,511,595***
GVT Surplus/Deficit	***$76,690***	***$81,100***	***($84,820)***	***($62,240)***	***$93,350***	***$97,080***	***$100,600***	***($103,130)***	***($303,150)***	***($124,790)***	***($9,630)***	***($12,230)***	***NA***
GVT Cumulative Surplus	***$332,955***	***$414,055***	***$329,235***	***$266,995***	***$360,345***	***$457,425***	***$558,025***	***$454,895***	***$151,745***	***$26,955***	***$17,325***	***$5,095***	***$5,095***
Other Mesa County Providers' Projects [5]													
Debeque/Collbran Senior Replacement Van	$160,930	$0	$0	$0	$0	$195,800	$0	$0	$0	$0	$238,220	$0	***$925,300***
Family Health West Replacement Van	$160,930	$0	$0	$0	$0	$195,800	$0	$0	$0	$0	$238,220	$0	***$925,300***
Mesa Development Services Replacement Van	$160,930	$0	$0	$0	$0	$195,800	$0	$0	$0	$0	$238,220	$0	***$925,300***

Note 1: To account for inflation, a 3.5 percent annual increase is assumed for all Federal sources and for the Mesa State College contribution. For all remaining sources, a 4.0 percent annual increase is assumed.
Note 2: The existing interlocal agreement includes contributions from Mesa County, and the cities of Grand Junction, Fruita and Palisade; the current agreement expires in 2005.
Note 3: An additional local contribution will be required from the member jurisdictions to make the local match required for purchase of replacement buses and stabilize the 27 year operations plan.
Note 4: For the purposes of this analysis, it is assumed that ridership and farebox revenues will increase by the anticipated annual growth in population. In addition, the base passenger fare will be increased to $1.00 in 2004, and periodically thereafter to account for 4.0 annual inflation. This equates to $0.25 increases in Fiscal Years 2004, 2009, 2014, 2018,
Note 5: The other providers' van replacement projects will be funded 80 percent by FTA Section 5310 funds and 20 percent local agency funds

Table XII-3 also presents funding by source for the financially-constrained projects. The LSC Team has assumed that that a relatively small amount of additional local funding will be provided in the first two years of the Plan to assist in making the local match required for purchasing replacement buses and to make needed safety and aesthetic improvements to the Coronado Plaza transfer point.

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CHAPTER XIII

Short-Range Transit Element

The LSC Team has prepared this Final Report, which includes the Short-Range Transit Element for the Mesa County region. The Short-Range Plan has been reviewed and recommended by the Study Steering Committee, the GVRTC and other concerned citizens; comments on the draft report have been incorporated into this Final Report, as appropriate.

SHORT-RANGE TRANSIT ELEMENT

This section presents the Short-Range Transit Element for the Mesa County region for the next seven years (2004 through 2010). The major assumptions used in developing revenue and cost projections are sources currently used by the GVRTC or to be realized over the short planning horizon. To account for inflation, operating and capital costs are assumed to increase by 4.0 percent annually.

The Short-Range Transit Element is the basis for operational plans for GVT and does not include financial projections for private transportation providers in the region (i.e., Care Cars). GVT is responsible for developing its own detailed operational plans (i.e., revised driver schedules) to implement the Short-Range Transit Element. The Short-Range Transit Element is used by the Colorado Department of Transportation in the evaluation of transit grant applications.

It should be noted that the LSC Team is recommending that the fare structure be amended to both increase revenues and to bring the fare structure more in line with other Colorado transit systems. Specifically, the following fare structure will be implemented in 2004:

- The base fare will be increased from $0.50 to $1.00.
- The half-fare will be increased from $0.25 to $0.50.

- The paratransit fare will be increased from $1.00 to $2.00.

- The cost of the fixed route day pass will be increased from $1.50 to $2.50.

- The cost of the fixed route ten-ride punch pass will be increased from $5.00 to $10.00.

- The cost of the monthly pass will increase for youth from $10.00 to $15.00, and adult monthly pass will increase from $20.00 to $30.00.

- The cost of the six-month youth pass will increase from $50.00 to $75.00, and the cost of the adult six-month pass will increase from $80.00 to $100.00.

- The cost of the annual youth pass will increase from $100.00 to $150.00, and the cost of the annual adult pass will increase from $150.00 to $200.00.

Increased use of multi-ride passes will help speed the boarding process. In particular, the interaction required between a cash fare patron and the driver is avoided if the patron merely has to show his or her monthly pass while boarding. Speeding the boarding process will improve the on-time performance of the fixed route system. For this reason, GVT should encourage additional monthly pass use through targeted marketing to employers and users likely to benefit from pass use.

As detailed in the Long-Range Transit Element chapter, the fare structure will be periodically increased to account for 4.0 percent annual inflation. As such, during the Short-Range Transit Element planning period, the fare structure would be increased by 25 percent in 2010.

SERVICE PLAN ELEMENTS

In order to develop a service plan for GVT, five different operating scenarios (at four different levels of investment) are presented below:

- ***Scenario 1*** – The existing service plan will be operated over the next seven years. Under this scenario, the existing daily span of service, route frequency and service area will remain as currently operated. However, the current ADA service deficiencies in Fruita and Palisade will be addressed by reducing service on Routes 4 and 8 by one run daily, and operating the services in these areas as "commuter" service. The resources saved by reducing the number of daily runs on these two routes will be used to provide twice-weekly demand response service in Fruita and Palisade for elderly and disabled patrons. In addition, the existing Route 5A and Route 5B services will be revised to serve the Riverside, Grand Mesa Center and Rim Rock developments in Grand Junction; the details of these route revisions will be completed by MesAbility staff. Finally, the deviated fixed route Dial-A-Ride program will be eliminated, and these resources will be used to expand the capacity of the paratransit program.

- ***Scenario 2*** – The service plan will be operated the same as described in Scenario 1 above, although the current ADA service deficiencies in Fruita and Palisade will be addressed by operating one additional paratransit van in the outlying areas. This scenario will increase annual operating subsidy[1] requirements by an additional $110,000 annually (in 2004 dollars), as detailed in Chapter VI.

- ***Scenario 3*** – The existing operating plan will be expanded to provide enhanced service, as follows:

  - The weekday daily span of service will be increased to provide service until 8:15 P.M. In essence, this revision will add one additional run to the service day; no additional vehicles will be required. As detailed in Chapter VI, this service improvement will require an additional $89,220 (in 2004 dollars) in annual operating subsidy.

[1] Operating subsidy is defined as the anticipated operating cost minus anticipated farebox revenues.

- The service frequency will be doubled on Routes 5, 7 and 9, providing half-hour service throughout the day on weekdays. As detailed in Chapter VI, this service enhancement will require that an additional five buses be procured (four in-service vehicles, plus one spare bus). This service frequency improvement will require an additional $361,870 (in 2004 dollars) in annual operating subsidy

In total, Scenario 3 will require an additional $561,090 in annual operating subsidy (in 2004 dollars) in comparison to Scenario 1 above. In addition, $1,050,000 in capital revenues (in 2004 dollars) will be required to procure five additional buses.

- ***Scenario 4*** – Under this operating plan, the enhancements discussed in Scenario 3 above would be implemented, although the frequency on all fixed routes would be doubled (instead of only on Routes 5, 7 and 9). This improvement would require an additional 13 buses (instead of only five under Scenario 3 above). The annual operating subsidy would be increased by approximately $1,012,190 (in comparison to Scenario 1 above), and approximately $2,720,000 in capital funds would be required to purchase the additional vehicles.

The operating costs that would be incurred under these five scenarios are presented in Table XIII-1. As presented, Scenario 1 would require the least amount of operating funds at $16,053,600 over the next seven years. Conversely, Scenario 5 would require the greatest amount of operating funds, at $26,419,100. It should be noted that Scenarios 4 and 5 would also require additional capital funding to procure required vehicles ($1,050,000 and $2,720,000, respectively).

It is recommended that for the next seven years the improvements identified in Scenario 2 be implemented, and attempt to progress to Scenario 3 if additional funding becomes available. Table XIII-2 presents the GVT fiscally-constrained service plan for the next seven years.

TABLE XIII-1: Mesa County Operating Scenarios

Operating Scenario	2004	2005	2006	2007	2008	2009	2010	7-Year Total
Scenario 1:								
Existing Service Plan	$2,120,630	$2,205,460	$2,293,680	$2,385,430	$2,480,850	$2,580,080	$2,683,280	**$16,749,410**
Service Cut	$0	$0	$0	$0	$0	$0	$0	**$0**
Net Operating Cost	*$2,120,630*	*$2,205,460*	*$2,293,680*	*$2,385,430*	*$2,480,850*	*$2,580,080*	*$2,683,280*	***$16,749,410***
Scenario 2:								
Net Operating Cost of Scenario 1	$2,120,630	$2,205,460	$2,293,680	$2,385,430	$2,480,850	$2,580,080	$2,683,280	**$16,749,410**
Additional Local Funding Secured	$0	$0	$0	$0	$0	$0	$0	**$0**
Net Operating Cost	*$2,120,630*	*$2,205,460*	*$2,293,680*	*$2,385,430*	*$2,480,850*	*$2,580,080*	*$2,683,280*	***$16,749,410***
Scenario 2:								
Net Operating Cost of Scenario 1	$2,120,630	$2,205,460	$2,293,680	$2,385,430	$2,480,850	$2,580,080	$2,683,280	**$16,749,410**
Additional Paratransit Service in Fruita/Palisade	$110,170	$114,580	$119,160	$123,930	$128,890	$134,050	$139,410	**$870,190**
Net Operating Cost	*$2,230,800*	*$2,320,040*	*$2,412,840*	*$2,509,360*	*$2,609,740*	*$2,714,130*	*$2,822,690*	***$17,619,600***
Scenario 3:								
Net Operating Cost of Scenario 2	$2,230,800	$2,320,040	$2,412,840	$2,509,360	$2,609,740	$2,714,130	$2,822,690	**$17,619,600**
Extend Service Until 8:15 P.M.	$89,360	$92,930	$96,650	$100,520	$104,540	$108,720	$113,070	**$705,790**
Double Frequency on Routes 5, 7 & 9, All-Day	$363,200	$377,730	$392,840	$408,550	$424,890	$441,890	$459,570	**$2,868,670**
Net Operating Cost	*$2,683,360*	*$2,790,700*	*$2,902,330*	*$3,018,430*	*$3,139,170*	*$3,264,740*	*$3,395,330*	***$21,194,060***
Scenario 4:								
Net Operating Cost of Scenario 3	$2,683,360	$2,790,700	$2,902,330	$3,018,430	$3,139,170	$3,264,740	$3,395,330	**$21,194,060**
Double Frequency on All Routes, All-Day	$661,540	$688,000	$715,520	$744,140	$773,910	$804,870	$837,060	**$5,225,040**
Net Operating Cost	*$3,344,900*	*$3,478,700*	*$3,617,850*	*$3,762,570*	*$3,913,080*	*$4,069,610*	*$4,232,390*	***$26,419,100***

TABLE XIII-2: Mesa County Short-Range Transit Element

GVT Expenses	2004	2005	2006	2007	2008	2009	2010	7-Year Total
Continue Existing Services	$2,113,090	$2,197,610	$2,285,510	$2,376,930	$2,472,010	$2,570,890	$2,673,730	**$16,689,770**
Improvements to Coronado Plaza	$25,000	$0	$0	$0	$0	$0	$0	**$25,000**
Low-Floor Bus Purchases (Assume 12-Year Life)								
Number of Units	2	1	1	0	0	0	0	**4**
Total Cost	$457,600	$237,950	$247,470	$0	$0	$0	$0	**$943,020**
Minibus Purchases (Assume 5-Year Life)								
Number of Units	0	0	6	6	0	0	0	**12**
Total Cost	$0	$0	$404,950	$421,150	$0	$0	$0	**$826,100**
Subtotal	*$2,595,690*	*$2,435,560*	*$2,937,930*	*$2,798,080*	*$2,472,010*	*$2,570,890*	*$2,673,730*	***$18,483,890***
GVT Funding Program Description [1]								
General Fund Appropriations [2]	$951,836	$989,909	$1,029,510	$1,070,690	$1,113,520	$1,158,060	$1,204,380	**$7,517,905**
Additional Local Contribution [3]	$0	$0	$50,000	$52,000	$54,080	$56,240	$58,490	**$270,810**
Mesa State College	$50,000	$51,500	$53,050	$54,640	$56,280	$57,970	$59,710	**$383,150**
Advertising	$40,000	$41,600	$43,260	$44,990	$46,790	$48,660	$50,610	**$315,910**
Passenger Fares [4]	$115,000	$117,250	$119,560	$121,910	$124,310	$126,760	$129,260	**$854,050**
Additional Passenger Fares (Fare Increases) [4]	$47,630	$50,510	$53,570	$56,810	$60,250	$63,890	$67,750	**$400,410**
Additional Passenger Fares (Inflation) [4]	$0	$0	$0	$0	$0	$7,630	$7,880	**$15,510**
FTA Section 5307 Urbanized Area Program	$865,000	$895,280	$926,610	$959,040	$992,610	$1,027,350	$1,063,310	**$6,729,200**
FTA Section 5309 Capital Program	$366,080	$190,360	$521,940	$336,920	$0	$0	$0	**$1,415,300**
FTA Section 5311 Nonurbanized Area Program	$70,000	$72,450	$74,990	$77,610	$80,330	$83,140	$86,050	**$544,570**
FTA Section 3037 JARC Program Funds	$100,000	$103,500	$107,120	$110,870	$114,750	$118,770	$122,930	**$777,940**
Subtotal	*$2,605,546*	*$2,512,359*	*$2,979,610*	*$2,885,480*	*$2,642,920*	*$2,748,470*	*$2,850,370*	***$19,224,755***
GVT Surplus/Deficit	***$9,856***	***$76,799***	***$41,680***	***$87,400***	***$170,910***	***$177,580***	***$176,640***	***$740,865***
GVT Cumulative Surplus	***$9,856***	***$86,655***	***$128,335***	***$215,735***	***$386,645***	***$564,225***	***$740,865***	***$2,132,316***
Other Mesa County Providers' Projects [5]								
Debeque/Collbran Senior Replacement Van	$89,360	$0	$0	$0	$0	$108,720	$0	**$198,080**
Family Health West Replacement Van	$89,360	$0	$0	$0	$0	$108,720	$0	**$198,080**
Mesa Development Services Replacement Van	$89,360	$0	$0	$0	$0	$108,720	$0	**$198,080**

Note 1: To account for inflation, a 3.5 percent annual increase is assumed for all Federal sources and for the Mesa State College contribution. For all remaining sources, a 4.0 percent annual increase is assumed.
Note 2: The existing interlocal agreement includes contributions from Mesa County, and the cities of Grand Junction, Fruita and Palisade; the current agreement expires in 2005.
Note 3: An additional local contribution will be required from the member jurisdictions to make the local match required for purchase of replacement buses and stabilize the 27 year operations plan.
Note 4: For the purposes of this analysis, it is assumed that ridership and farebox revenues will increase by the anticipated annual growth in population (see Table II-4 above for details). In addition, the base passenger fare will be increased to $1.00 in 2004, and periodically thereafter to account for 4.0 annual inflation. This equates to $0.25 increases in Fiscal Years 2004, 2009, 2014, 2018, 2022, 2025 and 2028.
Note 5: The other providers' van replacement projects will be funded 80 percent by FTA Section 5310 funds and 20 percent local agency funds

CAPITAL PLAN ELEMENTS

Before transit services can be provided, a myriad of capital items are required. These capital items required for public transit service consist of vehicles, vehicle maintenance facilities, passenger amenities such as shelters and benches, and office equipment.

Vehicle Elements

It is recommended that, in the short-term, GVT and the GVRTC continue to pursue clean-diesel and modern gasoline technologies in lieu of alternative fuel technologies. Various transit systems have been successful in reducing particulate matter (PM) emissions through the application of modern gasoline and "clean-diesel" technology. In particular, the utilization of a low sulphur diesel fuel has proven to reduce the average annual PM emissions of a transit coach from 935 pounds to 260-300 pounds – roughly a 70 percent reduction. In addition, use of an electronically controlled fuel injection system and specially designed transmission has dropped emission levels by 120 pounds of PM annually, for a total reduction in emissions of 87 percent. All of GVT vehicles currently use these technologies, with the exception of the used GMC full-size diesel buses recently purchased from the Denver Regional Transit District.

GVT and the GVRTC should remain open to the ideas of alternative fuels. However, each entity would have a greater impact on local air quality through the purchase of modern gasoline and diesel equipment that meet stringent EPA requirements, and by applying the dollars saved in maintenance costs to the provision of transit services that take automobile trips off of the regional roadways.

Given the ridership levels on the existing GVT services, it is recommended that the optimal fleet would be made up of six 30-foot low-floor buses and eleven cutaway minibuses. This assumes that five low-floor buses and six minibuses would be used for the fixed route services, and four minibuses would be used for paratransit services; one spare low-floor buses and two spare minibuses

would be necessary to achieve an industry standard 20 percent spare ratio.[2] This optimal fleet described above is assumed as part of the Capital Plan.

The GVRTC recently received an FTA Section 5309 Capital Program earmark through the statewide coalition for two additional 30-foot low-floor fixed route buses. This analysis assumes that the GVRTC will also be successful in attaining future earmarks to procure low-floor buses (alternating between one and two buses annually). As such, to meet the fleet requirements discussed above, a total of six remaining 1999 Ford ElDorado Startrans minibuses will be replaced with low-floor buses, and eleven 1999 Ford ElDorado Startrans and 2000 Ford ElDorado Aerotech minibuses will be replaced with new minibuses. The Implementation Plan presented in a subsequent section will detail the annual bus replacements by year. It should be noted that the projected funding shortfall in Mesa County will dictate the need to extend the lives of the existing minibuses beyond their typically-defined economically useful lives (5 years or 150,000 total miles, whichever comes first). As such, the GVRTC will not surplus the vehicles being replaced until it can be reasonably assured that its vehicle replacement schedule is sufficiently far along to ensure an appropriate number of vehicles are available for peak service.

Facility Elements

The attractiveness, convenience, and safety provided at transfer points are key elements in both the public's perception of a transit service as well as the attractiveness of the service to the passengers. Other than the quality of the buses, the transfer points are what both the riding and the non-riding public see and use on a day-in/day-out basis.

At present, the key GVT transfer points provide the minimum necessary to be considered adequate, but do little to improve the image of the service in the community or to attract discretionary riders. In recent years, many similar transit systems have improved transfer facilities into extensive (and expensive)

[2] Recipients of FTA Section 5307 funding generally must justify a spare ratio greater than 20 percent, as detailed in FTA Circular 5010.1C

staffed off-street transit centers, with capital costs in the range of several million dollars apiece.

The existing Orchard Avenue / 12th Street transfer point appears to be too small to pursue adding substantial capacity. In addition, the Coronado Plaza transfer point lacks adequate passenger amenities. As such, a Capital Plan element is to improve these facilities. One financially-constrained recommendation is presented below: improve the amenities at the Coronado Plaza transfer point. If additional funding can be secured, three potential future Service Plan elements are recommended: construction of a long-term operations/maintenance facility, construction of a long-term transit center, and bicycle/pedestrian improvements.

Improve the Passenger Amenities at Coronado Plaza

In light of financial realities, an expensive full transit center is not appropriate at the Coronado Plaza transfer point. However, there are a number of modest improvements that should be implemented at this site.

At a minimum, two passenger shelters and four passenger benches should be installed. In addition, paved pathways and protected landscaping would reduce the pedestrian trampling that currently occurs at this site. These improvements will expand the capacity to shelter passengers in inclement weather, and provide a more attractive environment for passengers. For both passenger convenience and security, adequate lighting should be provided at this site, including lighting within the passenger shelters. While GVT does not currently operate evening services, a substantial proportion of existing riders use the system during hours of darkness during the winter months. These improvements will cost on the order of $25,000.

Potential Future Capital Plan Elements

Construction of a Long-Term Operations/Maintenance Facility

To address a number of existing shortcomings, the GVRTC will pursue construction of a long-term operations, maintenance and administrative facility as a potential future Capital Plan Element. The existing facilities currently provided by MesAbility as part of its operations agreement have a number of shortcomings. The largest shortcoming is that most of the vehicles used for GVT public transit services are parked in a remote parking lot. This can cause operational problems when mechanical defects are discovered during the driver's vehicle inspection process: the faulty vehicle must be shuttled to a maintenance vendor (if it can be moved) or a technician must be dispatched to the remote parking lot to repair the vehicle. This situation causes an inefficient use of staff resources. Secondly, the vehicles are parked in a remote low-security parking area. In addition, operations staff cannot see the vehicles from the dispatch office as they enter the operating grounds, which could compromise the security of the vehicles and/or staff. Lastly, neither of these facilities is secured with long-term leases, which could cause an operational disruption if the lease is lost.

Under this potential future Capital Plan element, a long-term operations, maintenance and administrative facility will be developed near the core of the service area. This facility would be constructed using public funds, and would either be a purpose-built new facility or conversion of an appropriately zoned building. The facility would provide adequate parts storage, meet safety requirements, and provide necessary equipment, facilities, and room for maintenance activities. Functional areas should be located in an efficient and safe proximity to each other. The GVT system, as a small operator, should develop a facility that will accommodate multi-purpose activities rather than a facility with many areas for specialized activities, which is often the rule at medium and large transit agencies. Adequate facilities must be provided for the following functions:

- Operations employee office space.

- A driver/mechanics' room, serving as both a locker area and as a lunch room.
- A radio/dispatching area, assuming room for future AVL/real-time dispatching equipment and personnel.
- A money room, located on the bus service line.
- A multi-purpose room of 150 square feet, which would be used as a training/meeting room.
- A vehicle maintenance area, providing three general maintenance bays.
- Bulk storage space.
- Separate parts storage space (including tires).
- A tire repair area with cage.
- A separate welding shop, constructed to OSHA standards.
- A battery storage room.
- Transit vehicle parking.
- Employee and visitor vehicle parking.
- A bus service island, with a service lane including a bus washing facility. (Vehicle inspections will be done in the general maintenance bays, as opposed to a separate area.)

Ideally, the facility layout will provide for separate vehicular movements by mode (transit vehicles vs. private automobiles). Transit vehicle circulation should be in a single direction for safety and space considerations. A service lane bypass should be included to maintain efficient through-flow of transit vehicles, thus avoiding the potential bottleneck of the service line. Transit

vehicle parking should be provided in a stacked configuration to conserve space, while providing for quick pull-out maneuvers.

With recent changes in federal regulations regarding hazardous waste contamination, a thorough review of relevant environmental regulations is warranted prior to serious consideration of obtaining an alternative facility site. Prior to legal site acquisition proceedings, it is strongly recommended that an environmental inspection and assessment be obtained by the GVRTC on any site it is seriously considering. Responsibility for cleaning up environmental contamination conveys with ownership of land. The cost of clean up is often extremely expensive; it is not uncommon for the cost of clean up to exceed the land and project costs combined.

Table XIII-3 presents probable costs for such a new facility. As presented, this project is anticipated to cost on the order of $1,731,850 (in 2004 dollars). Note that this cost figure assumes that County-owned land can be used at no cost to the transit program. It should be noted that this cost estimate only includes the space needs of the GVT transit program, and would not necessarily meet the space needs for ancillary community services provided by MesAbility. If MesAbility requires additional space, an opportunity exists for it to contribute to the cost of constructing a larger facility using its own funds.

Construct a Long-Term Transit Center

Under this potential future Capital Plan element, a new transfer center will be constructed at or near the existing Orchard Avenue / 12th Street transfer point. A transfer center should be designed to encourage and expedite the transfer to buses of users of other modes of transportation, as well as the transfer of passengers from one bus route to another.

Transfer centers should have amenities to make use of the facilities more pleasant. Amenities that may be useful at such a facility include the following:

- ***Bus shelter(s) and bench(es)***. Three to four shelters with benches (the number will depend on demand) should be provided at the facility for the convenience of the passengers. Shelters should be designed to provide

TABLE XIII-3: Mesa County
Transit Operations/Maintenance Facility Cost Estimate
Fiscal Year 2003-04 Dollars

	Quantity		Sq. Feet	Units	Cost/ Unit	Cost
Vehicle Maintenance/Storage/Washing						
Mechanic Bays	4	Bays	3,200	SF	$70.00	$224,000
Washing	1	Bay	800	SF	$70.00	$56,000
Wash Equipment	1	Unit	–	EA	$80,000	$80,000
			4,000			$360,000
Operations Space						
Dispatch/Administration	1		1,500	SF	$110.00	$165,000
Locker Room	1		200	SF	$110.00	$22,000
Restrooms	2		300	SF	$110.00	$33,000
Break/Training Room	1		500	SF	$110.00	$55,000
Mechanical Room	1		100	SF	$110.00	$11,000
Circulation	1		300	SF	$110.00	$33,000
Subtotal			2,900	SF		$319,000
Total Transit Operations Building			6,900			$679,000
Parking and Circulation [1]			68,310	SF	$8.00	$546,480
Lighting and Landscaping						$40,000
TOTAL CONSTRUCTION COST						**$1,265,480**
Soft Costs						
Design and Engineering					10%	$126,550
Site Preparation, Contingency					15%	$189,820
Furnishings and Shop Equipment						$150,000
Land Costs – Assumed to be provided at no cost						–
TOTAL PROJECT COST						**$1,731,850**

Note 1: Parking for 35 buses, 2 staff vehicles and 40 employee/guest autos, plus circulation drives.

Source: LSC Transportation Consultants, Inc.

the opportunity for protection from winds in all directions, as well as protection from strong, low-angle sun exposure near the end of the day.

- ***Lighting***. The facility must be well lit, to ensure the safety and convenience of the passengers. The lighting requirements for a specific facility will depend on the layout of the facility.

- ***Bicycle racks and/or bicycle lockers***. Bicycle parking and storage should be located near the bus shelter/passenger loading area.

- ***Landscaping***. Landscaping will make the facility more attractive to both current and potential users. Landscaping should be placed where it will not interfere with the safety and personal security of the passengers. Generally, landscaping should be focused on the entrances to the facility and the perimeter of the site. When placing landscaping in the passenger waiting area it is important that the landscaping not interfere with the ability of the waiting passengers to see around them.

It is not currently appropriate to provide an enclosed facility with climate controlled indoor waiting space and restrooms. While these amenities would be a benefit to the passengers, they would incur additional staffing costs by requiring on-site staffing for security reasons.

When designing an enhanced transfer center, several factors should be evaluated. Important factors to consider when designing a transfer center include the following:

- ***Provision of Adequate Land Area***. In addition to providing space for passenger loading and bus bays, a transfer center must also accommodate vehicle circulation, interior space, any setbacks required by local regulation, and landscaping.

- ***Vehicle Access***. Given the relatively high number of transit vehicle movements through a passenger facility over the course of the day, safe and efficient transit access to and from adjacent arterial streets is a

crucial consideration. Delays to transit vehicles (such as left turn movements onto busy streets or within busy parking lots) can cause substantial delay to the entire transit system. Vehicle travel paths must also be carefully designed to minimize conflict with pedestrians.

- ***Other Compatible Land Uses***. Many transit agencies – particularly those in larger urban areas – attempt to incorporate compatible developments in or adjacent to transit centers. Compatible developments include daycare centers (which require sufficient separation from transit operations to ensure the safety of children), dry cleaners, "one-stop" social service facilities, coffee shops and other high traffic uses. However, given the relative lack of passenger activity at GVT's current transfer points (in comparison to transit facilities in larger urban areas), incorporating other uses into or adjacent to a future transit center may not be feasible.

- ***Environmental Impact***. Transit passenger facilities must also be designed to avoid or minimize any potential negative impact of their construction or operation. Any significant impacts associated with a facility will require mitigation, which can often become a large proportion of the total project cost. These potential impacts can include the following:

  - Noise (particularly with respect to nearby residential land uses),
  - Air Quality,
  - Wetlands,
  - Historic Properties/Parklands,
  - Displacement of Existing Land Uses,
  - Water Quality,
  - Flooding,
  - Endangered Species,
  - Aesthetics,
  - Safety/Security,
  - Traffic,

- Parking,
- Ecologically Sensitive Areas, and
- Land Use/Local Plans.

For proper systemwide bus circulation, buses should be able to enter the transit center from all major street directions. The location should, if possible, facilitate left hand turns from one-way streets and right-hand turns from two-way streets for safer movement. Circulation into the site should separate automobile and bus traffic to ease access for both. When feasible, access points should be a minimum of 150 feet from the centerline of the nearest intersection to avoid traffic conflicts. Two access points located on different streets should be provided to the facility whenever possible. Vehicle and pedestrian access should be designed to minimize conflict between buses and pedestrians.

In addition to the passenger loading bays, it is often beneficial to provide at least one parking location for an out-of-service transit bus. This can allow one vehicle to be traded out for another without affecting traffic flow around the center. Parking for transit staff, and for drivers stopping for transit information, should also be considered.

Table XIII-4 presents a summary of the probable costs to build a facility sufficient for up to ten vehicles at a time. These costs include approximately $700,500 for construction of the facility. It should be noted that this analysis assumes that land for this project would be donated by one of the GVT funding partners. Other costs bring the total cost to an estimated $875,630, as the table indicates. Selecting a site for a new transfer facility is beyond the scope of this study.

Bicycle/Pedestrian Facilities

At one end of their trip or the other, virtually all transit passengers also travel on foot or on bicycle as part of their transit trip. A key element of a successful transit system, therefore, is a convenient system of sidewalks and bikeways serving the transit stops.

TABLE XIII-4: Mesa County Transit Center Cost Estimate
Fiscal Year 2003-04

	Quantity	Units	Unit Cost	Cost
Shelters	10	Each	$8,000	$80,000
Bus Bays & Traffic Circulation	38,500	Sq. Ft.	$8.00	$308,000
Pedestrian Platform/Plaza/Shelter Space	12,500	Sq. Ft.	$20.00	$250,000
Landscaping				$30,000
Bicycle Racks				$2,500
Lighting				$25,000
Building Permit, Utility Tap Fees				$5,000
TOTAL CONSTRUCTION COST				**$700,500**
Soft Costs				
Design and Engineering			10%	$70,050
Site Preparation, Contingency			15%	$105,080
Project Management			Provided by County Staff	
Land Costs – Assumed to be provided at no cost				–
TOTAL PROJECT COST				**$875,630**

Source: LSC Transportation Consultants, Inc.

Each GVT fixed-route bus currently feature bicycle racks, which can accommodate up to two bicycles simultaneously. Although riders have requested additional bicycle capacity on the buses, no viable on-bus bicycle rack currently exists. Nonetheless, GVT should work with local bicycle advocacy groups to monitor the on-bus bicycle rack market to ascertain if viable units become available in the future. Some transit agencies follow a policy of providing the driver with the discretion to allow passengers to carry bicycles onboard the bus when passenger loads allow. However, GVT's high level of passenger activity would substantially limit the periods in which this would be feasible. Bringing bicycles onboard the vehicle also can increase cleaning costs (to both the vehicles as well as to other passengers), can increase the potential for accidents, and can increase the potential for conflicts GVT services

In addition, the GVRTC should continue to work with the branches of the public works and planning departments of the various jurisdictions to review construction plans and scheduling priorities for pedestrian and bicycle improvements to best coordinate with transit passengers' needs. The need for bicycle racks at bus stops with high bicycle activity is strong, and the cost of modern bus stop bicycle racks is on the order of $750 each (including installation). The cost of procuring and installing bicycle racks could be defrayed if local community groups would donate the racks and/or labor to install them.

INSTITUTIONAL & MANAGEMENT PLAN ELEMENTS

Presented below are a number of Institutional and Management Plan elements. In addition, one potential future Institutional Plan element is to form a regional transportation authority, should local decision-makers feel the effort is worthwhile to ensure the long-term success of transit in the region.

Implement Paratransit Subscription Program

A recommended Institutional Plan element is to implement paratransit subscription service. Subscription service is typically provided for the convenience of demand-response riders desiring service on a regular basis for work, school, medical, grocery and similar, recurring daily or weekly trips. This program eliminates the need for passengers to call daily or weekly to schedule a trip. In addition to providing a convenience to the passenger, this strategy makes dispatching an easier process. However, it does have the potential of resulting in assigning too much of the available service capacity to regular riders with subscriptions, thereby unduly limiting the ability of occasional ridership to book trips.

The Americans with Disabilities Act (ADA) permits subscription service so long as the resulting subscription trips do not comprise more than 50 percent of the available trips within a locally-defined window (typically between 60 and 120 minutes), unless non-subscription capacity exists. Although the ADA strictly prohibits waiting lists for individual ride requests, waiting lists to put a rider in

the subscription program are expressly permitted. The ADA also expressly prohibits a pattern of trip denials to ADA-eligible persons – whether subscription riders or not.

The greatest advantage of subscription service is that trip planning is easier for both the operations scheduler and the subscription rider. In addition, subscription service tends to increase the productivity of the GVT paratransit service program since schedulers can better group rides together. To a lesser degree, the driver and scheduler can better "learn" the special travel needs of the subscription rider and make respective accommodations. The greatest disadvantage of subscription service is that it can lead to a greater number of turndowns and individual trip denials during the peak scheduling periods; a pattern of ADA trip denials is strictly prohibited by the ADA.

It is recommended that the existing GVT paratransit service dispatch procedures be amended. Participants who cancel more than 50 percent of their scheduled trips within a calendar month or who violate a locally-adopted no-show policy (i.e., three no-shows in a six-month period or 8 percent of monthly trips) would be required to re-apply to the program. The GVT will develop a "Subscription Service Application" form that would include the following information:

- The passenger's name,
- The passenger's ADA eligibility status,
- The passenger's special needs (if any),
- The desired departure times for both the origin and return trip,
- The desired days of the week for service,
- Duration of the service request, and
- Telephone number(s) dispatchers can call in case of a scheduling difficulty.

As allowed under the ADA, GVT will establish a waiting list for interested participants. The GVT will need to amend its paratransit service policy to include the details of this program.

Based upon the LSC Team's experience in other transit systems providing subscription service, the hourly productivity of subscription service is estimated to be 5 percent greater than those systems that do not offer subscription service. Assuming from the review of trip logs that 50 percent of existing individual trips "convert" to subscription trips, this indicates that overall GVT paratransit service productivity will increase by roughly 2.5 percent. No additional vehicles will be necessary under this Institutional Plan element, nor will there be an increase in operating costs.

Marketing Program

A Management Plan element is to increase GVT's marketing budget, equating to approximately 1.0 percent of GVT's operating budget. Marketing in its broadest context should be viewed as a management philosophy focusing on identifying and satisfying customers' wants and needs. The basic premises of successful marketing are providing the right product (or service), offering it at the right price, and adequately promoting or communicating the existence and appropriateness of the product or service to potential customers. Unfortunately, for too many persons the word "marketing" is associated only with the advertising and promotional efforts that accompany "selling" the product or service to a customer. Instead, such promotional efforts are only a part of an overall marketing process. Without a properly designed and developed product or service offered at the right price, the expenditure of promotional monies is often ill-advised.

Obviously, the marketing program must fit within budgetary limitations of any organization. According to the American Public Transit Association, transit providers typically budget between 0.75 and 3.0 percent of their gross budget on marketing promotions (excluding salaries), with the majority around 2.0 percent. Although this is slightly less than most private sector businesses, public sector organizations can rely more heavily on media support for their public relations programs. In 2002, the GVT spent $6,560 for Ads and Publications, which represents approximately 0.4 percent of the operating budget.

Improve Service Quality

A key precept of marketing is to provide a quality "product." In the case of public transit, a reputation of providing quality service both encourages increased ridership and increases public support for transit; both tax-based funding and increased fares become more acceptable when service quality is high. A key "marketing" effort, therefore, is to begin other measures discussed in this document to improve service quality, including the need for enhanced passenger amenities and replacement of aging vehicles. Solving this problem – and subsequently changing the public perception of service quality through a marketing program – is undoubtedly the most important marketing strategy available to the GVT.

Improved Bus Schedule

It is recommended that the GVRTC work with the GVT to upgrade the quality of the existing map/schedule, and to work with regional independent living centers to develop these media in alternative formats. The existing *GVT System Maps & Timetables* document is a 28-page, 7" by 8½" four-color handbook, using standard 20-lb. legal paper (folded in half). The handbook is reasonably well laid-out and informative. However, the maps are not to scale and the print resolution is relatively low. In addition, these media are not available in alternative accessible formats (Braille, cassette or large-type). Finally, the system map does not include the route numbers (only the route color designations).

Evaluation of Marketing Efforts

The most essential, and most often overlooked, element of a marketing plan is an evaluation effort. Evaluation should be performed in terms of the stated marketing objectives. This process should provide the data and procedures by which the success of the marketing program can be determined. In addition to statistical data (such as ridership) collected over the year, this should include a survey of the general public establishing the level of public awareness and

image regarding the service. This evaluation process is crucial, as it allows future objectives, strategies and tactics to be refined.

Improved Internet Website

Until recently, the GVT maintained a website that provided an overview of current services and contact information. However, as of April 2003 this website was not operational. The greatest shortcoming of the former website was the lack of an easily-printed map/schedule. The GVRTC should work with GVT to develop a link to an Acrobat Reader portable document file version of the map/schedule information with a Macromedia Flash feature, which will facilitate zooming to a particular area on the map, as well as printing by website users.[3] The Modesto Area Express website provides a good example of this feature.[4]

Service Monitoring

The need to minimize costs and maximize the efficiency of the service requires that sound business practices be followed in a transit service organization. Just as one would not run a retail store without knowing exactly what items are selling, it is imprudent to operate transit service without knowing which routes and which runs are attracting ridership. Similarly, the quality of the service provided must be closely monitored.

Mesa County's contractor does a good job of collecting and reporting service data in its monthly report, as required in the operating contract. The RTPO executive director reviews these reports monthly, and the contractor's general manager presents the information to transit advisory board. However, the following periodic and on-going data categories would be helpful in assessing service quality and assist in future service planning:

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[3] These products are used for illustrative purposes only. If Mesa County officials select this alternative for implementation, it should investigate products that are appropriate for GVT's needs.

[4] See http://www.modestoareaexpress.com/system_maps.htm for details.

Additional On-Going/Monthly Reporting Items

- ***On-Time Performance*** – Comprehensive records of on-time performance are useful in determining proper scheduling and ensuring quality service. At a minimum, road supervisors should be required to do a standardized observance of on-time performance as part of their service checks. This data should be entered into spreadsheets to allow tracking. In addition, on-time performance surveys should be conducted at least twice per year, whereby drivers radio in their arrival and departure times at major stops.

- ***Paratransit Trip Refusals and Denials*** – This information is not currently being reported in the monthly reports. It is worthwhile to assess this information, particularly if a pattern of ADA trip denials begins to occur (trip denials are forbidden under the ADA). The contractor should be required to report the total number of trip denials and trip refusals by passenger category (ADA, non-ADA elderly/disabled, and general public). If a pattern of ADA trip denials begins to emerge, Mesa County can take steps to resolve the problem with such measures as adding additional service or increasing the efficiency of existing services.

- ***Other Reporting Requirements*** – Two other performance measures are not included in the monthly reports, as listed below:

  - Preventable vehicle accidents per 100,000 miles traveled, and
  - Passenger Injuries Per 100,000 miles traveled.

Periodic Reporting Items

- ***Annual Passenger Survey*** – Onboard surveys are a vital source of planning information regarding the ridership and the purpose of their transit trip. In addition, surveys are the single best way to gain "feedback" regarding the service. Funding for annual onboard surveys

should be a priority. Questions that should be addressed in the annual passenger survey include the following:

- Day and date that the survey is completed,
- Time at which the survey is completed,
- Route that the passenger is traveling,
- Passenger gender,
- Passenger age (0-14, 15-18, 19-24, 25-44, 45-59, 60 and above),
- Whether the passenger is disabled, and if so, the type of disability,
- Residency status,
- Origin of trip (major intersection near trip origin) and trip destination (major intersection near trip destination),
- Purpose of trip, typically categorized as work, shopping, recreational, social, educational, other,
- Rating of the transit service (poor, fair, good, very good, excellent), and
- Suggestions for improvements in transit service.

▪ ***Boarding and Alighting Counts*** – It is worthwhile, on at least an annual or biannual basis, to conduct a day-long count for boarding and alighting by stop for each of the services operated. To some degree, the contractor collects this information during conduct of the random National Transit Database surveys. However, this data does not provide a comprehensive picture of passenger activity. Given the high passenger loads during peak periods on the various services, it will be necessary to use office staff or temporary labor to ride each of the buses and conduct

the survey. There are a number of useful pieces of information that can be gleaned from a boarding and alighting count:

- Identify the most important stops;

- Rank bus stops for potential passenger amenities, such as shelters or benches; and

- Identify the section along the route where the maximum load occurs. This information is very important in identifying the appropriate vehicle size for the service, as well as to track the service quality issues, such as passenger overcrowding.

Education Program For Institutional Users Of The Paratransit Service

Another means of improving service quality of the GVT paratransit service is a program to educate institutional users (such as social service agencies and medical offices) with regard to the requirements and limitations of the program. Specifically, institutions, passengers, and the program could benefit if greater knowledge is available regarding factors such as the following:

- The availability of capacity on the service in various times of the day. The ability of institutions to take advantage of relatively "slack" periods of the day in scheduling their passenger's trips can reduce frustration with the service, and can improve the overall productivity of service by providing more even demand for service.

- Reservation procedures and passenger eligibility. Providing "official" information regarding service policies will minimize the confusion generated by "word of mouth" information.

- The impact that last-minute changes in pickup times has on the system. A greater understanding of the program's difficulty in rescheduling return trips from medical appointments, in particular, would encourage more timely completion of paratransit passenger's appointments.

- The costs associated with paratransit service, and the financial limitations of the program. This information would foster an improved understanding of the abilities and limitations of the program.

To some degree, Mesa County and GVT are already undertaking this type of effort. Indeed, each organization has a good working relationship with the various social service agencies in the region, and in some cases has negotiated mutually-beneficial service contracts. Nonetheless, at a minimum, written information should be developed and distributed to major paratransit trip destinations. Preferably, Mesa County and GVT staff would make presentations at social service agency staff meetings and to professional organizations.

Finally, Mesa County and GVT should continue to work with the Department of Human Services to develop training and marketing materials, and make use of their multimedia broadcast system. This outlet has the potential to both attract new riders and to assist in informing existing riders of service changes and other pertinent transit information.

Policy Development

Since the GVRTC is a relatively new transit organization, it has not had the opportunity to develop detailed transit policy documents. For this reason, it is recommended that staff undertake a concerted effort during the Plan period to develop the following operational and administrative policy documents:

- **Safety Policy**, including requirements regarding drug and alcohol testing, passenger/employee/vehicle accident prevention and investigation, facility security measures and emergency preparedness.

- **Procurement Policy**, including levels of involvement from the RTPO, responsibility assignment for ensuring FTA and other requirements are met, dispute resolution methods, and procedures for disposal of assets.

- **Acceptable Conduct Policy**, including references to local codes and state statutes, sanctions for offenses, methods to identify offenders until

their ride privileges are reinstated, and methods of informing the public of the importance of acceptable behavior.

- **Public Involvement Policy,** including what issues must be considered in a public setting, methods to conduct outreach, and what governing bodies must be involved in the decision-making process.

- **ADA Policy,** including how GVT will meet the six service requirements detailed in the Act, details about how persons become eligible for paratransit service, how equal access to facilities and marketing materials will be ensured, dispute resolution methods and hiring practices.

- **Service Planning Policy**, including methods to respond to service requests, how new services will be monitored to ensure compliance with locally-adopted performance measures, and to identify minimum standards regarding maintenance of up to date planning documents. Many transit agencies seek to codify their goals and objectives in their planning policy.

- **Charter Service Policy**, including detailed steps regarding how charter services are provided in compliance with CFR 653 and 654.

- **DBE, Title VI and Environmental Justice Policy**, including steps to ensure periodic reporting to the FTA.

- **Project Ranking and Selection Policy**, including ranking criteria and relative weighting for each criterion. The GVRTC could either develop an overall policy for ranking and selecting projects for all modes of transportation, or develop a separate policy for each mode. The latter may be preferable for the Mesa County region, since the transit system is still maturing and primarily serves transportation disadvantaged persons.

The GVRTC should not "reinvent the wheel" when developing these and other policy documents. Many mature transit agencies in the region are likely willing to share their experiences regarding development of policy documents.

Potential Future Institutional Plan Element

Form A Regional Transportation Authority

Current GVT services are provided through an inter-local agreement, which details various responsibilities of each jurisdiction. In the short-term, local officials should seek to refine the existing inter-local agreement as conditions change in the region. At a minimum, parties to the agreement should consider meeting on an annual or semi-annual basis to discuss challenges currently facing transit services administered by the GVRTC and opportunities for improving services.

In order to ensure a stable long-term operating environment, a potential future Institutional Plan element is to further evaluate formation of a Regional Transportation Authority (RTA). Forming an RTA is very complex, will require buy-in from local elected officials and community leaders, and is a very time-consuming process. If local officials in the Mesa County area pursue formation of an RTA, it would be prudent to seek the counsel of the myriad experts employed by the Roaring Fork Transportation Authority (RFTA) – the only existing RTA in Colorado – during its formation.

In April 1997, the Colorado Legislature enacted a statute allowing the formation of a Rural Transportation Authority, under Colorado Revised Statute 43-4-601. Prior to this new law, only the Denver RTD was legally enabled to establish and operate a transit district in the state. In short, this statute allows the formation of a governmental unit that can "act" like a municipality in that it can enter into contracts, administer state and federal grants, collect sales tax and other revenues, own real and personal property, issue revenue bonds, and operate a transit system. Formation of an RTA is completed by written agreement.

As discussed above, the only other established RTA is in the Roaring Fork Valley. This RTA provides transit services between Glenwood Springs and

Aspen, and administers three distinct transit programs: RFTA commuter services along Highway 82, local service in Aspen, and the local Ride Glenwood service in Glenwood Springs. In addition, the RTA oversees the rail planning program. Funding for this RTA is very complicated, since it includes portions of three counties and several incorporated towns/cities. Each entity collects sales tax revenues according to the sales tax rate approved by its citizens, motor vehicle registration fees, and other funding sources somewhat unique to resort areas.

Transit services in the Roaring Fork Valley were initiated provided through the City of Aspen. However, as more complex and regional transit services were implemented, an inter-local agreement was executed which recognized RFTA as a distinct entity. As services became even more complex and potential for rail services began to be explored, local officials worked with the state legislature to enact enabling legislation in order to form an RTA. The RTA formation process in the Roaring Fork Valley was begun in 1998, although it was not formally completed until 2001.

FINANCIAL PLAN ELEMENTS

The crux of any issue regarding the provision of public service is the matter of funding. Provision of a sustainable, permanent funding source has proven to be the single greatest determinant in the success or failure of transit service.

A wide number of potential transit funding sources are available. The following discussion provides an overview of these programs. This discussion will be developed in greater detail as analysis of operating and capital alternatives yield estimates of total future funding requirements.

Federal Transit Funding Sources

Over the last few years, the Intermodal Surface Transportation Efficiency Act (ISTEA) and subsequent Transportation Equity Act of the 21st Century (TEA-21) laws have substantially increased the Federal government's transit funding levels for smaller urban areas. In addition, changes in program requirements

have provided increased flexibility in the use of Federal funds. It is recommended that the GVRTC pursue or continue to pursue the funding sources described below.

FTA Section 5307 Urbanized Area Formula Program

A mainstay of transit funding for smaller cities across the country is the Federal Transit Administration's Urbanized Area Formula Program 5307. These funds are provided to urbanized areas (as identified by the Census Bureau) with a population of 50,000 or more, and are for use throughout the urbanized area. For small urbanized areas with population between 50,000 and 200,000, these funds can be used for operating assistance, at a 50 percent federal/50 percent local ratio. In addition, these funds can be used for associated capital maintenance on an 80 percent federal/20 percent local ratio. In FTA Fiscal Year 2001-02 (October 1, 2001 through September 30, 2002), a total of $3,207,052,091 was available nationwide, of which $658,293 was apportioned to the Grand Junction Urbanized Area. Preliminary estimates by FTA Region 8 staff indicate that the Grand Junction Urbanized Area apportionment for Fiscal Year 2002-03 will be on the order of $864,877. The Short-Range Transit Element assumes that these funds will increase annually by 3.5 percent, and that these funds will be used for operating and capital assistance.

FTA Section 5309 Capital Program Funds

These grants are split into three categories: New Starts, Fixed Guideway Modernization, and Bus and Bus Facilities. Total FTA Section 5309 funding nationwide increased from a Fiscal Year 1997-98 level of $1.9 billion to a Fiscal Year 2001-02 apportionment of $2.8 billion.

In Fiscal Year 2001-02, $613,751,658 was available nationally for bus and bus facilities projects. Of this total, $7,672,725 was earmarked for projects in Colorado. Competition for these funds is extremely intense, and all funds have been earmarked directly by Congress over the past several years. Thus, if Mesa County officials decide to pursue these funds, a concerted lobbying campaign will need to be undertaken to gain support of the local Congressional

delegation. It should be noted that in recent years the transit agencies in Colorado have submitted requests for projects through a statewide coalition; the GVRTC is a member of this coalition. The Short-Range Transit Element assumes that the GVRTC will continue to be successful in attaining these funds to purchase replacement buses, as described in the Capital Plan Element section above.

FTA Section 5310 Elderly and Persons with Disabilities Capital Funds

FTA funds are also potentially available through the FTA Section 5310 Elderly and Persons with Disabilities Program (largely vehicles), which is administered by CDOT. Until recently, recipients of Section 5310 funding were restricted to non-profit organizations; with passage of ISTEA, however, local governmental jurisdictions also became eligible for funding. FTA Fiscal Year 2001-02 apportionments totaled $84,930,249 nationwide ($994,098 in Colorado). Preliminary estimates by FTA Region 8 staff indicate that CDOT's Section 5310 apportionment for Fiscal Year 2002-03 will be on the order of $1,115,251. The GVRTC has never applied for these funds in the past, although it plans to assist area agencies that provide services to senior and disabled persons (including MesAbility) with grant applications for replacement vans during the Plan period.

FTA Section 5311 Nonurbanized Formula Program Funds

Federal transit funding for rural areas, such as service within Mesa County but outside the Grand Junction Urbanized Area, is currently provided through the FTA Section 5311 (formerly Section 18) program for nonurbanized areas. A 20 percent local match is required for capital projects and a 50 percent match for operating expenditures. Nationwide, Section 5311 funds totaled $27,911,737 in FTA Fiscal Year 2001-02 ($2,252,560 in Colorado). These funds, administered by CDOT, are allocated on a discretionary basis and are typically used for capital purposes. These funds are available for a maximum of three years, after which they are reverted back to CDOT if unused. The funds must be used for public transportation – they cannot be used exclusively for transportation for disabled or elderly persons. Preliminary estimates by FTA Region 8 staff indicate that CDOT's Section 5311 apportionment for Fiscal Year 2002-03 will

be on the order of $2,791,089. Mesa County received $50,000 in Fiscal Year 2001-02 for service to the nonurbanized areas of Fruita and Palisade and these funds are programmed only for services in Fruita throughout the Plan period. It should be noted that service to Palisade is no longer eligible for FTA Section 5311 funds, since it was included in the Grand Junction Urbanized Area following the 2000 U.S. Census. This Plan assumes that approximately $70,000 will be available to Mesa County beginning in 2004; this funding level is assumed to increase annually by 3.5 percent.

FTA Section 3037 Job Access and Reverse Commute Program Funds

The Job Access and Reverse Commute (JARC) grant program assists states and localities in developing new or expanded transportation services that connect welfare recipients and other low-income persons to jobs and other employment related services.

The JARC grant program is intended to establish a coordinated regional approach to job access challenges. All projects funded under this program must be the result of a collaborative planning process that includes states and metropolitan planning organizations, transportation providers, agencies administering TANF and Welfare to Work funds, human services agencies, public housing, child care organizations, employers, states and affected communities and other stakeholders. The program is expected to leverage other funds that are eligible to be expended for transportation and encourage a coordinated approach to transportation services.

Funding for JARC grants is authorized at $150 million annually beginning in FTA Fiscal Year 1999-2000, including up to $10 million for Reverse Commute Grants, although only $125 million was apportioned nationally in FTA Fiscal Year 2001-02. A 50 percent local match is required, although other Federal funds can be used as part of the local match. Mesa County received $115,617 in Job Access funds in Fiscal Year 2001-02. The Short-Range Transit Element assumes that the GVRTC will be successful in attaining these funds at the current level, increasing annually by 3.5 percent.

It should be noted that these funds are discretionary in nature and Mesa County has used these funds to provide on-going funding of base level services. This could be problematic should Mesa County be unsuccessful in attaining these funds in the future – additional local funds could be required to "backfill" any funding gap.

Local Transit Funding Sources

Fare Increase

As discussed above, it is recommended that the GVRTC implement a fare increase to address projected funding shortfalls and to bring the GVT's fare structure in line with other Colorado transit systems' fare structures. Sooner or later, inflation requires all transit operators to consider an increase in the adult base one-way fare. Generally, all other fare categories (e.g., elderly, disabled, child, or student) are determined based on the adult base fare. The question is a hard one for the transit operator because, of course, an increase in fares can be expected to lead to a decrease in ridership.

Currently, GVT has a base adult fare of $0.50. To consider how this fare compares with other systems, a peer comparison was conducted of current fare levels at seven existing non-resort Colorado fixed route transit systems. These other systems have base adult fares ranging from $1.00 to $1.25, with an average of $1.03. Thus, GVT's base fare is currently lower than the peer systems analyzed. In light of this fact and the current funding challenges currently faced by the GVRTC, a base fare increase to $1.00 should be implemented.

To determine what effects an increase in the pass price would have on ridership and farebox revenues, a review of fare elasticities is warranted. A fare elasticity of -0.4 generally indicates a 1.0 percent fare increase would result in a 0.4 percent decrease in transit ridership. According to *Traveler Response to Transportation System Changes, Interim Handbook*, fare elasticities in the U.S. and Europe range between -0.1 and -0.6. Given the relatively high transit dependence in Mesa County, a figure of -0.5 is appropriate. Multiplying this

fare elasticity by the percent increase in the base fare would result in an annual reduction in ridership of approximately 29.3 percent. This change would add approximately $57,520 annually in farebox revenues. These additional revenues would help generate additional locally-generated funding, and help to reduce subsidy requirements.

Implement Transfer Program

Under the existing GVT service plan, transfers are allowed on the fixed-route service under the "honor system." Specifically, riders merely tell drivers that they transferred from another bus. To avoid fraud, it is recommended that GVT continue efforts to implement a paper transfer program. The impact to operating costs is anticipated to be negligible; the reduction in fraud will likely more than pay for this program.

Public-Private Partnerships

Partnerships between transit agencies and private organizations are becoming more prevalent, particularly in those cases where potential new transit services would otherwise require too high of a public subsidy and one or more organizations would reap high benefits. A reasonable option, therefore, is to request funding from any organization that would enjoy particularly high and/or distinct benefits from a requested new service to help offset the subsidy required to implement this service.

Potential Future Financial Plan Elements

Sales Tax

The most common form of local dedicated revenues across the country is a sales and use tax. In Colorado, municipalities and counties are able to impose a sales and use tax of up to 0.4 percent. In addition, the ability of a Rural Transportation Authority to impose up to 0.4 percent sales or use tax (or both) to fund public transportation was granted in April 24, 1997 by Colorado Revised Statute 43-4-601, generally known as the Colorado Rural Transportation Authority Law. A simple majority vote is required for passage of

this tax revenue source. It should be noted that the statewide base sales and use tax is 2.9 percent.

There are many benefits to a sales tax:

- It is a relatively stable source of funding, as it is imposed on a very broad tax base and is very responsive to inflation;
- It is simple to collect, as the mechanisms to collect the tax are already in place;
- It affects all portions of the local economy equally; and
- It provides a flexible source of funding that can be used for capital, maintenance or operating, and for highway, transit, or non-motorized transportation modes.

To identify estimates of the funds that would be generated by a sales and use tax for transit over the 23-year Transit Element planning period, the historical growth in retail sales by jurisdiction was considered. Table XIII-5 presents the distribution of total retail sales for Calendar Years 1997 through 2001 for each entity within the current GVT service area (not including the unincorporated county). As presented, Grand Junction generated the greatest amount of total retail sales of any single city, followed by Fruita and Palisade. In terms of annual growth, Fruita's rate of growth was the highest (7.9 percent annual growth), although the city of Grand Junction experienced the greatest annual total growth.

TABLE XIII-5: Mesa County Total Retail Sales History
All Figures in Thousands

Entity	1997	1998	1999	2000	2001	Total 5-Year Taxable Revenues	Average Annual Growth
Fruita	$57,014	$70,378	$73,843	$79,815	$83,295	**$364,345**	7.9%
Annual Growth Rate	–	23.4%	4.9%	8.1%	4.4%		
Grand Junction	$1,673,412	$1,780,330	$1,904,660	$2,097,888	$2,198,338	**$9,654,628**	5.6%
Annual Growth Rate	–	6.4%	7.0%	10.1%	4.8%		
Palisade	$20,319	$20,186	$17,777	$19,096	$22,126	**$99,504**	1.7%
Annual Growth Rate	–	-0.7%	-11.9%	7.4%	15.9%		

Source: Colorado Economic and Demographic Information System.

Table XIII-6 presents the preliminary forecasted transit sales tax revenues for the 23-year planning period if a new transit sales tax were to be implemented. The growth rate in total retail sales was conservatively estimated for each entity at 3 percent annually (the rate of inflation). Three different tax rates were examined: 0.10 percent, 0.25 percent and 0.40 percent. As indicated in the table, the jurisdictions within the current GVT service area would generate a total of approximately $443,959,430 in funding over the 27-year period if the highest tax rate allowable by law (0.40 percent) were to be implemented. The largest proportion of the total will be generated within Grand Junction, at roughly 95 percent of total funding generated by these three jurisdictions.

It should be noted that this analysis does not consider the amount of funding that would be generated in unincorporated Mesa County that could be included in the boundary of a potential Rural Transportation Authority. This effort would require a very detailed analysis that is beyond the scope of this study.

Vehicle Registration Fees

If a Rural Transportation Authority were to be created in Mesa County, it would be able to impose up to a $10.00 vehicle registration fee on all vehicles within the legally defined Authority boundary. According to the Colorado Department

TABLE XIII-6: Mesa County Projected Annual Transit Sales Tax Revenues

Assumes 3% Annual Growth Rate in Total Taxable Sales Receipts in Each Jurisdiction

Jurisdiction	Assumed Tax Rate	Average Annual Transit Sales Tax Revenue in Years… 2003 Through 2005	2006 Through 2010	2011 Through 2015	2016 Through 2020	2021 Through 2025	2026 Through 2030	Total 27-Year Tax Revenues
Fruita								
	0.10%	$93,750	$108,680	$125,990	$146,060	$169,320	$196,290	**$4,012,950**
	0.25%	$234,370	$271,700	$314,970	$365,140	$423,300	$490,720	**$10,032,260**
	0.40%	$375,000	$434,730	$503,970	$584,240	$677,290	$785,160	**$16,051,950**
Grand Junction								
	0.10%	$2,474,250	$2,868,330	$3,325,180	$3,854,790	$4,468,760	$5,180,520	**$105,910,650**
	0.25%	$6,185,620	$7,170,830	$8,312,960	$9,637,000	$11,171,920	$12,951,320	**$264,777,010**
	0.40%	$9,897,000	$11,473,340	$13,300,750	$15,419,210	$17,875,090	$20,722,130	**$423,643,600**
Palisade								
	0.10%	$24,900	$28,870	$33,470	$38,800	$44,980	$52,140	**$1,066,000**
	0.25%	$62,260	$72,180	$83,680	$97,010	$112,460	$130,370	**$2,665,280**
	0.40%	$99,610	$115,480	$133,870	$155,190	$179,910	$208,560	**$4,263,880**
Total with 0.10% Tax Rate		***$2,592,900***	***$3,005,880***	***$3,484,640***	***$4,039,650***	***$4,683,060***	***$5,428,950***	**$110,989,600**
Total with 0.25% Tax Rate		***$6,482,250***	***$7,514,710***	***$8,711,610***	***$10,099,150***	***$11,707,680***	***$13,572,410***	**$277,474,550**
Total with 0.40% Tax Rate		***$10,371,610***	***$12,023,550***	***$13,938,590***	***$16,158,640***	***$18,732,290***	***$21,715,850***	**$443,959,430**

Source: Colorado Economic and Demographic Information System.

of Local Affairs, a total of 43,523 vehicles were registered in the Fruita / Grand Junction / Palisade area in 2000. Assuming no growth in the number of registered vehicles in the area, a new $10.00 per vehicle registration fee would generate on the order of $435,000 annually that could be used to fund transit services.

IMPLEMENTATION PLAN

This schedule presented below provides a timeline of the actions necessary to successfully implement the improvements recommended in this plan.

Calendar Year 2004

- January 2004 – GVRTC will complete the procurement process for delivery of two low-floor buses (assumed to be delivered in September 2004). GVRTC will also begin the procurement process for two additional low-floor buses (one each to be delivered in 2005 and 2006).

- January 2004 – GVRTC will implement the service discussed in the Service Plan. Specifically, the following will be implemented:

    - The Fruita and Palisade routes will be re-designated as commuter routes.

    - Routes 5A and 5B will be revised to serve the Riverside Grand Mesa Center and Rim Rock developments.

    - The deviated fixed route Dial-A-Ride program will be eliminated, and these resources will be used to expand the capacity of the paratransit program.

- January 2004 – GVRTC implement the increased fare structure and formal transfer program.

- January 2004 – GVRTC will work with the GVT to upgrade the quality of the existing map/schedule, and to work with regional independent living centers to develop these media in alternative formats.

- January 2004 – GVRTC will work with the GVT to upgrade the their Internet website.

- January 2004 – GVRTC will begin the formal negotiation process to update and expand the Interlocal Governmental Agreement to fund GVT services. Further discussions regarding the potential formation of an RTA and/or implementation of a transit sales and use tax will also be facilitated by the GVRTC.

- June 2004 – The Coronado Plaza transfer point amenities improvement project will be implemented.

- June 2004 – GVT will implement a paratransit subscription program.

- September 2004 – GVRTC will take delivery of two low-floor buses.

- September 2004 – GVRTC and the member jurisdictions will formally execute a new Interlocal Governmental Agreement to fund GVT services.

- On-Going – GVRTC will continue to work with the various jurisdictions to review construction plans and scheduling priorities for pedestrian and bicycle improvements to best coordinate with transit passengers' needs.

- On-Going – GVRTC will work with the GVT to develop a program to educate institutional users (such as social service agencies and medical offices) with regard to the requirements and limitations of the paratransit program.

- On-Going – GVRTC will continue to develop operating and planning policies to guide the provision of transit services in the region. In addition, GVRTC will compare the performance of GVT with respect to adopted performance measures.

- On-Going – GVRTC and GVT will continue to request funding from any organization that would enjoy particularly high and/or distinct benefits from a requested new service.

Calendar Year 2005

- January 2005 – GVRTC will take delivery of one low-floor bus.
- June 2005 – GVRTC will begin the procurement process for six replacement minibuses, to be delivered in 2006.
- On-Going Projects – See description above.

Calendar Year 2006

- January 2006 – GVRTC will take delivery of six minibuses.
- June 2006 – GVRTC will begin the procurement process for six replacement minibuses, to be delivered in 2007.
- On-Going Projects – See description above.

Calendar Year 2007

- January 2007 – GVRTC will take delivery of six minibuses.
- January 2007 – GVRTC will develop procurement documents to update the Transit Element study.
- On-Going Projects – See description above.

Calendar Year 2008

- On-Going Projects – See description above.

Calendar Year 2009

- On-Going Projects – See description above.

Calendar Year 2010

- January 2010 – GVRTC will begin the procurement process for seven minibuses, to be delivered in 2011.

- June 2010 – GVRTC will begin the planning process to implement additional paratransit service in 2011.

- On-Going Projects – See description above.

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APPENDIX A

Appendix A: Transit Comments from Citizen Input *(Page 1 of 3)*	
COMMENT	**UNMET TRANSIT NEED?**
On-Board Passenger Surveys	
1. Need for later evening transit service.	Yes
2. Need for earlier morning transit service.	Yes
3. Need for Sunday service.	Yes
4. Be able to smoke on the buses	No
5. Need better schedules.	Yes
6. Need bigger buses.	Yes
7. Need bus shelters at each bus stop.	No
8. Need more frequent service.	Yes
9. Need better on-time performance.	Yes
10. Need to address behavior problems on buses.	Yes
11. Need to ban inebriated riders from the bus.	Yes
12. Need more direct service in Clifton.	Yes
13. Need service closer to 31-1/2 Road & D Road.	Yes
14. Need to allow food and drink on the buses.	No
15. Need to not change the routes so often.	Yes

COMMENT	UNMET TRANSIT NEED?
On-Board Passenger Surveys *(continued)*	
16. Need to paint paratransit buses a different color to distinguish from the fixed route buses.	No
17. Need more comfortable buses to replace old RTD buses.	Yes
18. Need to operate earlier on Saturdays.	Yes
19. Bus passes should less expensive.	No
20. Need to post pick-up times at the bus stops.	Yes
21. Need to install side route designation curtains.	Yes
22. Drivers should provide change.	No
23. Need to operate on holidays.	Yes
24. Need more direct service between major activity centers.	Yes
25. Need service to the Botanical Gardens	Yes
26. Bus stops should be spaced closer together.	No
27. Need to provide better service to disabled passengers.	Yes
28. Need service to Whitewater.	No
29. Need reduced or free fares for seniors.	No
30. Need to operate longer for employees who do not work a traditional 8-5 workday.	Yes

Appendix A: Transit Comments from Citizen Input *(Page 3 of 3)*	
COMMENT	**UNMET TRANSIT NEED?**
On-Board Passenger Surveys *(continued)*	
31. Need to make sure the timechecks operated are the same as published in the schedule.	Yes
Public Meetings	
1. Need service to the Redlands area.	Yes
2. Need a bus stop between E ½ Road and E Road on 31-1/2 Road	Yes
3. Need for later evening transit service.	Yes
4. New buses are too narrow; difficult for a scooter to negotiate.	Yes
5. Need service on Patterson between 5th and 12th Streets.	Yes
6. Need service to St. Mary's Drug/Alcohol evening program.	Yes
7. Need to address behaviour issues.	Yes
8. Need to operate Saturday service earlier in the morning.	Yes
9. Need service to G-7/10 Road in Palisade.	Yes
10. Need to provide transfers.	Yes
11. Need to provide service to Cottonwood Mall.	Yes
12. Need to provide "excursion" service to the nearby mountains.	No

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APPENDIX B

Appendix B

Project Evaluation Guidelines

1. Does the project support local land use plans?

   - Intermediate and minor highway projects would get zero points
   - Intermediate and minor transit projects and minor rail projects could get up to one point
   - Pedestrian/bicycle projects could get up to one point
   - Major highway, transit, and rail projects could get up to three points

2. Does the project relieve congestion?

   - Major highway and transit projects could get up to three points depending on level of congestion
   - Intermediate and minor highway and transit projects could get up to two points
   - Major intermodal projects could get up to two points depending on level of congestion
   - All other projects would get zero points

3. Does the project improve transportation system continuity?

   - Major highway and transit projects that fill in gaps could get up to three points
   - Intermediate highway and transit projects could get up to one point
   - All other projects would get zero points

4. Does the project preserve the existing transportation system?

   - Intermediate and minor (except erosion control) highway, major (bus replacement only) and intermediate transit projects and major rail projects could get up to three points

- All intermodal projects could get up to three points
- Major highway projects could get up to one point
- All pedestrian/bicycle projects could get up to one point

5. Is the project intermodal or multimodal?
   - A project can get up to three points if it involves more than one mode, depending on the number of modes served by the project
   - A project will get no points if it only involves one mode
6. Is the project eligible for multiple funding sources?
   - A project will be assigned no points if it only can be funded from one source
   - A project will get up to two points if it can be funded by up to two funding sources
   - A project will get up to three points if it can be funded by up to three or more funding sources
7. Does the project enhance the environment or minimize the external environment impacts?
   - If a project has the potential for reducing the number of vehicles on the roadway system, it can get up to three points, depending on the potential for success
   - If a project makes it easier to use the private automobile, it will get no points
8. Does the project preserve land?
   - If the project will require the taking of land to implement, it will be given no points
   - If the project makes improvements to the existing facilities without requiring more land, it could get up to three points
9. Does the project maximize the efficiency of the transportation system?
   - Any expansion of the highway system will get no points

- Any improvements to the existing transportation system could get up to three points depending on the mode and the potential for achieving the goal

10. Does the project minimize the number of trips?

    - Any project which makes it easier to use the private automobile will get zero points

    - Any project which provides an alternative to the private automobile could get up to three points depending on the potential for success

    - Any project which will have no effect on getting people out of their car will get zero points

11. Does the project minimize travel distance/times between housing and community services?

    - Any project which makes it easier to use the private automobile will get zero points

    - Any project which provides an alternative to the private automobile could get up to three points depending on the potential for success

    - Any project which will have no effect on getting people out of their car will get zero points

12. Does the project minimize disruption to communities?

    - Points will be awarded based on the amount of additional land required to implement the project

    - Any project which makes improvements to the existing transportation system will get three points

    - No points will be assigned for this criteria if the project would divide a community

13. Does the project minimize additional local capital or impose long-term maintenance costs on local governments?

    - A project will get three points if it represents a one-time expense like the replacement of a bridge or the installation of a traffic light

    - Points will be awarded based on the magnitude of the annual local expense required to support the investment

14. Does the project support economic development?

- Points will be assigned to the project if it has the potential to cause the redevelopment of land in and around the project
- A project will get no points if it is considered to be of a minor nature
- A project could get up to three points if it will introduce a major new mode into the mix of transportation solutions

15. Does the project have public support?

- Points will be assigned based on the level of controversy surrounding the project

16. Does the project improve safety?

- Points will only be given to projects that will make the transportation system safer such as climbing lanes, geometric improvements, and the installation of traffic lights

17. How easily can the project be implemented?

- A project will get three points if it does not require the taking of any lands or environmental studies
- A project could get up to three points if the environmental process is completed and any additional land has been acquired