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Welcome to the electronic version of the CARTS Williamson County Transit Planning Study. The study document is a result of many hours of volunteer labor by the Steering Committee for the project, a group that was formed by one appointment from each jurisdiction in the study area, and hundreds of hours of work by a nationally recognized consulting firm, the KFH Group of Bethesda, MD.

Since the first organizational meeting in the fall of 2001 to the publication of this electronic report almost two years later, CARTS has endeavored to promote reasonable and feasible solutions to mobility issues in this fast growing county, one of nine that forms the CARTS Rural Transit District.

This report is not an end product but a beginning, as policymakers, community leaders and involved citizens will need to weigh in on the conclusions and recommendations contained herein, and specific local study efforts will need to be pursued by CARTS and the local jurisdictions for services tailored specific to each locale so we can build from there with a regional perspective in mind. But it is a good start, that proverbial first step of the journey.

What all parties agree on is that the integration of transit service development into the infrastructure required to support the continued urbanization of the study area is important, and that the development of a seamless system that the average patron can use with ease to move freely through the many jurisdictions that comprise our region is a goal that all wish to move towards.

Again, many thanks to the steering committee members listed below for their tireless attention to detail without losing sight of the broader issues, and for maintaining a positivity throughout the study process that improved the final product immeasurably.

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Williamson County Public Transportation Planning Study

A cooperative effort of:



Capital Area Rural Transportation System



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Briefing Paper

APPENDIX B: Technical Memorandum No. 1: Review of Demographics Needs and
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APPENDIX C: Technical Memorandum No. 2: Review of Existing Transit Services and
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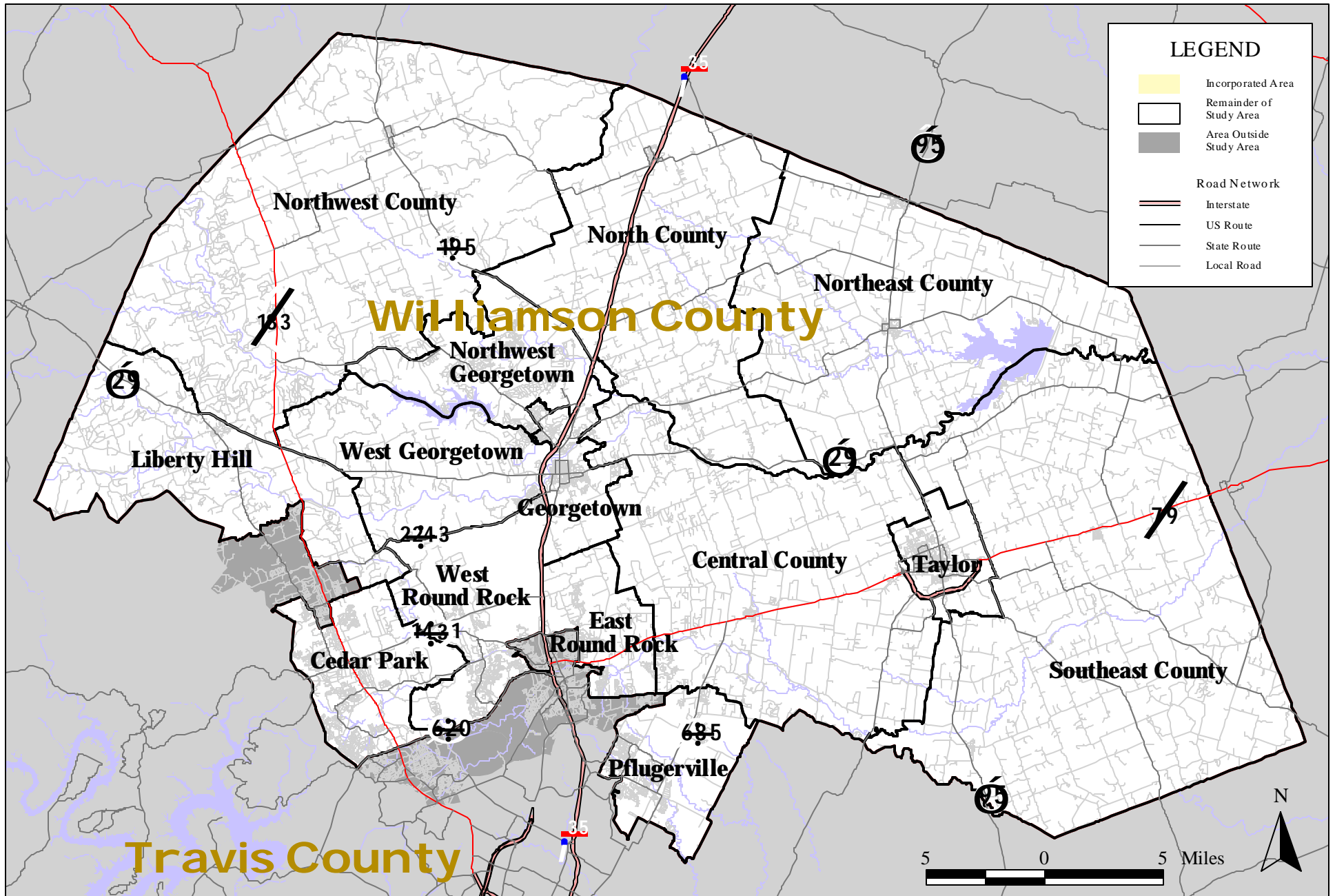
WILLIAMSON COUNTY PUBLIC TRANSPORTATION STUDY FINAL REPORT

INTRODUCTION

The Capital Area Rural Transportation System (CARTS), Williamson County, and participating municipal jurisdictions in Williamson and Travis Counties initiated a study of the feasibility of improving transit services. This study focuses on all of Williamson County except Round Rock and Leander, but includes the City of Pflugerville in Travis County (Figure 1). The City of Leander receives transit services, since it is a member of the Capital Metropolitan Transportation Authority (Capital Metro). The City of Round Rock is independently studying transit alternatives for implementation.

The primary goal of this document is to develop a Five Year Plan that includes a comprehensive/regional approach to the planning and development of public transit service and appropriate infrastructure in Williamson County and Pflugerville. One of the most important issues addressed in this study is the urbanization of Williamson County. As Williamson County continues its rapid growth, the level and type of transportation service historically provided by CARTS will no longer meet the needs of their rapidly growing urbanized population.

Williamson County is one of the most unique and diverse counties in the nation. With population growth over the past 12 years averaging almost ten percent a year,



Williamson County is among the nation's top five rapidly growing suburban counties. Complicating this rapid growth is the diverse development patterns of the county (suburban development, rural farmland, and small towns), especially in relation to their implications for the provision of public transit services.

The five-year public transportation plan must account for this diversity by addressing each of the differing travel needs of these communities, which often call for different solutions. The plan must thus consider the regional needs of long-distance commuters to regional cores, local work and non-work demands in the more densely developed south central parts of the county, small city fixed-route service, connections between major population centers, and the basic mobility needs of the county's rural residents.

Study Advisory Committee

The Study Advisory Committee was composed of representatives from; Cedar Park, Georgetown, Pflugerville, Taylor, Round Rock, Williamson County, Texas Department of Transportation (TxDOT), the Capital Area Metropolitan Planning Council (CAMPO), Capital Metro as well as key CARTS staff. This committee developed the study process, provided guidance to the consultant team, and selected the best options to meet the needs of Williamson County. The committee was closely involved in all aspects of the study.

Public Participation Process

The public participation process for this plan was extensive. Initial contacts included key participants throughout the region. More than 20 meetings were held in the initial stages of the study to coordinate the variety of activities. A website was developed to allow anyone to review the progress of the study. During the alternatives phase, public meetings and/or briefings for city councils and the County Commissioner Court were held in Cedar Park, Georgetown, Pflugerville, Round Rock,

and Taylor. In addition there were a number of meetings with human service agencies and senior centers. In each of these meetings there was strong support for transit among the participating residents.

The Study Process

The study consisted of five basic phases:

1. Coordination Issues (Appendix A)
2. Review of Demographics, Needs and Travel Patterns (Appendix B)
3. Review of Existing Transit Services and Resources (Appendix C)
4. Development and Selection of Alternatives (Appendix D)
5. Five Year Transit Plan

These phases are discussed in more detail in the sections that follow.

1. PROJECT COORDINATION AND GOALS

The first deliverable in the Williamson County public transportation planning process was the development of the study goals and objectives. The consultants working with the Advisory Committee developed a set of goals and objectives to guide the study process. The goals and objectives of the study were as follows:

The priority goal of the study was to:

Develop a comprehensive/regional approach to the planning and development of public transit service and design an appropriate infrastructure in Williamson County and Pflugerville.

The objectives include:

1. Implement a public participation process that allows for maximum input from the community and all other interested parties in the study area.
2. Determine the demand for and feasibility of additional public transit services for both intra- and inter-county trips for all portions of the study area.
3. Examine how Williamson County fits into the regional public transportation landscape and coordinates efforts with regional initiatives, including highway and high occupancy vehicle (HOV) lane projects, local and regional rail proposals, and existing transit services in neighboring jurisdictions.
4. Examine existing and future potential funding options for CARTS to expand service in the study area.
5. Review current services, including CARTS, Capital Metro's Special Transit Service (STS) currently operated in Cedar Park and Pflugerville, as well as additional human service transportation.
6. Review Georgetown fixed-route plan and revise/modify as necessary.
7. Coordinate planning activities with other transportation entities in the region, including Capital Metro, Round Rock, and Georgetown, as well as CARTS facilities planning efforts.
8. Coordinate with human service agencies to ensure that their clients can utilize the public transit system to the maximum extent.
9. Plan for a regional network in which CARTS' Williamson County service will be a component.

Review of County Planning Activities

There are a number of planning efforts taking place at the county level that merit the attention of this study. These efforts are detailed in Appendix A - Transportation Coordination and include:

- Georgetown Transportation Study

- Previous Planning for Transit in Georgetown
- Williamson County Transportation Plan
- Williamson County and Cities Health District (as part of the County Planning Process)
- Economic Development Efforts
- Transit Multi-Modal Centers
- Other local comprehensive and thoroughfare plans

Review of Regional Planning Activities

There are a number of very important studies and planning activities involving regional participants. These efforts are detailed in Appendix A. These activities will have a major impact on public transportation in the county. These planning efforts are as follows:

1. Capital Metro - Capital Metro is very actively expanding their capacity in the two major Williamson County corridors. New, expanded park and ride lots and expanded service are being planned that will give many Williamson County commuters several mobility options to the single occupant vehicle.
2. City of Round Rock - Round Rock is conducting its own parallel study to that being conducted for Williamson County. The Williamson County study team has made attempts to coordinate activities. It will be important for CARTS to obtain and review the Round Rock study.
3. CAMPO - This organization conducts planning activities and develops demographic and travel data for its service area which as of February 2003 includes all of Williamson County. They are also actively involved in planning activities related to the HOV lanes.
4. TxDOT - TxDOT is leading the HOV planning activities. It will be important to coordinate activities to ensure that proper park and ride facilities are planned for in the study area. While HOV lanes may be several years off, park and ride planning and acquisition needs to start in the near future.

2. REVIEW OF DEMOGRAPHICS, NEEDS, AND TRAVEL PATTERNS

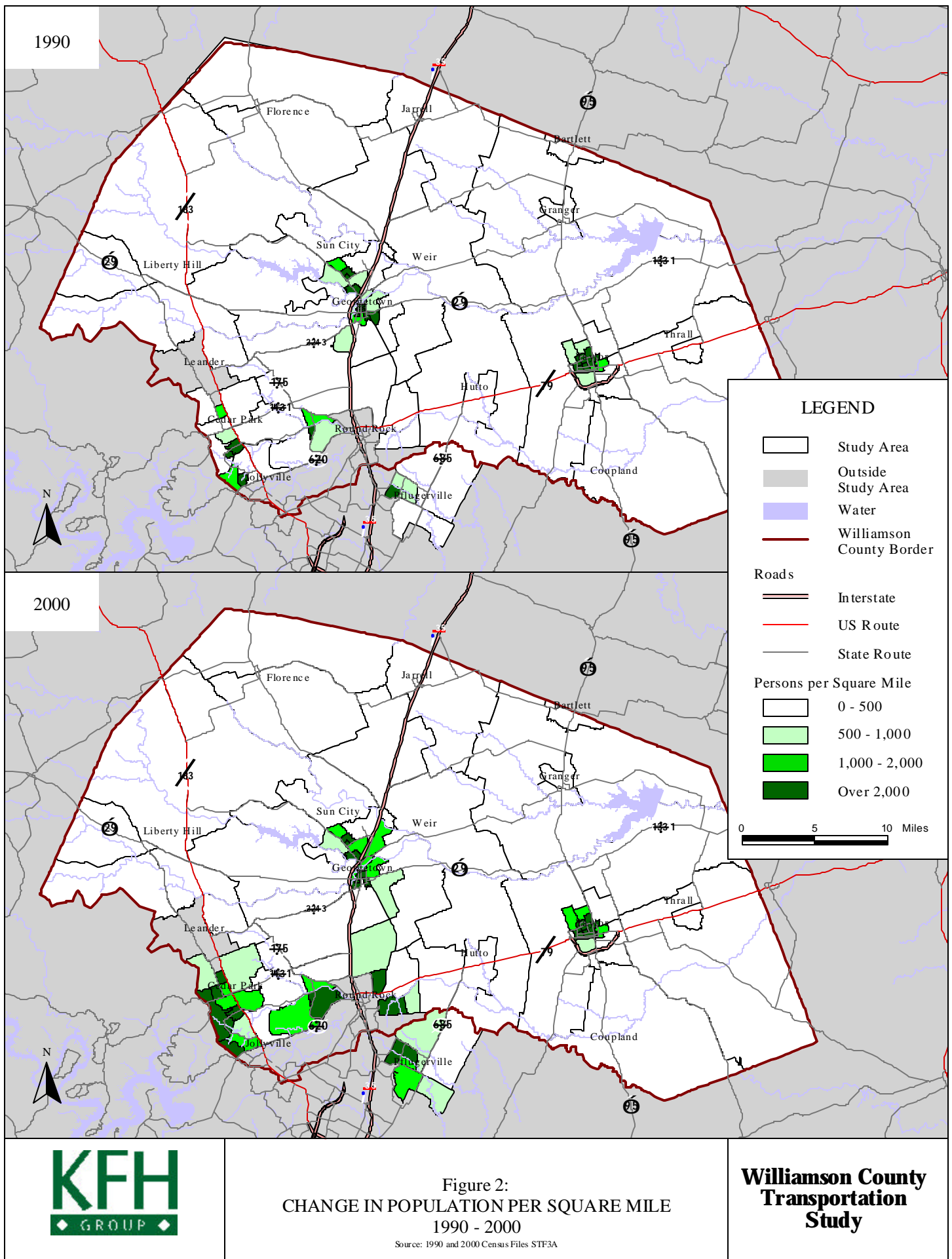
Over the past 20 years, Williamson County has grown dramatically, generating significant traffic congestion both within the county and along the corridors between Williamson County and Austin. In fact, Williamson County grew by 79 percent (8% per year) between 1990 and 2000, growing from a population of 139,000 to 224,000. Between 2000 and 2002, growth has accelerated to over 11 percent per year according to the U.S. Census estimates. Communities such as Pflugerville, Round Rock, Georgetown, Leander, and Cedar Park have seen explosive growth as primarily suburban communities adjacent to Austin. Williamson County now has traffic rivaling many major cities. The extra time taken in commuting has a negative impact on the quality of life in the county, especially in the areas of pollution, lost productivity, and traffic safety.

The study placed an emphasis on identifying areas with populations capable of supporting varying levels of transit service. Specifically *Technical Memorandum No. 1: Review of Demographics Needs and Travel Patterns* (Appendix B) details the following, which are summarized here:

- Where people who are likely to use transit live,
- Where they need to go, and
- Regional travel or commute patterns.

Where People Live

Figure 2 illustrates the changes in population density between 1990 and 2000. The significant change in population can be attributed in large part, to intense development along US Highway 183 (US 183) and Inter-Regional Highway 35 (IH 35) corridors (population in these areas grew by over 100%). No large parts of the study area experienced population decline and the rural area north and west of Georgetown



(toward Florence and Jarrell) increased in population by 89 percent. The Taylor area experienced the smallest growth in population at 17 percent.

In the Williamson County Study Area, the Cities of Georgetown, Cedar Park, Pflugerville, and Taylor have the highest needs for transit service. Based on population density alone, these communities rank high in relative need for transit and should be further studied for possible fixed-route service. When considering the percentage of potentially transit dependent persons, autoless households, and supply of affordable housing, Georgetown and Taylor, in particular, represent higher need for such service. Smaller cities such as Granger, Bartlett, and Thrall also have relatively high percentages of potentially transit dependent persons and may be good candidates for demand-responsive service.

Where People Need to Go - Travel Patterns

As illustrated in Figure 3, most of the primary trip generators are in the south-central portion of the county. These include work and non-work trips and are detailed in Appendix B. Figure 4 shows that a great number of work trip destinations are in the City of Austin - North of Town Lake. The largest concentrations of work trip destinations are in far North Central Austin by the University of Texas Research Center and IBM, and in Round Rock with Dell Computer and La Frontera, a multi-use development. Additional work destinations include the Cities of Georgetown and Taylor. Though this analysis can help us estimate general trip patterns, every location has unique commuting characteristics based on a variety of factors, making it necessary to examine where trips end at a particular destination.

Major non-work trip destinations include shopping, human service, and medical trips to the Round Rock area, which is the largest trip attractor in the county, followed by medical destinations in Austin. Georgetown attracts persons on county business, and there are some residents throughout the county who have specialized medical needs in the Temple area. In addition, there are many medical, shopping,

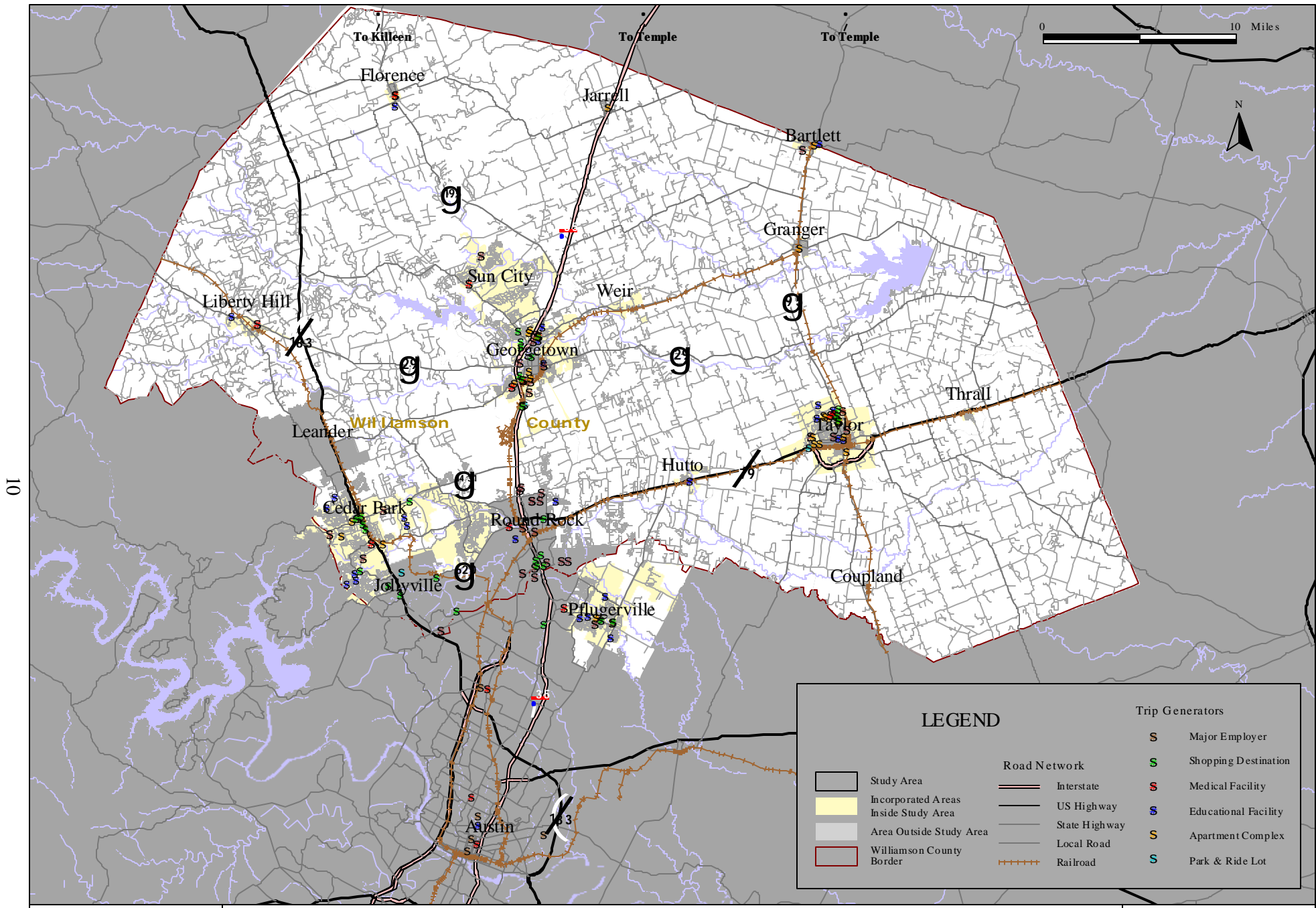


Figure 3:
MAJOR DESTINATIONS FOR RESIDENTS
OF WILLIAMSON COUNTY

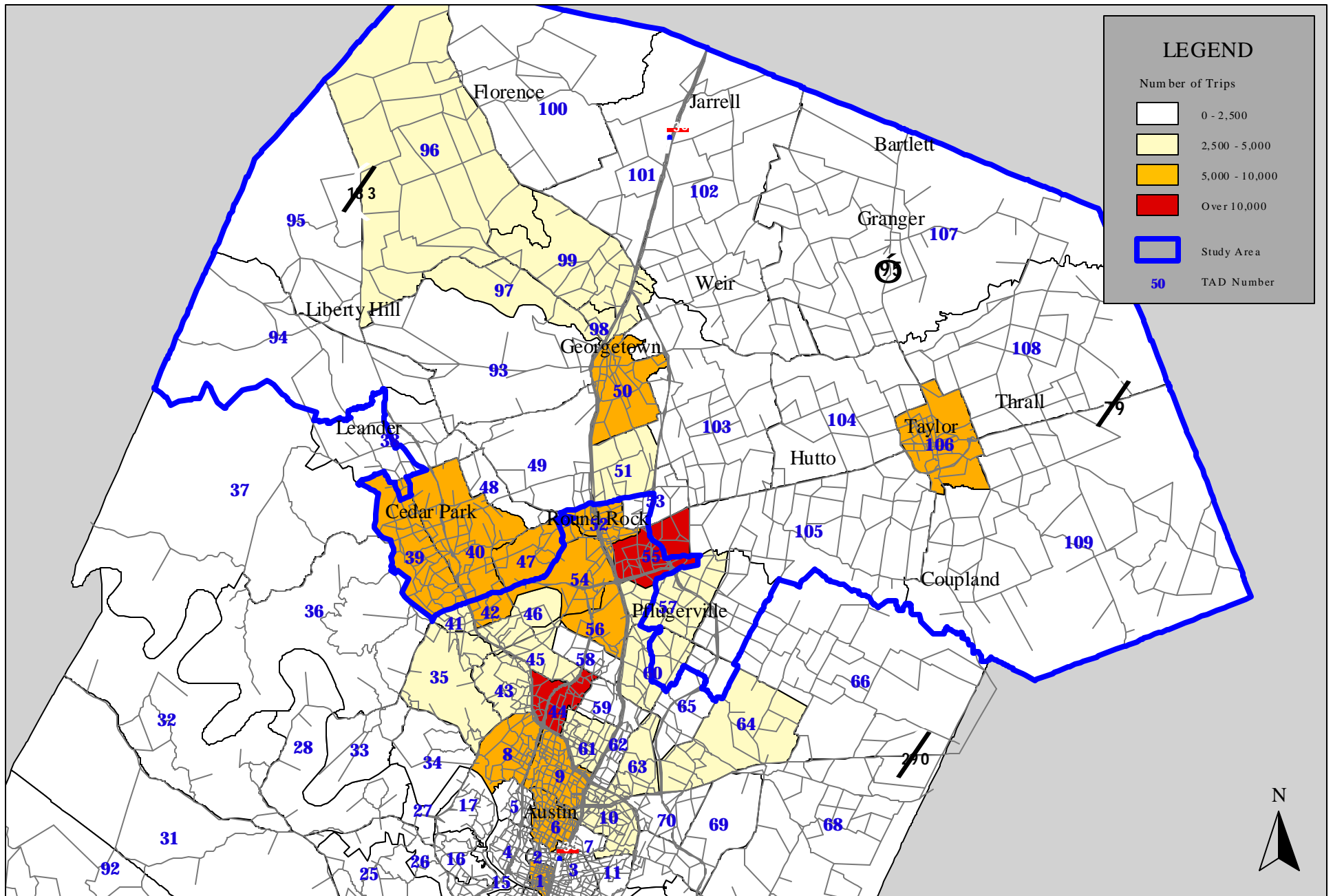


Figure 4
PROJECTED 2007 HOME BASED WORK TRIP DESTINATIONS
WITH ORIGINS IN THE WILLIAMSON COUNTY STUDY AREA

Source: CAMPO 2025 Transportation Plan

**Williamson County
Transportation
Study**



human service, recreation and other trips that are accomplished within each community.

As part of their ongoing 2025 Transportation Plan, CAMPO in Austin, computed forecast commute travel patterns for the region, including Williamson County, using 1990 base year Transportation Analysis Zone (TAZ) data and 1997 data to estimate patterns for the Years 2007, 2015, and 2025. Aggregated Traffic Analysis Districts (TAD) was used for Figure 4. For the purposes of this study, being a Short-Range Transit Plan, we examined the 2007 forecast data for regional commute patterns in five years.

Internal Commute Patterns

Using the same data provided by CAMPO for the regional 2025 Transportation Plan as the analysis above, further analysis of commute patterns based on origins and destinations of home-based work trips within the study area was performed. Table 1 details the origins and destinations by area of the county. Please note that the areas represented in Table 1 are Census boundaries and will not have the same population as the actual political subdivision.

These same suburban communities have become more than just bedroom communities. In terms of employment growth, several areas have formed a new high tech employment corridor roughly along the Williamson-Travis County line. The travel patterns revealed above indicate significant travel between the towns and cities of Round Rock, Pflugerville, Cedar Park, Georgetown, and the other communities of the south central portion of the county. The levels of travel may be appropriate for fixed-route transit within and between these towns.

Round Rock

While not part of the study, the City of Round Rock is the area of Williamson County with the highest concentrations of employment. The Round Rock area is

Table 1
PROJECTED ORIGINS AND DESTINATIONS OF
2007 HOME-BASED WORK TRIPS BY AREA OF WILLIAMSON COUNTY

Destination	Origin														
	Central County	Cedar Park	East Round Rock	Georgetown	Liberty Hill	North County	Northeast County	Northwest County	Pflugerville	Northwest Georgetown	Southeast County	Taylor	West Georgetown	West Round Rock	Total
Central County	299	106	110	295	21	93	81	51	175	260	72	245	69	113	1,990
Cedar Park	225	6,639	221	611	484	120	42	388	432	616	45	117	378	1,438	11,756
East Round Rock	383	487	470	711	76	119	64	111	398	539	54	196	243	659	4,510
Georgetown	457	610	287	3,956	199	500	220	418	266	2,899	77	221	994	883	11,987
Liberty Hill	25	327	21	134	283	28	16	225	28	181	3	10	131	125	1,537
North County	109	94	44	439	38	668	211	207	59	710	25	67	119	116	2,906
Northeast County	53	12	7	84	6	79	454	33	17	93	56	144	23	16	1,077
Northwest County	72	367	36	314	227	133	34	1,366	44	764	22	32	239	140	3,790
Pflugerville	373	463	222	377	53	93	59	79	1,615	329	69	220	120	361	4,433
Northwest Georgetown	173	254	98	1,410	114	330	125	471	112	3,411	29	96	324	281	7,228
Southeast County	158	49	34	83	8	38	142	22	78	68	746	557	24	41	2,048
Taylor	841	176	139	438	34	193	573	68	309	418	1,004	4,831	105	209	9,338
West Georgetown	29	91	16	172	38	30	10	57	19	145	4	10	120	66	807
West Round Rock	154	911	180	555	114	87	37	109	223	458	27	89	221	1,219	4,384
Subtotal	3,351	10,586	1,885	9,579	1,695	2,511	2,068	3,605	3,775	10,891	2,233	6,835	3,110	5,667	67,791
North Austin	3,017	12,090	2,265	5,158	1,556	976	571	1,487	9,307	4,414	722	1,817	2,137	7,082	52,599
Round Rock	1,389	2,557	1,575	2,752	394	489	225	449	2,631	2,280	239	767	1,004	3,747	20,498
Other*	2,149	9,478	1,568	3,223	1,404	767	572	1,408	6,313	3,086	760	1,460	1,501	5,125	38,814
Total	9,906	34,711	7,293	20,712	5,049	4,743	3,436	6,949	22,026	20,671	3,954	10,879	7,752	21,621	179,702

Source: CAMPO 2025 Transportation Plan.

*Other is defined as Austin (other than North Austin to Town Lake) and Travis County.

expected to attract more home-based work trips than other parts of the study area, as it does today. The majority of these trips will travel down the IH 35 corridor from Georgetown, Sun City, and northern Round Rock. Additional concentrations of trips are expected from Cedar Park to the west, Pflugerville to the south, and as far as Taylor to the east.

3. REVIEW OF EXISTING TRANSIT SERVICES AND RESOURCES

CARTS, Capital Metro, intercity bus operators and Amtrak operate a variety of services in Williamson County. CARTS and Capital Metro operate the bulk of the service and are described in detail in *Technical Memorandum No. 2: Review of Existing Transit Services and Resources* (Appendix C).

CARTS Service

The emphasis of these services is on rural public transportation with services open to all, as well as medical (dialysis being a major portion of the service), human service, and education needs. The majority of origins in the county come from the area between the triangle formed by Pflugerville, Georgetown, and Taylor. Destinations are typically in the IH 35 corridor from Georgetown to downtown Austin (Figure 5).

CARTS operates six full-time routes (Monday through Friday), two - three day per week routes (Monday, Wednesday, and Friday) and one route twice per month. Table 2 details the performance measures for each route and the service as a whole. For the 12 months under review (March 2001 - February 2002), CARTS provided 48,636 one-way trips, or 195 trips per day. Vehicle hours totaled 17,669, and vehicle miles were 274,121, for an average speed of 15 miles per hour. Trip length averaged 7.8 miles per trip. Productivity was at 2.5 one-way trips per hour.

Cost to operate service (operating and administration) in Williamson County was estimated using CARTS average cost per hour of \$37.08 and multiplying that cost

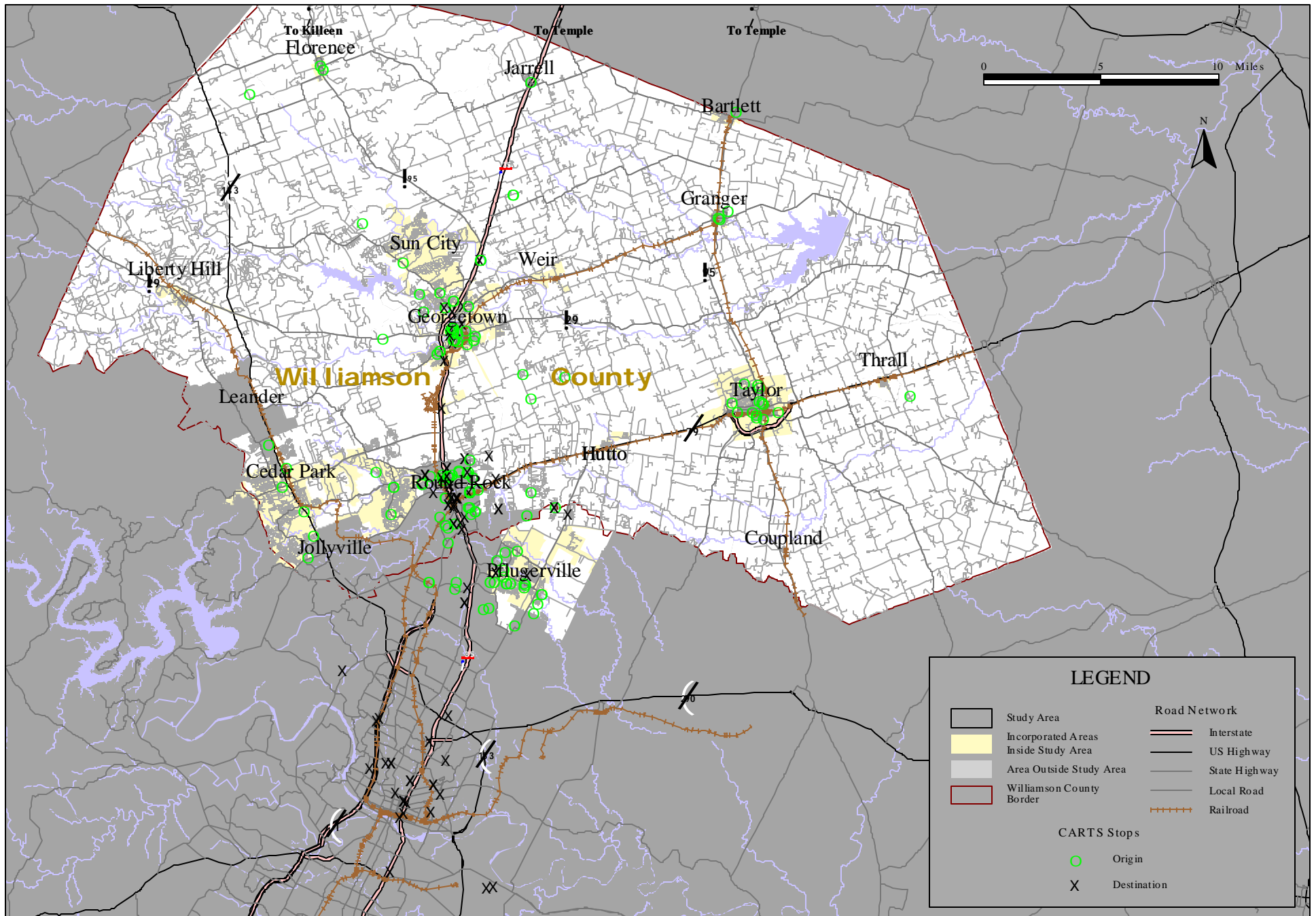


Figure 2-1
 SAMPLE ORIGINS AND DESTINATIONS OF CARTS SERVICE
 IN WILLIAMSON COUNTY

Source: Sample of CARTS driver manifests

Table 2 - WILLIAMSON COUNTY OPERATING COSTS AND PERFORMANCE MEASURES DATA

Route	Route Type*	Annual Vehicle Hours	Annual Vehicle Miles	Annual One-Way Trips	Vehicle Miles per Hour	One-Way Trips per Vehicle Hour	One-Way Trips per Vehicle Mile	Miles per One-Way Trip	Annual Operating Cost
821	L/R	1,700	18,207	4,157	10.71	2.45	0.23	4.38	\$63,036.00
822	I/R	2,036	35,383	3,265	17.38	1.60	0.09	10.84	\$75,494.88
901	R	2,830	67,883	5,583	23.99	1.97	0.08	12.16	\$104,936.40
902	I	1,312	30,519	5,423	23.26	4.13	0.18	5.63	\$48,648.96
903	I	2,391	38,447	7,226	16.08	3.02	0.19	5.32	\$88,658.28
904	L	2,556	38,560	10,499	15.09	4.11	0.27	3.67	\$94,776.48
905	L	2,083	19,043	7,314	9.14	3.51	0.38	2.60	\$77,237.64
906	L	2,230	19,043	4,694	8.54	2.10	0.25	4.06	\$82,688.40
907	R	277	4,143	232	14.96	0.84	0.06	17.86	\$10,271.16
908	L	254	2,893	243	11.39	0.96	0.08	11.91	\$9,418.32
Total		17,669	274,121	48,636	15.05	2.47	0.18	7.84	\$655,166.52

Route	Operating Cost per Hour	Cost per Mile	Cost per One-Way Trip	Vehicle Operating Days	Vehicle Hours per Day	Vehicle Miles per Day	One-Way Trips per Day	Cost per Day	
821	\$37.08	\$3.46	\$15.16	150	11.33	121.38	27.71	\$420.24	
822	\$37.08	\$2.13	\$23.12	250	8.14	141.53	13.06	\$301.98	
901	\$37.08	\$1.55	\$18.80	250	11.32	271.53	22.33	\$419.75	
902	\$37.08	\$1.59	\$8.97	150	8.75	203.46	36.15	\$324.33	
903	\$37.08	\$2.31	\$12.27	250	9.56	153.79	28.90	\$354.63	
904	\$37.08	\$2.46	\$9.03	250	10.22	154.24	42.00	\$379.11	
905	\$37.08	\$4.06	\$10.56	250	8.33	76.17	29.26	\$308.95	
906	\$37.08	\$4.34	\$17.62	250	8.92	76.17	18.78	\$330.75	
907	\$37.08	\$2.48	\$44.27	22	12.59	188.32	10.55	\$466.87	
908	\$37.08	\$3.26	\$38.76	62	4.10	46.66	3.92	\$151.91	
Total		\$37.08	\$2.76	\$19.86	1,884	93.27	1,433.26	232.66	\$3,458.51

Source: Calculated from March 2001- February 2002 using monthly statistical data supplied by CARTS.

*L Local Service
I Intra-County
R Regional Service

by the number of hours operated in the county. The resulting cost was \$655,166, or \$19.86 per trip. Capital cost during this period is estimated at \$146,647, for a total cost of \$801,813.

Funding of CARTS Service

CARTS receives a variety of funding in order to fulfill its mission. Federal and state funding are the largest portion of CARTS revenues system-wide and in Williamson County. Federal Transit Administration (FTA) Section 5311 is the rural transit funding source that is currently available and used for the non-urbanized parts of Williamson County. It is important to note that in FY 2003, CARTS received a significant cut (12.5%) of its state revenue from the State Public Transportation Fund. This funding has been reduced by the legislature, requiring CARTS to either find other sources of funding or cut existing services as necessary.

CARTS receives approximately 33 percent of its operating funds for Williamson County from non-federal or state sources. Table 3 details these funding sources (for FY 2002) by governments (\$36,750) and human service agencies.

Human Service Agencies

CARTS coordinates transportation with many human service agencies. Of those with funding for transportation, some utilize CARTS, some utilize their own vehicles and some use a combination of services. CARTS provides services for Mental Health and Mental Retardation (MHMR), Aging (Title III), and Medicaid. These services are both local and long distance in nature.

Table 3
WILLIAMSON COUNTY
TRANSIT FUNDING SOURCES FY 2002

Source	Funding Level	Percentage
City/County Funding FY2002	\$ 36,750	5.6
Welfare to Work Funding	\$ 16,590	2.5
Round Rock Summer Express	\$ 42,000	6.4
Medicaid (13.52/trip)	\$ 46,725	7.1
Title III Senior Funding (4.00/trip)	\$ 25,764	3.9
MHMR/Contract	\$ 50,400	7.7
Total Local Funding	\$218,229	33.3
Total State/Federal	\$436,937	66.7
Total Funding	\$655,166	

Capital Metro - Express Service

Capital Metro provides a variety of express services throughout its service area. Of particular interest to this study are the express services that operate adjacent to or through the study area, specifically US 183 north and IH 35 north. The services along these routes serve park and ride locations on the outskirts of the Austin Metropolitan area. Figure 6 presents a map of the Capital Metro express routes serving these areas. Table 4 provides ridership data for a typical month of service.

All together on the US 183 corridor, Capital Metro operates 28 schedules southbound every weekday and 33 northbound every weekday, with all stops serviced throughout the day on one route. Capital Metro is preparing to expand service in this corridor upon completion of a new park and ride lot near the northeast corner of the intersection of US 183 and RR 620 which is very convenient for Cedar Park residents. This should be completed within the next year.

Capital Metro operates express service along the IH 35 corridor from an area adjacent to Pflugerville to the downtown area of Austin. There are five runs in the a.m. peak and six runs in the p.m. that serve the area, with a park and ride facility in

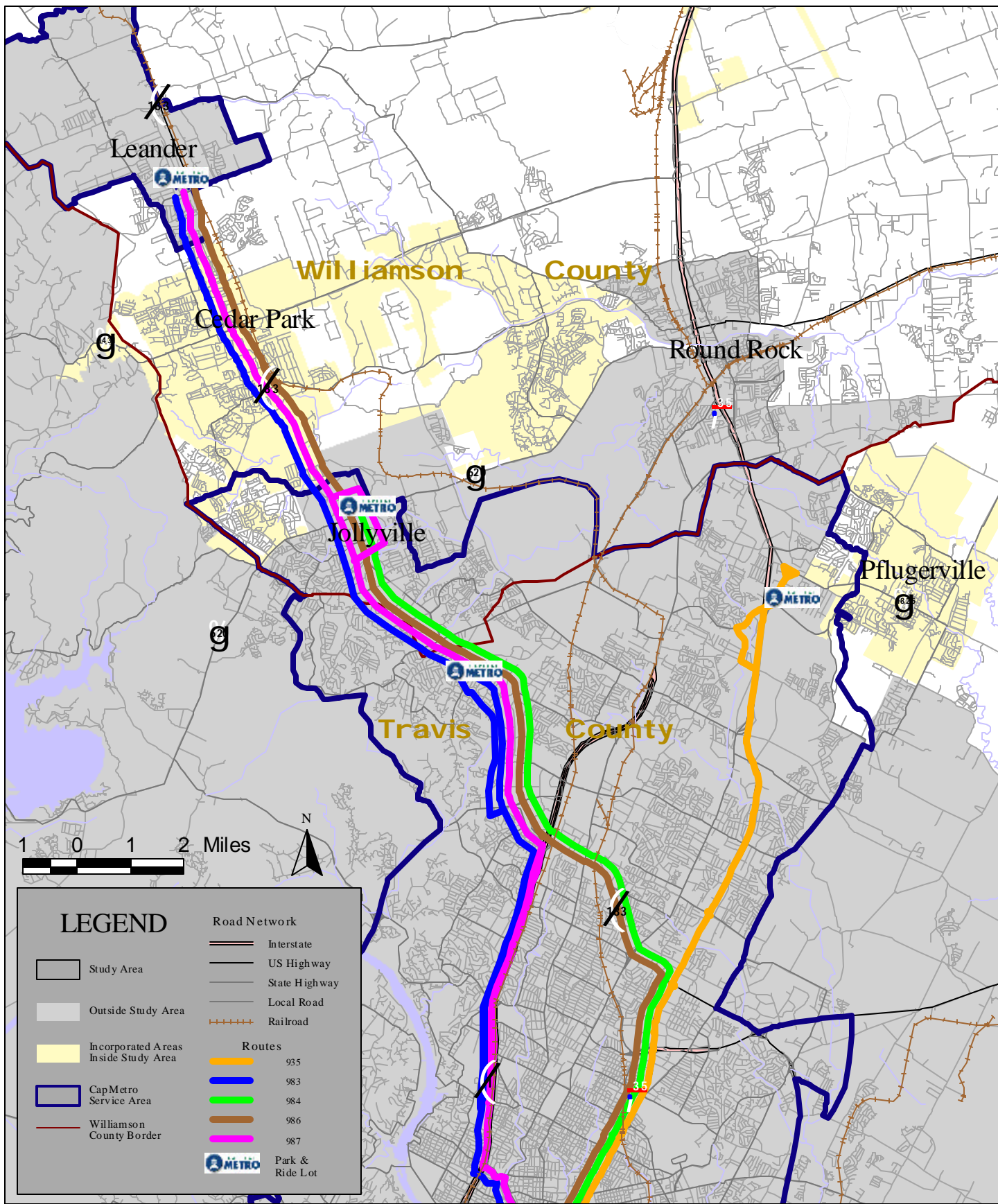


Figure 2-26
CAPITAL METRO SERVICE
IN THE WILLIAMSON COUNTY STUDY AREA

**Table 4: CAPITAL METRO EXPRESS ROUTES TO
WILLIAMSON COUNTY - RIDERSHIP FIGURES**

Route	Route Name	Daily Ridership	Number of Runs	One-Way Trips per Run
935	North IH-35 Express	288	11	26.2
983	North US 183 Express	541	33	16.4
984	Northwest Direct	118	7	16.9
986	Leander Direct	91	6	15.2
987	Leander/Northwest Express	152	15	10.1
Total		1,190	72	16.9

the HEB parking lot on FM 1825. Capital Metro is preparing to build a new, larger park and ride lot next to the current lot, adjacent to the HEB on FM 1825 near IH 35. This should be completed within the next year. Capital Metro is also planning to expand to all day service in this corridor after completion of the park and ride facility.

Special Transit Service (STS)

Pflugerville and Cedar Park voted out of Capital Metro. State law requires Capital Metro to continue operating its STS for persons with disabilities if requested by Cedar Park and Pflugerville. The legislation requires these cities to reimburse Capital Metro for one half of the operating cost of the service. Service in Pflugerville and Cedar Park is dominated by a small group of regular riders for medical and employment purposes. In both Pflugerville and Cedar Park there were 10 and 13 persons, respectively in each community taking over 90 percent of the trips, virtually all to Austin.

A further breakdown is as follows:

Cedar Park

- 13 regular riders
- 8 riders go to the same destination in Central Austin at 7:00 a.m. and return at 2:00 p.m.
- 4 riders go to Central Austin with pick-ups ranging from 5:00 a.m. to 11:00 a.m. and returns from 1:00 p.m. to 5:00 p.m.
- One rider stays in Cedar Park with an 8:00 a.m. pick-up and an 11:00 a.m. return.

Pflugerville

- 10 regular riders
- 7 occasional riders
- 4 riders go to similar destinations at 7:00 a.m. and a return between 2:00-3:00 p.m. to North Austin
- 6 riders travel between 6:00 a.m. and 11:00 a.m. Most go to North Austin, with one staying in Pflugerville
- 7 occasional riders typically going to North and Central Austin at a wide variety of hours.

Hill Country Transit (HCT)

HCT operates service in two counties adjacent to Williamson -- Bell and Milam. HCT operates fixed-route service in Killeen and Temple, two destinations that residents of the northern parts of the county go to for many needs, and Temple is also a common destination for many medical needs for residents throughout the county. There are opportunities for coordination between CARTS and HCT. HCT operates two dialysis runs; one from Bartlett and the other from Rockdale, both are routed through Taylor, for dialysis in Round Rock. These vehicles then layover in Round Rock for three hours. CARTS' regular runs to Temple also have the vehicle layover in Temple.

Intercity Service

Williamson County is served by two intercity bus lines and Amtrak train service (Table 5). These schedules are operated throughout the day. Amtrak serves Taylor with a daily train in each direction. This Amtrak train goes to Austin and San Antonio to the south, and Temple, Dallas, and ultimately Chicago to the north.

Greyhound provides intercity service with four schedules North and South on IH 35 in each direction. Arrow Trailways provides service to Round Rock on two routes; Houston to Killen (two schedules) and Waco and Austin (with four schedules in each direction).

4. DEVELOPMENT AND SELECTION OF ALTERNATIVES

In this task, the consultant team identified potential service concepts for local and regional services in Williamson County, the purpose of which was to receive direction from CARTS and the study committee regarding the development of the final plan. The consultants introduced a range of public transit service alternatives (options) for the county. Specifically, three levels of service, representing alternative investment strategies, have been developed to provide the stakeholders and decision-

makes a variety of options as well as an understanding of the relationship between service and costs. These alternatives are presented in detail in Appendix D.

Table 5: INTERCITY TRANSPORTATION SERVICE THROUGH WILLIAMSON COUNTY

Provider	City	Route	Daily Trips		Destinations	
			Northbound	Southbound	Northbound	Southbound
Amtrak	Taylor	Texas Eagle	10:52 a.m.	7:26 p.m.	Dallas	Austin
Greyhound	Round Rock	484	7:20 a.m. 11:35 a.m. 3:50 p.m. 6:45 p.m.	9:15 p.m. 1:00 p.m. 6:15 p.m. 11:00 p.m.	Dallas	Austin
Arrow Trailways	Round Rock	7800	9:25 a.m. 4:00 p.m.	6:30 p.m.	Killeen	Houston
Arrow Trailways	Round Rock	7805	7:20 a.m. 11:35 a.m. 3:50 p.m. 6:45 p.m.	9:05 a.m. 1:15 p.m. 6:15 p.m. 11:00 p.m.	Waco	Austin

As part of the alternatives, there was a discussion of hours of service, days of the week, and vehicle headways. These elements in large part determine the overall service costs and productivity. For example, serving late evening hours will produce few additional riders, Sunday service will draw about one-third the ridership of weekdays, and reducing vehicle headway from one hour to one-half hour will virtually double system costs.

After a presentation and review of the alternatives, the advisory committee directed the consultants to develop a plan based on the service levels and

organization chosen. These selections are used in the development of the draft and final plans.

The consultants presented the alternatives at public and city council meetings in: Cedar Rock, Georgetown, Pflugerville, and Taylor. A presentation was also made to the Williamson County Commissioners. Additional meetings were held with human service agencies. Strong support for transit was demonstrated in the public meetings.

5. THE WILLIAMSON COUNTY FIVE YEAR PUBLIC TRANSPORTATION PLAN

Williamson County includes a diverse set of communities that call for a variety of services tailored for specific needs. The plan addresses service needs over the next five years. The major service recommendations can be summarized as follows:

1. **Local City Service** - This includes separate fixed-route services in Cedar Park, Pflugerville, Georgetown, and Taylor. Three of the cities will have a two bus system, with Georgetown having a three bus system.
2. **Regional Service** - Three regional routes will connect the more populated areas of Williamson County with each other and with Austin. The emphasis will be on commuter service. The commuter services will connect to Capital Metro for seamless service into Austin. Rural regional service will include door-to-door service in the areas stated. Service will also be available on a limited basis to Temple and Killeen, with connections to Hill Country Transit.
3. **Americans with Disabilities Act (ADA), and Human Service Paratransit** - Addressing the service needs for ADA complementary paratransit and human service needs of clients and agencies.
4. **Other Demand Services** - Vanpools, carpools, market development services, and other flexible low cost services should be employed throughout the county.
5. **Pflugerville and Cedar Park STS Service** - A broker will be established to determine the least expensive mode appropriate for each trip, reducing service costs while maintaining service quality. The new fixed-route and ADA paratransit in these communities will allow even greater mobility for residents in need of paratransit.

Where applicable, local and regional services will meet in a timed manner, and rural service will feed into the network. By having one interconnected service, each of the individual services will be enhanced and made more attractive for users. For example, a person using transit would be able to take a bus in Sun City and go to Georgetown, or transfer and go to Round Rock or even to Austin, vastly increasing the possible destinations and attractiveness of the service.

Service Assumptions

The design of transit services for Williamson County has been based on the following general assumptions:

- Williamson County will continue to experience rapid population and employment growth over the next five years (see Appendix B). This will require a flexible approach to transit - being able to change and address new markets rapidly.
- The major population centers will continue to be in the south central part of the county. Major destinations will be Round Rock and North Austin. Our analysis indicates that the travel patterns associated with this area will remain similar in spatial orientation, but will continue to increase over the five-year horizon of the plan.
- There is significant demand for travel between the cities of Cedar Park, Round Rock, Georgetown, Pflugerville, and Taylor.
- Future Williamson County transit services will need to be closely coordinated with those operated by Capital Metro, HCT, as well as intercity bus and Amtrak. This will help to achieve one of the major objectives of ongoing regional transit planning efforts of ensuring seamless connections between compatible services.
- CARTS will take an entrepreneurial approach to transit in Williamson County. The county will seek out opportunities to find local customers, partners, and sponsors from both the public and private sectors. A significant portion of the system's local funding will be from private businesses either contracting or sponsoring transit.

- CARTS will conduct pro-active planning and fine tune the system on a semi-annual to annual basis. This fine-tuning is necessary especially during the first year of a route.
- Safe pedestrian crossings within and between major developments to minimize auto - pedestrian conflicts and eliminate barriers for short trips that could be made on foot.
- The transit system will encourage the use of the bicycles. Each transit component should be bicycle friendly, allowing for seamless connectivity between bicycle and bus service. Transfer centers should include bicycle storage, and there will be an ability to move bicycles by bus. Other amenities as appropriate to encourage the bicycle - transit connection and add another option to the single occupant vehicle.

Need for Transit Oriented Planning and Development

Some of the fundamental problems in serving Williamson and other similar suburban counties with transit are low density development/suburban sprawl, lack of transit-oriented design, and lack of convenient pedestrian access. These three problem areas will inhibit ridership of the transit system because:

- Low development densities will not allow transit to pick-up large numbers of passengers at one time - grouping of trips.
- There are only a handful of roads that the buses can travel on. Buses cannot get into most neighborhoods due to lack of through streets.
- Sidewalks along all arterial and major collector facilities and crosswalks at all major intersections are needed for pedestrian access.

While it may be difficult to retrofit many existing neighborhoods for transit, it is recommended that the county and each city look towards the future with changes to the comprehensive land use plan that can make transit more effective and allowing residents a true choice of modes.

Seamless Connections: A Regional Network

This plan calls for a regional network of services where residents of Travis and Williamson Counties can take advantage of each other's transit network and access transit that crosses service area lines. Service will also be offered north to Temple and Killeen and will make connections with the fixed-route systems of each of these cities. There will be excellent connectivity between each of the local routes, connecting the cities and into the Austin and Bell County areas, with the concept of seamless transportation throughout the region.

In order to ensure this seamless connectivity, CARTS should lead a formal or informal alliance of transportation providers including: CARTS, HCT, Capital Metro, as well as intercity bus and Amtrak. This North Corridor alliance can extend CARTS connectivity from Austin to Temple.

Jurisdictional Issues

The following route structure is contingent on each of the key communities contributing their fair share towards the system. The plan is predicated on the economies of scale that can be gained by having Cedar Park, Georgetown, Pflugerville, and Taylor as well as Williamson County all participating. Further, the route structure is interdependent. The regional services are somewhat dependent on the local routes and in the Cedar Park, Round Rock, and Pflugerville area, connections between the communities is essential.

1. Fixed-Route Service

Each of the larger cities - Cedar Park, Georgetown, Pflugerville, and Taylor, in the service area have the densities to support modest stand alone fixed-route services. These services will provide local circulation for employment, school, medical needs, recreation, shopping and other needs. In addition, the local fixed-

route systems will provide feeder service to the regional network and in the future, commuter rail service.

Fixed-Route City Bus Service - Key Concepts

Essential concepts and rules that should be followed in the creation of a fixed-route local bus service in Williamson County include:

- **Minimum Density** - Fixed-route service should be available in communities of at least 1,500 persons per square mile, as well as areas with major destinations.
- **Service Days and Hours** - It is recommended that service operate at a minimum from 6:00 a.m. to 7:00 p.m., Monday through Friday and 9:00 a.m. to 7:00 p.m. on Saturday - approximately 3,750 revenue hours annually. Please note that there may be employment needs up until 9:00 p.m. when retail stores close. Expanded service hours may be available if a sponsor or other funding is available.
- **Suburban Area Road Network** - The sprawl nature of the southern part of the county limits the effectiveness of public transit service.
- **ADA Complementary Paratransit** - Accessible fixed-route service with complementary paratransit is recommended rather than route deviation service (where the vehicle will deviate off of the route as requested) in most cases. While the fixed-route approach is slightly more expensive, it provides far superior service for both fixed-route riders and persons who cannot ride fixed-route, due to a disability as defined by the ADA. In addition, CARTS will still continue to operate paratransit in much of the county.
- **Maximize Use of Fixed-Route** - Accessible fixed-route local bus service has proven capable of transporting most persons with disabilities. Indeed, mainstreaming is the intent of the ADA legislation. Incentives and training should be provided for persons with disabilities to ride fixed-route.
- **Serve Public School Students** - Student transportation for children who live less than two miles from a school is an important part of each fixed-route system where this two mile rule applies. Each route is designed to generate maximum ridership for students. Routes can change during peak school hours to accommodate student needs.

- **Timed Transfer and Interlining** - Fixed routes will meet at designated transfer points and then become a second route (interlining). This reduces the need for transfers. These services will also be timed to meet inter-county and intra-county service, where possible.
- **Out and Back** - This is the traditional form of fixed-route transit, where as a general rule, a bus goes in two directions down each street it traverses. Large loop style routes where the vehicle goes one way down each street are generally ineffective due to long travel times, circuitous routings, and difficulties in comprehending schedules.
- **Modest Goals** - Initially modest goals should be set, allowing the service time to build a customer base, like any other business.
- **Marketing Funds** - As with any new start-up business, transit needs to be professionally marketed and promoted, with a reasonable budget.

Vehicle Requirements

The plan calls for the initial use of small buses, referred to as a Type III or body-on-chassis vehicle. These are light duty vehicles designed to last five years. These vehicles will have a standard transit entry door. All vehicles will be accessible to persons with disabilities. These vehicles cost approximately \$70,000 and will use alternative fuel. It is anticipated that after the first five years, these buses will be replaced by medium duty transit coaches designed to carry more riders and designed to last twice as long.

Spare vehicles will be required at 20 percent of the operating fleet. The plan calls for nine regular vehicles used by the four cities, requiring two spare vehicles. The advantage of working in a coordinated manner allows each of the four cities to share spare vehicles.

CARTS will need adequate space for vehicle storage at multiple sites. The Round Rock facility is centrally located and can store the Pflugerville vehicles and 2 - 4 commuter vehicles. The facilities planned for Taylor and Georgetown should have space for their local service and eight commuter vehicles each (allowing for expansion after HOV improvements). These facilities should also allow for light running repairs as needed.

CARTS has a maintenance facility in Smithville that conducts all major maintenance. CARTS will also seek out local private contractors to conduct routine maintenance, until such time that CARTS can establish a maintenance center in Williamson County. CARTS will also need to identify alternative fuel providers in the eastern part of the county and in the Round Rock area. Consideration should be given to developing a facility centrally located in the Round Rock area where most vehicles pass through each day.

Service Characteristics - Fixed-Route

The general characteristics of these proposed local service bus routes are as follows:

Service Hours:	6:00 a.m. to 7:00 p.m. (Monday-Friday) 9:00 a.m. to 7:00 p.m. (Saturday)
Headway:	½hour to 1 hour
Peak Vehicles Required:*	Cedar Park - 2 Georgetown - 3 Pflugerville - 2 Taylor - 2
Vehicle Type:	Body-on-chassis Bus - Five Year Life (15-25 passenger)
Bus stops:	Near side every ¼mile - Flag stops may be permitted
Average system speed:	12 - 20 MPH

*Two spare vehicles will be needed for all of the cities combined- these costs will be split among cities.

Fare Policy

Fares should be low to attract more riders. Under any scenario the fare revenue generated from local fixed-route will always be very low - about 4 - 10 percent of the operating expenses. Fare should be \$.50 with half fares for students, elderly, and disabled persons. This fare is comparable to other CARTS fixed-route

service. Transfers to other fixed routes should be free, with transfers to the regional bus discounted by the fare of the first mode. For example, if the fare for fixed-route is \$.50 and the fare for the regional service is \$2, then the fare for the regional service should be \$1.50 with a transfer. Ten and 20 ride tickets and discounted monthly passes should be made available.

A. Cedar Park Fixed-Route

Cedar Park is a suburban community with low density of both residences and destinations. There is no traditional downtown and most of the growth is suburban style development. The city is linear in nature with most of the growth occurring alongside the north-south corridor around US 183, and increasingly Lakeline Blvd. to the west.

Cedar Park has the potential to support a two bus fixed-route system (Figure 7) that provides two basic types of service; internal circulation for shopping, school, recreation and other needs, and a feeder into Capital Metro's new park and ride facility, which will give commuters seamless connections to Austin via Capital Metro. This feeder service will also facilitate travel for major/specialized medical needs that are not available in Cedar Park.

Light ridership levels are expected initially with significant growth over the first five years of the service. Table 6 reviews potential ridership, hours, miles, and costs for each of the fixed routes. Based on experience in similar areas, ridership would start at a modest four one-way trips per revenue hour. That is, with two vehicles operating from 6:00 a.m. to 7:00 p.m. - 26 hours per weekday and 20 hours on Saturdays (7,500 hours annually) - ridership would be approximately 104 one-way trips on weekdays and 30,000 annual trips in the first year. It is expected that ridership would double in 3-5 years.

Total annual mileage would be about 108,750 miles for both vehicles. The operating cost for this service would be approximately \$300,000 for operation of two vehicles. Vehicle capital expenses will include \$140,000 for two five year vehicles

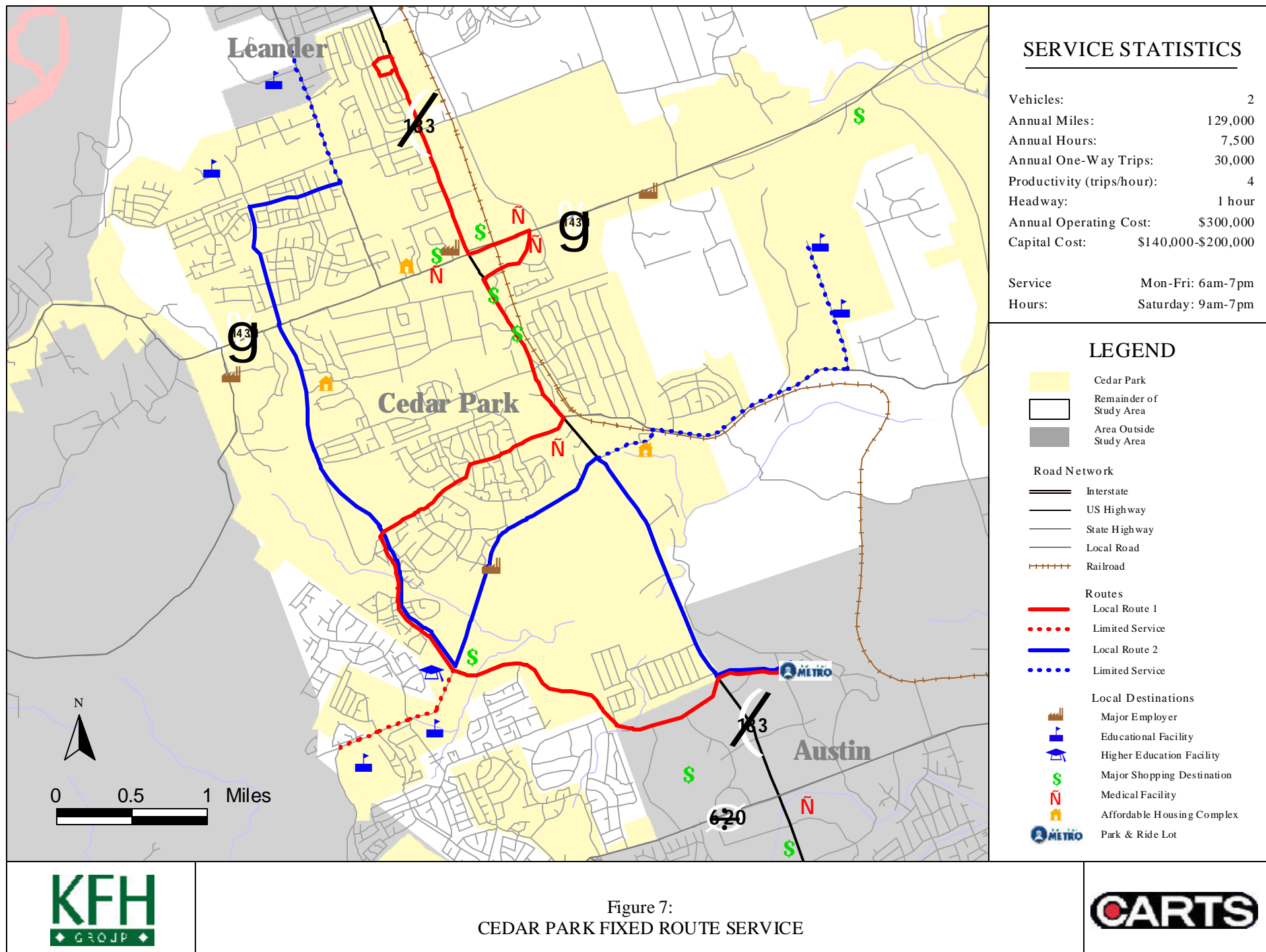


Table 6 - LOCAL FIXED-ROUTE SERVICE - POTENTIAL RIDERSHIP AND COSTS

City	Vehicles Required	Headway	Route Length One-Way	Estimated Productivity	Service Hours	Service Miles	Estimated Ridership (Annual - Yr. 1)	Annual Fare Revenue	Annual Operating Cost*	Capital Costs**
Cedar Park	2	1hr.	7	4	3,750	52,500	15,000	\$5,625	\$150,000	
			7.5	4	3,750	56,250	15,000	\$5,625	\$150,000	
Cedar Park - Sub Total					7,500	108,750	30,000	\$11,250	\$300,000	\$170,800
Net Cost - Cedar Park									\$288,750	
Georgetown	3	1/2 to 1 hr.	10.5	5	3,750	80,535	18,750	\$7,031	\$150,000	
			4.7	5	3,750	72,098	18,750	\$7,031	\$150,000	
			5	5	3,750	76,700	18,750	\$7,031	\$150,000	
Georgetown - Sub Total					11,250	229,333	56,250	\$21,094	\$450,000	\$256,200
Net Cost - Georgetown									\$428,906	
Pflugerville	2	1 hr.	6.4	4	3,750	48,000	15,000	\$5,625	\$150,000	
			4.7	4	3,750	35,250	15,000	\$5,625	\$150,000	
Pflugerville - Subtotal					7,500	83,250	30,000	\$11,250	\$300,000	\$170,800
Net Cost Pflugerville									\$288,750	
Taylor	2	1/2hr	4.1	6	3,750	61,500	22,500	\$8,438	\$150,000	
			4.6	4	3,750	69,000	15,000	\$5,625	\$150,000	
Taylor - Sub Total					7,500	130,500	37,500	\$14,063	\$300,000	\$170,800
Net Cost Taylor									\$285,938	
Total System (spares)	9(2)				33,750	551,833	153,750	\$57,656	\$1,350,000	\$768,600
System Net Cost									\$1,292,344	

* Assumes \$40 per hour cost.

**Includes spare vehicles

and \$30,000 for Cedar Park's share of the two backup vehicles - shared by the four cities.

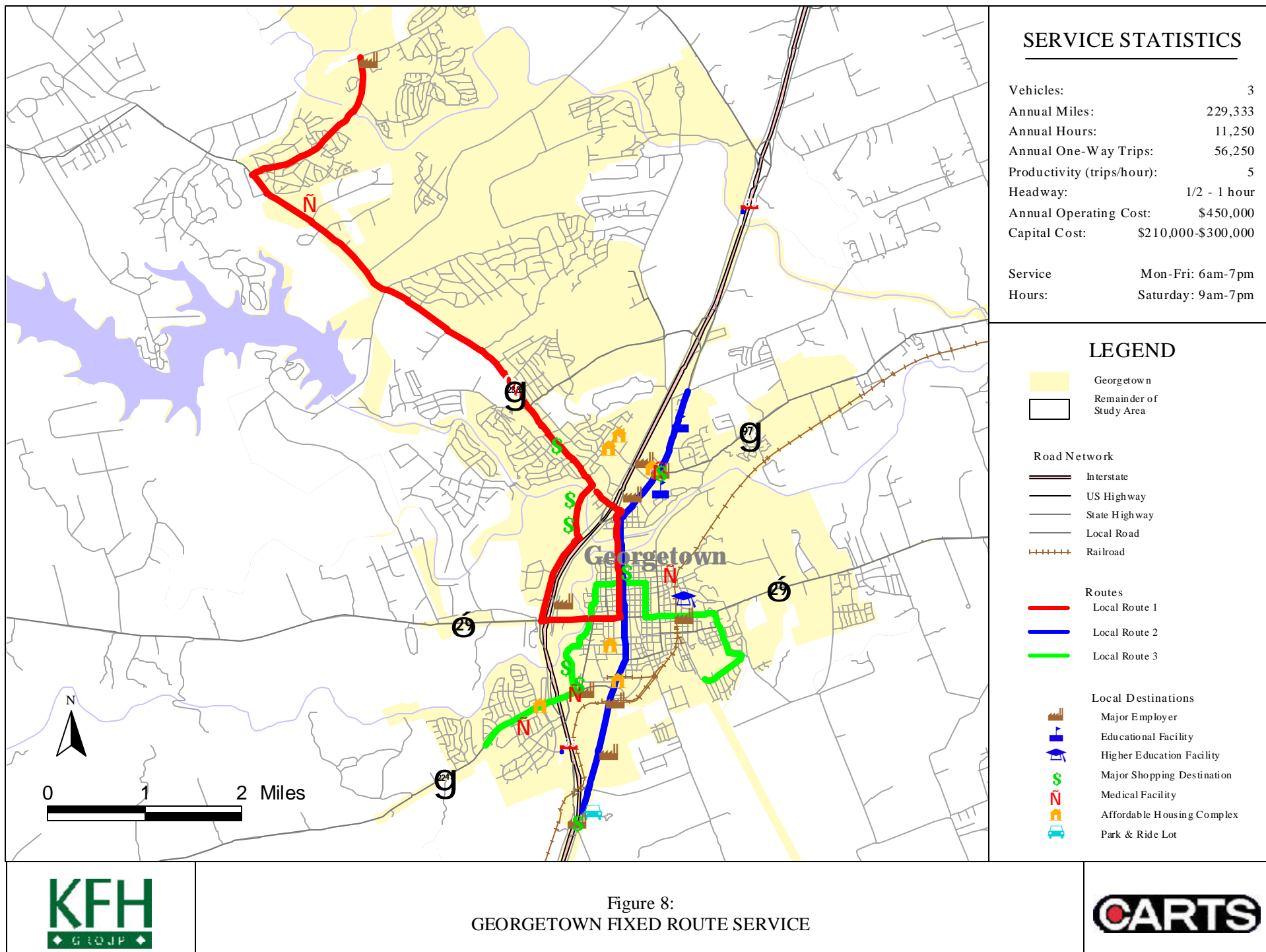
B. Georgetown Fixed-Route

Georgetown is the largest city in the study area, and is a traditional city (for transit purposes) with a downtown that includes retail stores, city, and county government. Georgetown also has a college and most importantly, much of the city (east of the interstate) is transit friendly (through streets, sidewalks, and the downtown core), allowing for the potential of higher ridership.

Georgetown can support a three bus transit system (Figure 8) that includes one route that operates on an hourly headway (Sun City) and two routes that operate on half hour headways. Each of these routes will meet at the downtown transit hub every ½ - 1 hour. The routes are designed to meet the needs of a wide variety of customer needs - students (public schools and the university), commuters both local and feeding into the regional service to Round Rock and Austin - shoppers, medical, and those conducting personal business downtown.

This service would generate modest ridership at first, with significant growth over the first five years of the service. Table 6 reviews potential ridership, hours, miles, and costs for each of the fixed routes. Based on experience in similar areas, ridership would start at five one-way trips per revenue hour, a little higher than the other cities in the system. With three vehicles operating from 6:00 a.m. to 7:00 p.m. - 39 hours per weekday and 30 hours on Saturdays (11,250 hours annually) - ridership would be approximately 195 one-way trips on weekdays and 56,250 annual trips in the first year. It is expected that ridership would double in 3-5 years.

Total annual mileage would be about 229,000 miles for all three vehicles. The operating cost for this service would be approximately \$450,000 for operation of three vehicles with an additional capital cost of \$210,000 for three vehicles and an additional \$46,000 for Georgetown's share of the two backup vehicles - shared by each of the four cities. In addition, Georgetown will continue to support the existing



CARTS paratransit service, which will also serve as the ADA complementary paratransit program.

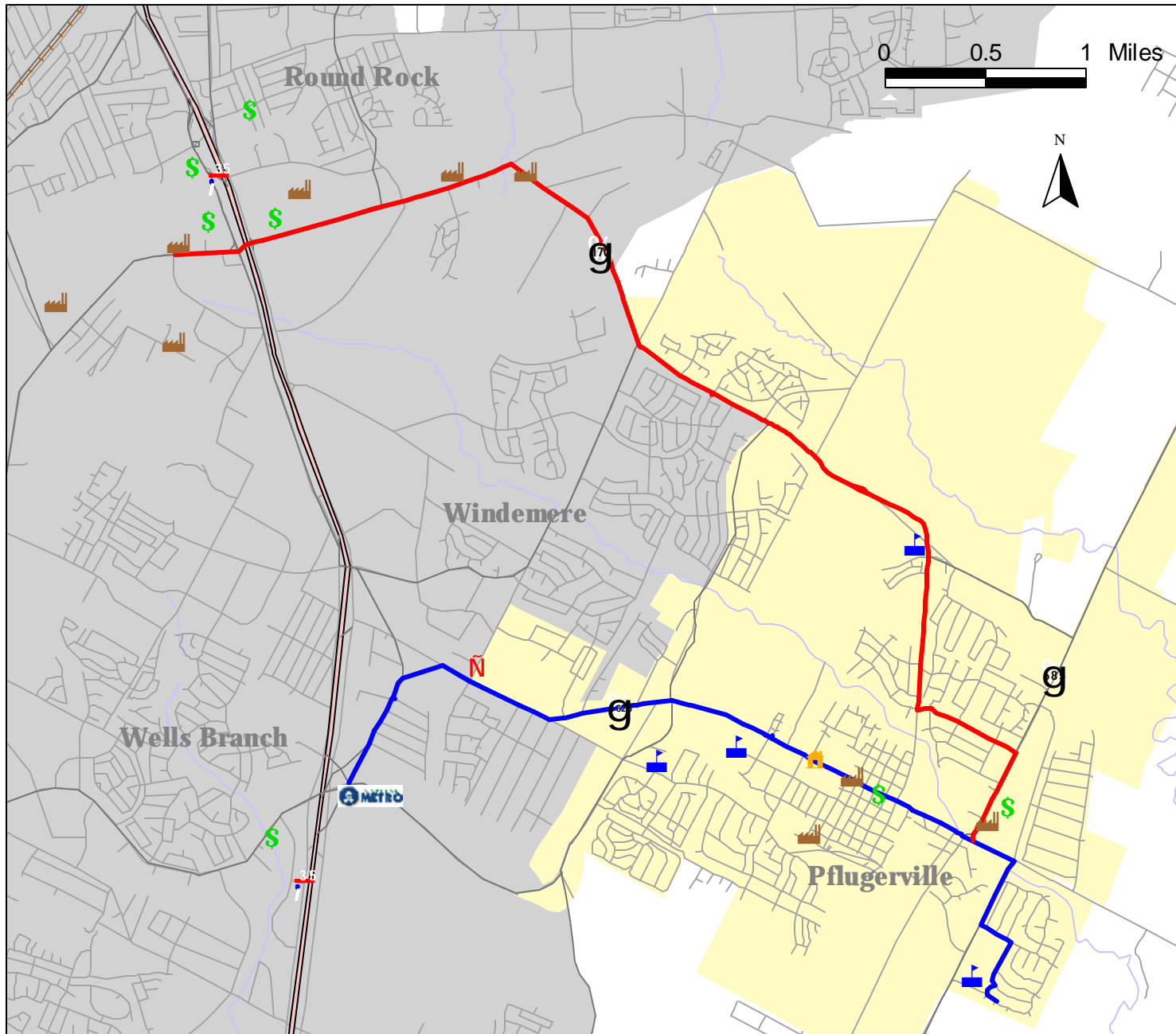
C. Pflugerville Fixed-Route

Pflugerville is also a small suburban community that is difficult for transit to serve due to its sprawl nature and lack of a downtown core. Pflugerville residents will use the service to commute to Round Rock and to feed into Capital Metro buses at the new transfer facility to the southeast of the H 35/FM 1825 intersection. The service will also attract students going to school as well as some shoppers, especially elderly residents who may find the direct service to shopping to be beneficial and easy.

Pflugerville can support two routes that travel throughout the city (Figure 9) - one going to the park and ride lot for connections with Capital Metro, and the other route will go to Round Rock, serving the businesses and retail along Louis Henna Drive and connecting to a Round Rock service.

This service would generate modest ridership at first, with significant growth over the first five years of the service. Table 6 reviews potential ridership, hours, miles, and costs for each of the fixed routes. Based on experience in similar areas, ridership would start at a modest four one-way trips per revenue hour. Operating 7,500 hours annually, ridership would be approximately 104 one-way trips on weekdays and 30,000 annual trips in the first year. It is expected that ridership would double in 3-5 years.

Total annual mileage would be about 83,250 miles for both vehicles. The operating cost for this service would be approximately \$300,000 for operation of two vehicles. Vehicle capital expenses will include \$140,000 for two vehicles and \$30,000 for Pflugerville's share of the two backup vehicles - shared by the four cities.



SERVICE STATISTICS

Vehicles:	2
Annual Miles:	83,250
Annual Hours:	7,500
Annual One-Way Trips:	30,000
Productivity (trips/hour):	4
Headway:	1 hour
Annual Operating Cost:	\$300,000
Capital Cost:	\$140,000-\$200,000

Service	Mon-Fri: 6am-7pm
Hours:	Saturday: 9am-7pm

LEGEND

	Pflugerville
	Remainder of Study Area
	Area Outside Study Area

Road Network

	Interstate
	US Highway
	State Highway
	Local Road
	Railroad

Routes

	Local Route 1
	Local Route 2

Local Destinations

	Major Employer
	Educational Facility
	Higher Education Facility
	Major Shopping Destination
	Medical Facility
	Affordable Housing Complex
	Park & Ride Lot



Figure 9:
PFLUGERVILLE FIXED ROUTE SERVICE



D. Taylor Fixed-Route

Taylor, like Georgetown is a more traditional city in a geographic/transit sense. Streets are parallel and there is a downtown core area. Taylor can support two full-time fixed-route buses operating on two routes (Figure 10). The first route operates north and south on Main Street. At the north are the high school and the HEB. In the center of this route there is the junior high school, city hall, and downtown. At the southern end of this route are lower income residences that can support fixed-route. This route will generate significant ridership, offsetting the lower ridership expected in the second route. These routes can be adjusted to meet at a new intermodal center when built.

This service would be most beneficial for school age children - going by schools, recreation centers and parks, as well as transit dependent persons for work, school, shopping, and medical needs. This service would also connect with the regional routes.

As with any new service, ridership will be light initially, with significant growth over the first five years of the service. Route 1 will generate more riders than most other routes in the system. Due to the short length of these routes, coupled with the lighter traffic (compared to the south central part of the county), these routes can operate on half hour headways. Table 6 reviews potential ridership, hours, miles, and costs for each of the fixed routes. Based on experience in similar areas, ridership would start at a modest four one-way trips per revenue hour. Operating 7,500 hours annually, ridership would be approximately 130 one-way trips on weekdays and 30,000 annual trips in the first year. It is expected that ridership would double in 3-5 years.

Total annual mileage would be about 130,500 miles per vehicle. The operating cost for this service would be approximately \$300,000 for operation of two vehicles. Vehicle capital expenses will include \$140,000 for two vehicles and \$30,000 for Taylor's share of the two backup vehicles - shared by the four cities.

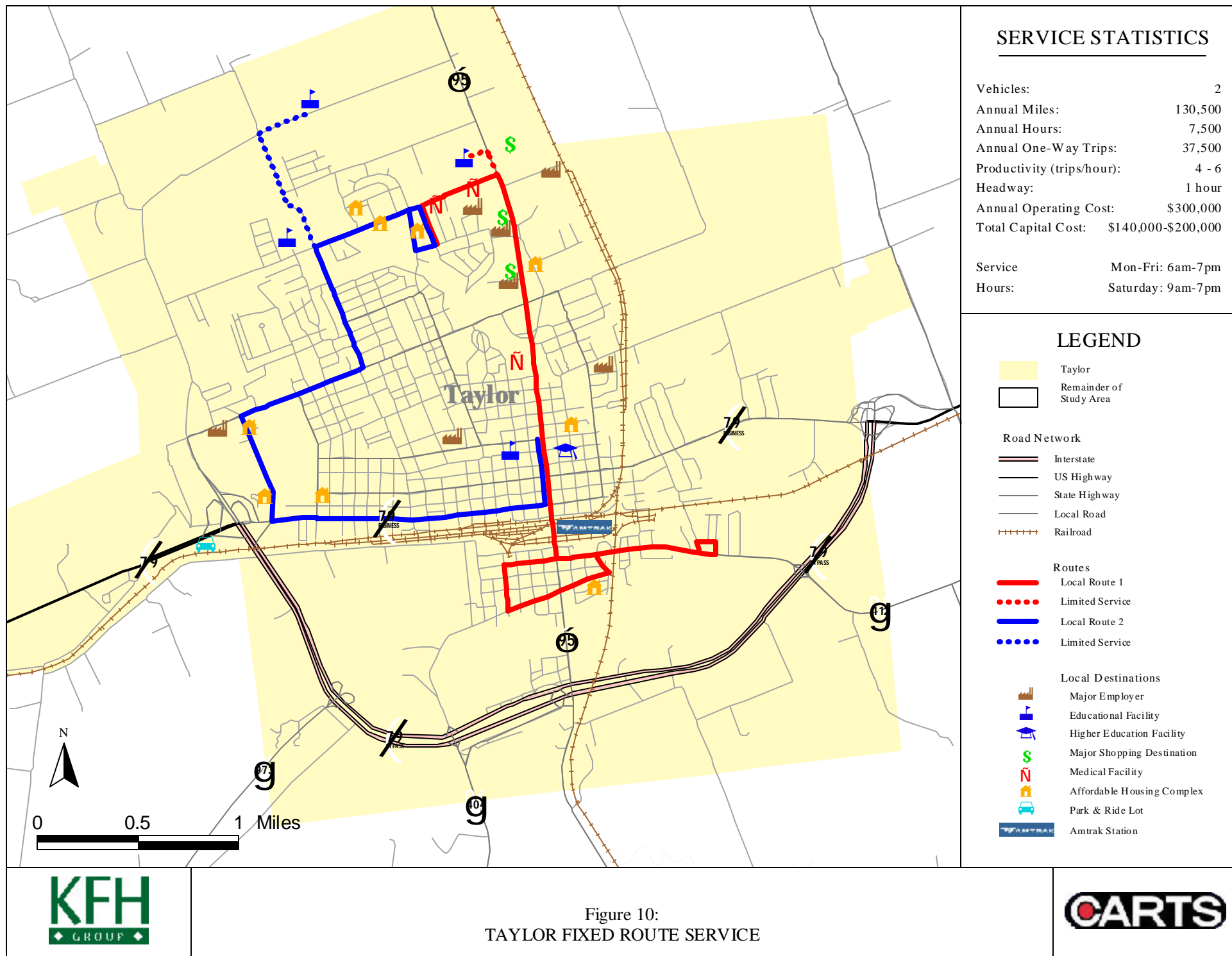


Figure 10:
TAYLOR FIXED ROUTE SERVICE

2. Regional Service

The regional services proposed include scheduled bus routes between communities within the county, and connecting to Capital Metro's Park and Ride Service. As described in the previous section, local fixed-route services will meet the basic mobility needs for residents within several of the communities, including Taylor, Pflugerville, Cedar Park, and Georgetown. These local services would act as a collector-distributor for regional services at transit hubs, allowing the regional services to provide express trips between communities.

Regional Service Concepts

Regional routes would generally operate under the criteria proposed below:

- Daily regional services will include a minimum of five daily weekday round trips between the major communities - two a.m. peak runs, one mid day run, and two p.m. peak runs;
- Rural regional services will include a minimum of two weekday round trips connecting to smaller communities such as Jarrell, Florence, Granger, Bartlett, and Thrall, with limited service to Temple;
- Service during weekends, holidays, or special events will be provided where and when there is sufficient demand;
- Routes will stop only at designated stops (major destinations that also serve as transfer points for local and regional bus routes) and park and ride lots in the major communities. In Round Rock, it is assumed that the transit hub will be in the south part of the city along Louis Henna Drive;
- Transfers between local and regional routes will be timed to minimize passenger waiting times; and
- Regional routes will stop within walking distance to most residents in smaller communities where local bus services are not provided.

Fare Policy and Revenue

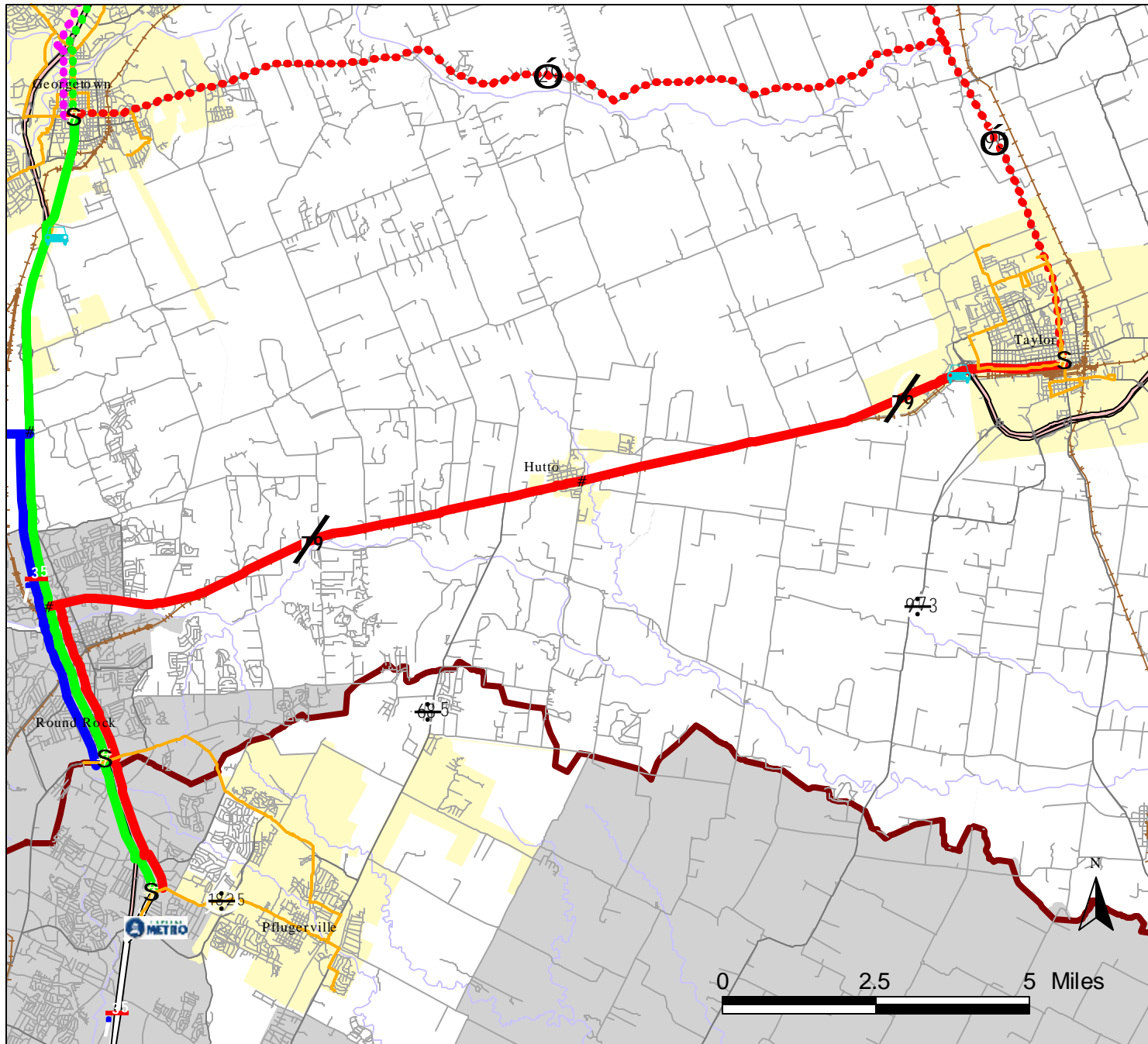
The fare for the regional service should be low enough to attract riders, but still reflect the longer trip associated with this service. It is recommended that the fare for regional service be \$2 with half fare for elderly and disabled and students. This fare is similar to CARTS' Bastrop County commuter fare. It is recommended that tickets be available for single ride, multiple ride (10 and 20 rides) and monthly service, with small discounts for multiple ride and monthly passes. Further, transfers should be arranged for fixed-route (pay one regional fare and transfers to local service are free). An arrangement should also be worked out with Capital Metro to allow for a discounted fare when transferring from CARTS to Capital Metro's express service.

Regional Routes - Daily

The following regional routes are proposed for service with a minimum of five runs each weekday. These are the primary routes that will connect the population centers of the county. Local fixed-route and fixed schedule service will feed into this service.

Regional Route A: Taylor-Round Rock- Capital Metro Park and Ride

Route A (Figure 11) will provide service from Taylor and Hutto to Round Rock via US 79 and to Capital Metro's Park and Ride facility off of IH 35. Stops will be located in downtown Taylor, the Taylor park-and-ride lot, Hutto, downtown Round Rock, south Round Rock along Louis Henna Drive (transit hub), and Capital Metro North IH 35 Park and Ride Lot. This route should operate one way in the a.m. and p.m. peaks and a mid day round trip starting at the Capital Metro Park and Ride lot. This route will probably need a second peak bus for the two back to back a.m. and



SERVICE STATISTICS

One-Way Trip Length:	22 miles
Round Trip Time:	1:30 hours
Vehicle Hours:	2,550
Annual Cost:	\$102,080
Annual Ridership:	12,750

LEGEND

- Incorporated Area
- Remainder of Study Area
- Area Outside Study Area
- Williamson County Border

Road Network

- Interstate
- US Highway
- State Highway
- Local Road
- Railroad

Routes

- Taylor-Pflugerville Route
- Limited Service
- Cedar Park Route
- Georgetown Route
- Local Route
- CapMetro Service

Local Destinations

- S Transfer Point
- # Other Key Stops
- Park & Ride Lot
- CapMetro Park & Ride Lot



Figure 11:
REGIONAL ROUTE A -
TAYLOR TO ROUND ROCK AND I-35 PARK AND RIDE



p.m. runs. The second vehicle could be the existing CARTS vehicle that operates in that corridor now.

One-way trip length:	22 miles
One-way travel time:	45 minutes, including layover time
Weekday trips:	5
Annual revenue hours:	2,550
Annual cost:	\$102,000

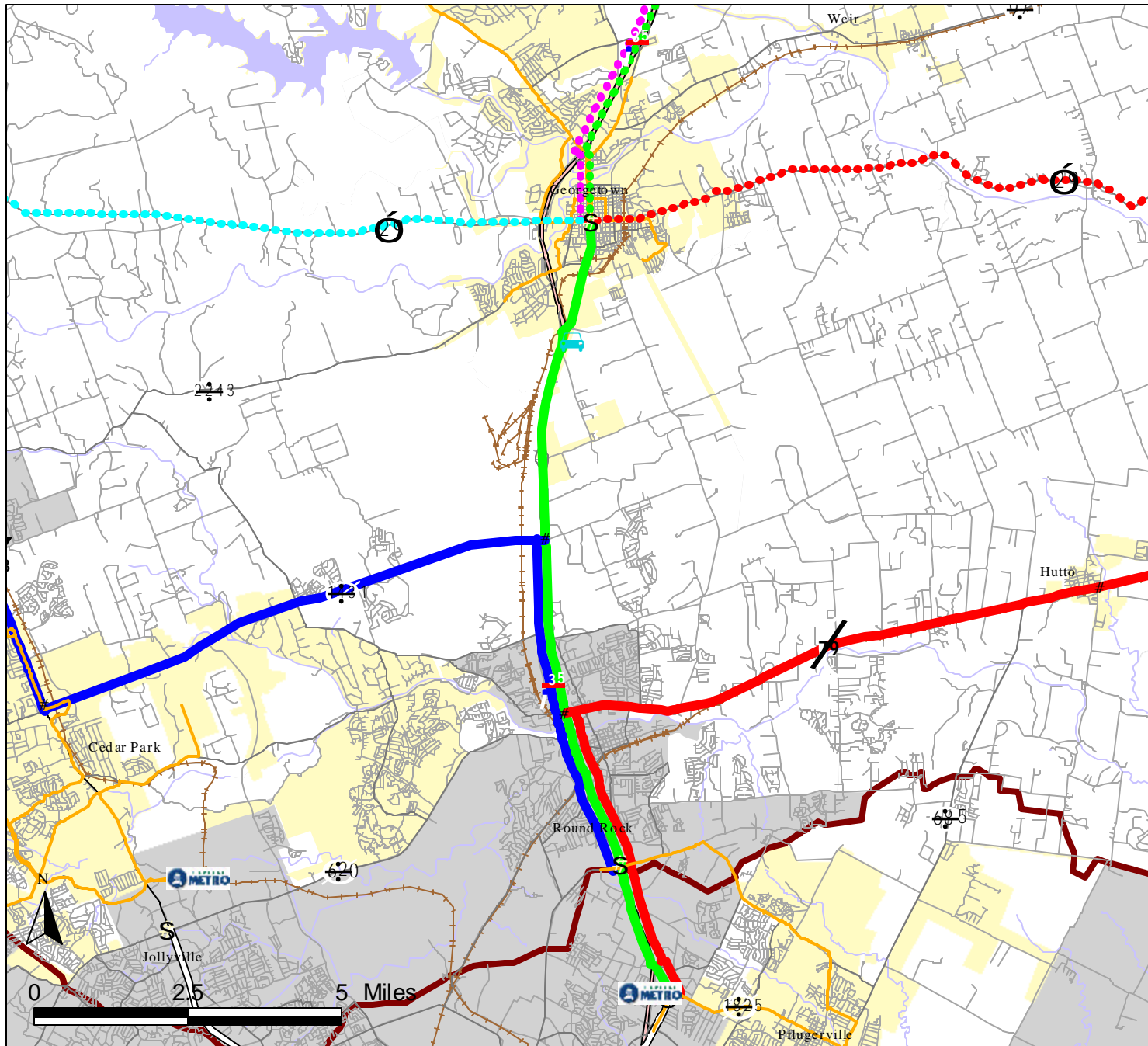
Regional Route B: Georgetown-Round Rock - Capital Metro Park and Ride

Route B (Figure 12) provides service from Georgetown to Round Rock via IH 35. Stops will be located in downtown Georgetown (local transit hub), Georgetown Park and Ride Lot, north Round Rock at RM 1431 (proposed regional mall), south Round Rock along Louis Henna Drive (transit hub), and Capital Metro North IH 35 Park and Ride lot. This will be round trip service for each of its five runs.

One-way trip length:	13 miles
One-way travel time:	30 minutes, including layover time
Weekday trips:	5
Annual revenue hours:	1,275
Annual operating cost:	\$51,000

Regional Route C: Liberty Hill-Cedar Park-Round Rock

Route C (Figure 13) provides service from Liberty Hill through Cedar Park to Round Rock and Georgetown (through a transfer) via US 183, RM 1431, and IH 35. Stops will be located in Liberty Hill, Leander (Capital Metro transfer hub), Cedar Park at local transit hub, north Round Rock at RM 1431 (proposed regional mall), south Round Rock along Louis Henna Drive (transit hub), and Capital Metro North IH 35 Park and Ride Lot. Additional local service within Cedar Park would be available to provide local circulation and connections to Capital Metro's Northwest Park and Ride Lot. This will be round trip service.

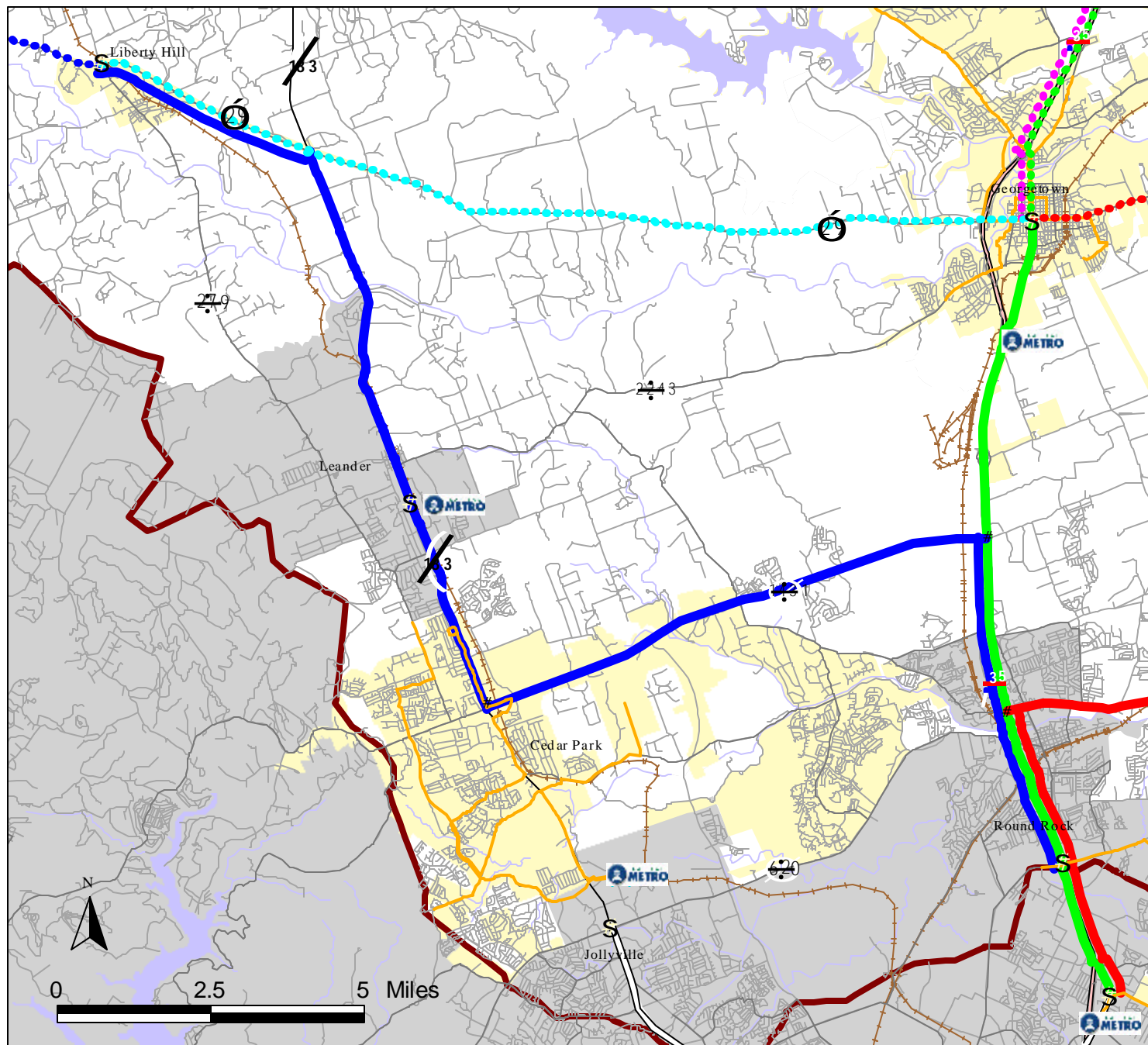


SERVICE STATISTICS

One-Way Trip Length:	13 miles
Round Trip Time:	1:00 hours
Vehicle Hours:	1,275
Annual Cost:	\$51,000
Annual Ridership:	12,750

LEGEND

- Incorporated Area
 - Remainder of Study Area
 - Area Outside Study Area
 - Williamson County Border
- Road Network**
- Interstate
 - US Highway
 - State Highway
 - Local Road
 - Railroad
- Routes**
- Liberty Hill-Cedar Park
 - Round Rock Route
 - Georgetown Route
 - Taylor Route
 - Georgetown Route
 - Liberty Hill Route
 - Local Route
 - CapMetro Service
- Local Destinations**
- Limited Service
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SERVICE STATISTICS

One-Way Trip Length:	27 miles
Round Trip Time:	2 hours
Vehicle Hours:	2,550
Annual Cost:	\$102,000
Annual Ridership:	12,750

LEGEND

- Incorporated Area
 - Remainder of Study Area
 - Area Outside Study Area
 - Williamson County Border
- Road Network**
- Interstate
 - US Highway
 - State Highway
 - Local Road
 - Railroad
- Routes**
- Liberty Hill-Cedar Park
 - Round Rock Route
 - Georgetown Route
 - Taylor Route
 - Georgetown Route
 - Liberty Hill Route
 - Local Route
 - CapMetro Service
- Local Destinations**
- Limited Service
 - Service
 - S Transfer Point
 - # Other Key Stops
 - 🚗 Park & Ride Lot
 - METRO CapMetro Park & Ride Lot

One-way trip length:	27 miles
One-way travel time:	60 minutes, including layover time
Weekday trips:	5
Annual revenue hours:	2550
Annual operating cost:	\$102,000

These three routes will constitute the backbone of the regional service. Figure 14 illustrates the entire daily network. There may be a point in the future where it may make sense to operate at least one of the a.m. and p.m. runs all the way into Austin, without transferring to Capital Metro. If CARTS experiences full buses, it may want to offer this added service quality.

Vehicles - Daily Regional Service

The vehicles used for the Daily Regional Service will be body on truck chassis vehicles similar to those used by CARTS in other commuter services. These vehicles are designed to last up to seven years. Three vehicles plus a spare will be required at \$120,000 each. All vehicles will be accessible to persons with disabilities.

Regional Service - Rural

Other regional services will include less than daily service in a number of corridors (Figure 15):

- Bartlett and Granger to Taylor and Georgetown
- Florence, Jarrell, and Liberty Hill to Georgetown
- Liberty Hill, Florence and Jarrell to Temple
- Taylor, Granger and Bartlett to Temple
- Florence to Killeen

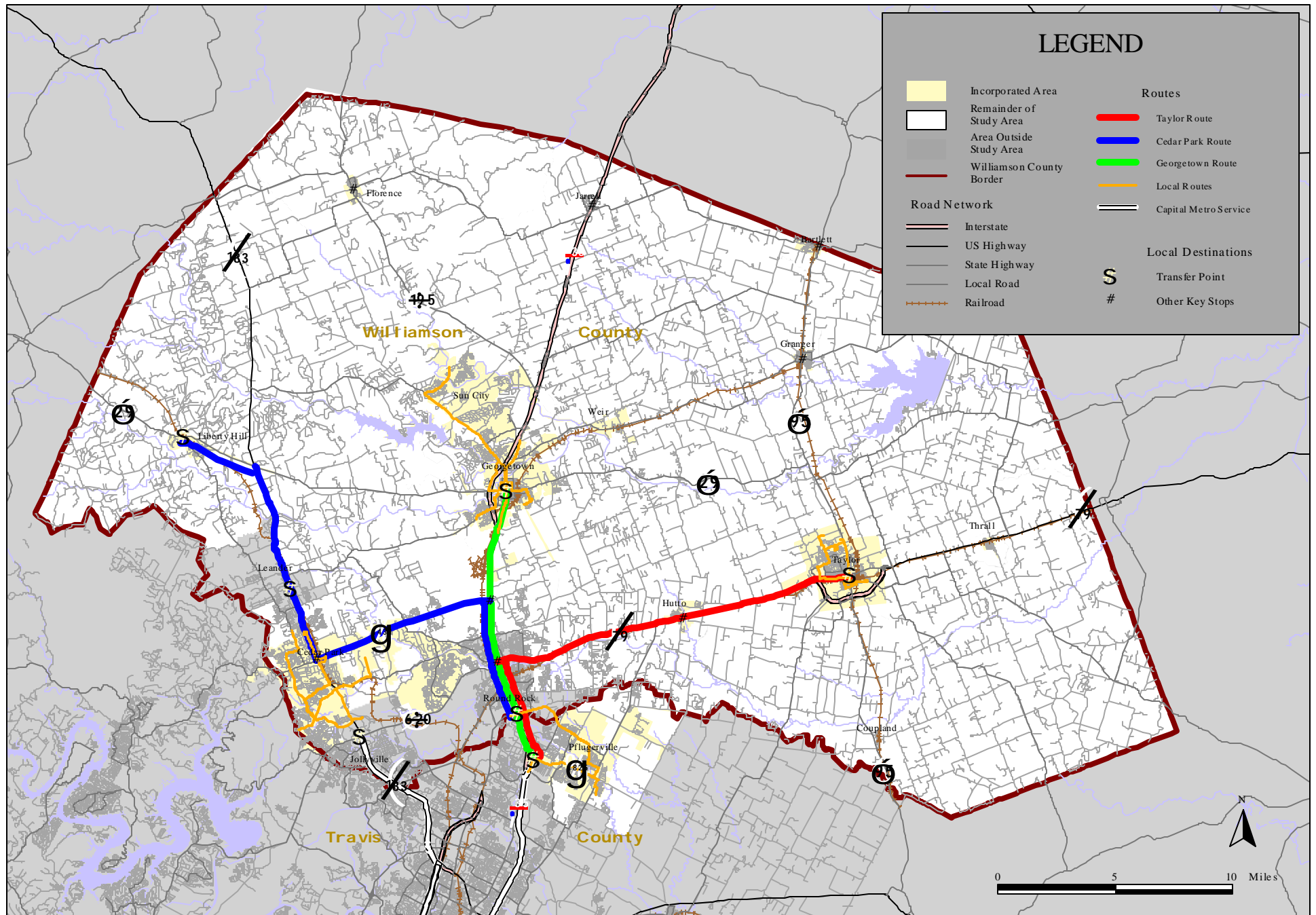
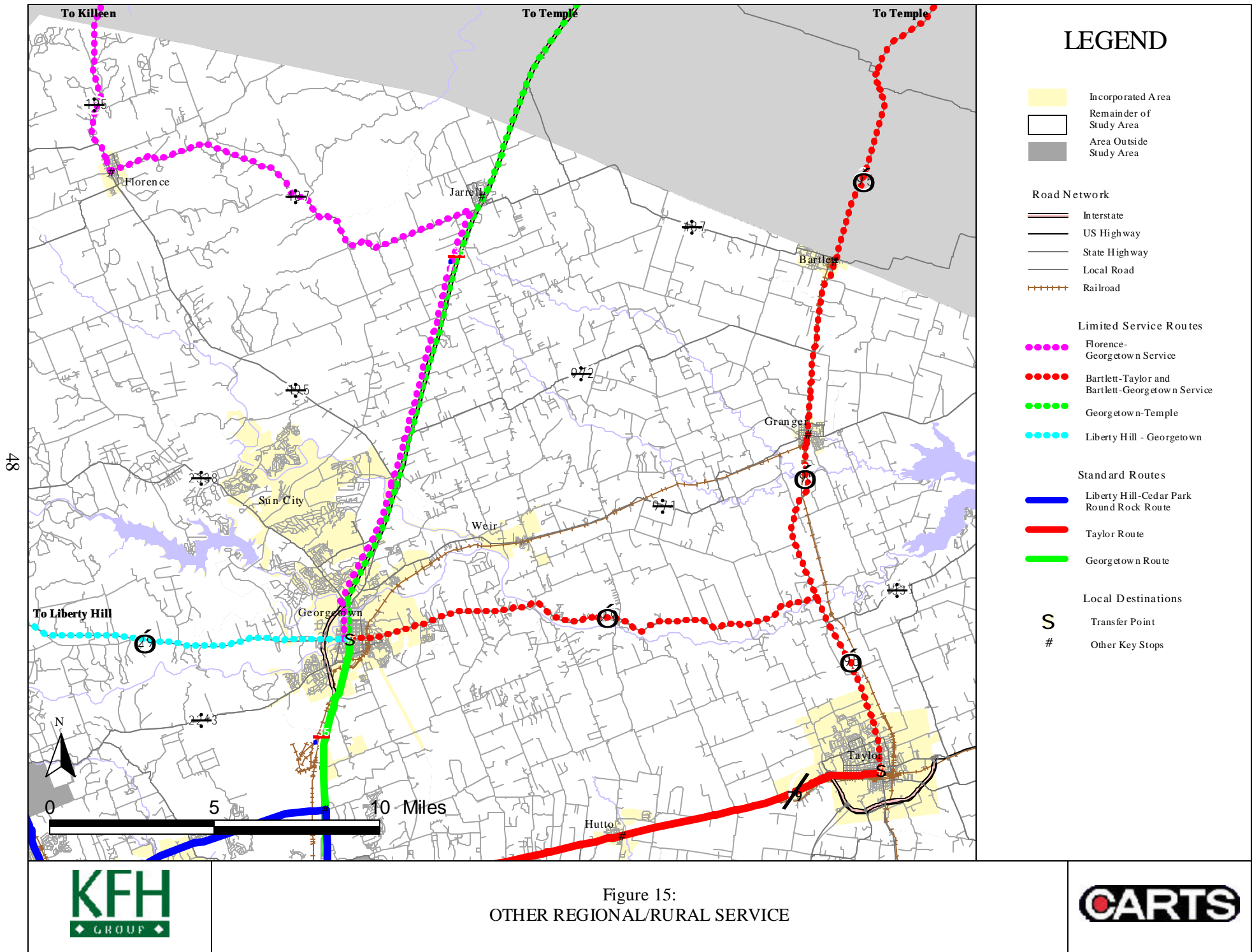


Figure 14:
DAILY REGIONAL SERVICE



These communities are too small and the demand is too low for daily service. Please note that these routes are intended to be able to go off route to pick up other rural passengers in the area, the routes are not limited to the roads shown on the map. This service will be designed to meet rural needs using a fixed schedule service similar to that currently in place. This service will allow for curb-to-curb service when trip requests are called in. Additionally passengers may ride the bus by going to the bus stop. By providing a limited scheduled service, passengers will know when they can ride to different communities. If commuter needs exist, they can best be accommodated through vanpools that can be supported by CARTS. Vehicles for this service will be existing five year cutaway vehicles.

Regional Route D: Bartlett and Granger to Taylor

Route D is similar to the current service that operates three days per week to Taylor. This service will continue on a similar schedule unless additional ridership is manifested.

One-way trip length:	20 miles
One-way travel time:	1 hour including layover time
Weekly roundtrips:	3
Annual revenue hours:	624
Annual operating cost:	\$24,960

Regional Route E: Florence and Jarrell to Georgetown Liberty Hill to Georgetown

Route E provides service from Florence and Jarrell to Georgetown with connections to Round Rock and Capital Metro Park and Ride via IH 35. One day per week service will be provided from Liberty Hill to Georgetown. Stops will be located in Florence, Jarrell, and downtown Georgetown (local transit hub).

One-way trip length:	36 miles
One-way travel time:	1 hour, including layover time
Weekly roundtrips:	3
Annual revenue hours:	624
Annual operating cost:	\$24,960

Regional Route F - Williamson County to Temple and Killeen

This service is currently available to Temple on a limited basis. This level of service will be continued unless additional ridership is found.

Florence to Killeen:

One-way trip length:	37.0 miles
One-way travel time:	1 hour, including layover time
Weekly roundtrips:	1
Annual revenue hours:	208
Annual operating cost:	\$8,320

Georgetown - Jarrell to Temple (with feeder service from Liberty Hill):

One-way trip length:	40.0 miles
One-way travel time:	1 hours and 10 minutes, including layover time
Weekly roundtrips:	1
Annual revenue hours:	260
Annual operating cost:	\$10,400

Service to Temple from Taylor, Granger and Bartlett will be available 1-2 times per month as is currently available.

One way trip length:	40 miles
One way travel time:	1 hour, including layover
Round trips:	1 - 2 monthly
Annual revenue hours:	208
Annual operating cost:	\$8,320

Summary - Regional Service Costs

Table 7 details the costs associated with this service and Figure 16 depicts all of the regional and rural service. The costs are broken out by route. Capital costs are also reflected, which includes the additional vehicles associated with the daily service (4 including spare). The rural component of this service requires two vehicles including spare equipment.

3. ADA and Human Service Paratransit

ADA Paratransit (door-to-door) service will be provided in each of the communities with fixed-route, using existing services currently in place. Service will be available during the hours of fixed route service. ADA complementary paratransit is required for all areas within three-quarters of a mile on either side of a fixed-route, as well as within three-quarters of a mile radius of a commuter bus or rail system. Human service needs (in many cases these will be the same passengers) will be met by a combination of the fixed-route, regional services, ADA paratransit, and existing human service runs that will not change.

ADA Paratransit

Current CARTS and/or Capital Metro service (in Pflugerville and Cedar Park) should meet the needs for each of the cities. This assumes that CARTS takes a proactive approach to placing persons with disabilities onto fixed-route. It is very important for CARTS to make sure it is not competing with itself, or service will be less than productive. That is, CARTS should use all of the available techniques to place as many riders as possible on fixed route, rather than paratransit. The fixed route and paratransit services should serve different people.

Cedar Park and Pflugerville both have paratransit programs through Capital Metro and in the future these trips will be brokered by CARTS. Georgetown and

Table 7 - WILLIAMSON COUNTY REGIONAL SERVICE - POTENTIAL RIDERSHIP AND COSTS

DAILY REGIONAL SERVICE

Route	Frequency	Vehicles Required (Peak)	Headway	Route Length One-Way	Estimated Ridership by Day	Service Hours	Service Miles	Estimated Ridership (Annual - Yr. 1)	Fare Revenue	Annual Operating Cost	Capital Costs
Route A Taylor - Park and Ride	5 trips daily - M-F	1(2)	1 hr. 30 min.	22	50	2,550	56,100	12,750	22,313	\$102,000	
Route B Georgetown - Park and Ride	5 trips daily M-F	1	1 hr.	13	50	1,275	33,150	12,750	22,313	\$51,000	
Route C - Liberty Hill to Round Rock	5 trips daily M-F	1(2)	3 hr.	27	50	2,550	68,850	12,750	22,313	\$102,000	
Total		3(5)			150	6,375	158,100	38,250	66,938	\$255,000	\$480,000
Net Operating Cost										\$188,063	

RURAL REGIONAL SERVICE

Route	Frequency	Vehicles Required		Route Length One-Way	Estimated Ridership by Day	Service Hours	Service Miles	Estimated Ridership (Annual - Yr. 1)	Fare Revenue	Annual Operating Cost	Capital Costs
Route D - East County to Taylor and Georgetown	3 trips per week	1		20	12	624	6,240	1,872	3,276	\$24,960	
Route E - Florence, Jarrell, Liberty Hill - Georgetown	3 trips per week	1		36	12	624	11,232	2,322	3,276	\$24,960	
Route F - Williamson County to Bell Co.	2 trips per week 1 trip per two weeks	1		40	12	676	10,088	1,248	2,184	\$27,040	
Total Rural Service					36	1,924	27,560	5,442	9,524	\$62,400	\$140,000
Net Operating Cost										\$52,877	

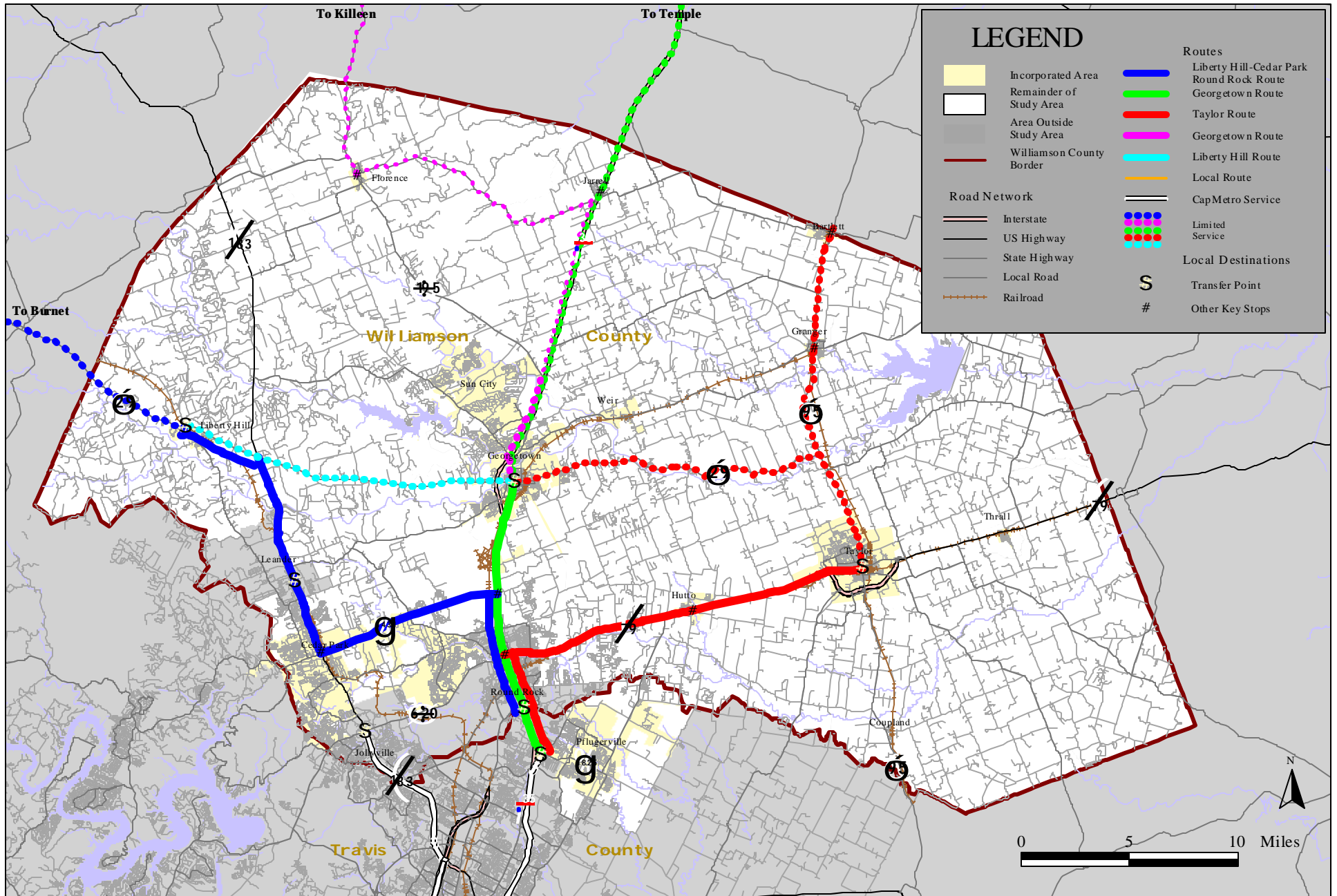


Figure 16:
WILLIAMSON COUNTY PUBLIC TRANSPORTATION SERVICE

Taylor currently have full day paratransit service which can meet the needs of persons that cannot ride fixed-route, since it is anticipated that some of the riders of the current service will be able to use the fixed-route system.

It is important to mainstream as many of the current human service passengers onto the local and regional public systems described above. Through training, fare incentives, and a flexible county-wide service, it is possible to transport many human service clients on the regular services illustrated above.

There are possible cost savings in coordinating this service with the existing or proposed rural and human service transportation programs. Most of the current services can be used in combination with human service and ADA paratransit.

Human Service/Medical Transportation

It is proposed that most of the contract services such as Medicaid and Title III continue to be operated as they are at present (with some fine tuning that is addressed in a subsequent section). It is anticipated that some of the current riders will be able to use fixed-route and that should be encouraged (as discussed above). Many of the Workforce Development Board clients will be able to use fixed-route to access jobs.

4. Non-Traditional - Market Development/Ridesharing/Shopper Shuttles

Williamson County's unique geography and development patterns make traditional transit and commuter service difficult or impossible to operate in many rural areas of the county. There are a number of non traditional services that are low in cost and flexible enough to meet a variety of rural needs.

The nature of the non-traditional family of services is that service is not implemented (and costs are not incurred) until demand has met minimum thresholds and funding either through fares or other sources is available. Market development service requires a minimum number of riders for a group to request service.

Shopper Shuttles

With peak hour vehicles available for other services during mid day (the regional routes), it may be possible to offer shopper shuttle services to sponsors willing to support the transit system. The shopper shuttle targets neighborhoods with high numbers of transit dependent populations and frequent destinations (e.g. Wal-Mart, HEB, and medical centers), and can be very effective during off peak hours. Often these arrangements pay for themselves through funding from the retailers, who in return, receive the business, advertising/promotion, and they become involved in a positive way with their communities.

Ridesharing/Vanpooling

Ridesharing, vanpooling, and carpooling are other approaches that can help meet the needs of commuters in a very cost-effective manner. While Capital Metro provides some ridesharing services, there are other potential ridesharing opportunities for CARTS and the county.

Ridesharing and vanpooling efforts should be encouraged for work trips both going out of the county as well as those coming into the county from other jurisdictions. These services can be offered in areas that do not generate enough ridership for a traditional fixed-route service. CARTS should work with Capital Metro to ensure that there is no duplication of effort with their program. CARTS can bolster its ridesharing efforts and provide more extensive marketing/recruitment of employers and riders. This service should pay for itself operationally through the monthly fares of the riders. Administrative/marketing costs will be borne by the county. Vanpooling may be a good way to serve those persons commuting solely within the county or out of county to Temple, Killeen, and Rockdale.

Market Development

Market development is similar to a vanpool, except that the vehicle is then used for other services, when it is not used for market development - typically for commuters. This service allows CARTS to use bigger vehicles and to keep those assets in service throughout the day. As with shopper shuttles, these services can be offered when there is downtime with other vehicles, for example, the regional routes all have mid morning, mid afternoon, and evening availability, and many of the routes have early morning and late afternoon availability.

5. Pflugerville and Cedar Park Service for Persons with Disabilities

Cedar Park and Pflugerville currently pay Capital Metro about \$15 per one-way paratransit trip using the STS. Annual costs are about \$60,000 for Cedar Park and for Pflugerville about \$45,000, for 4,000 and 3,000 one- way trips, respectively. Some of the trips provided are cost effective for the cities and some are not. The objective of the plan is to reduce costs while maintaining the quality currently provided these customers.

CARTS Brokerage

Cedar Park and Pflugerville should maintain their agreement with Capital Metro and use it in combination with CARTS service, taking advantage of the least expensive appropriate mode. CARTS will serve as a broker of service to the least expensive provider. Services will include the current STS service as well as the CARTS family of services - existing express service, the new local service, regional service, or other CARTS service. The objective is for CARTS to identify the most appropriate mode for each trip. For example, CARTS operates service from Pflugerville to Austin every day. Some of the STS riders can probably use that service, rather than STS. Group runs may be more effectively accommodated through CARTS, if a vehicle is available.

Some trips may be more appropriate for Capital Metro and CARTS can assign those riders to STS.

This approach will reduce costs for each city by using the least expensive mode for each trip. While CARTS cannot provide one-on-one service less expensively than STS (at half price), there are many trips they can accommodate in group mode, or on existing runs, reducing the per trip and total costs.

IMPLEMENTATION PLAN

The Implementation Plan consists of short-term and mid-term activities needed to develop the new transit system. The plan also looks at long-term activities to be considered in years 6-10. The short-term activities call for simple, inexpensive changes to improve the existing operation. The mid-term activities include all of the tasks needed for the fixed routes, regional routes, and shopper shuttles.

CARTS, as the public transportation provider in the region, should lead this effort with assistance and support from the county and each of the cities.

Short-Term Activities

While CARTS is preparing for new services, it should fine tune the existing system to eliminate duplication and better utilize existing resources. The Review of Existing Services (Appendix C) indicated that there are a number of activities that can increase ridership without expending significant additional funds. These are discussed as follows:

1. **Coordinate Service with Capital Metro** - CARTS and Capital Metro will continue to coordinate activities in the area of general planning activities, commuter service and STS service. Capital Metro will play a key role for Williamson County commuters traveling to Austin. This Plan calls for connections at Capital Metro's park and ride lots at US 183 and IH 35. It will be important to ensure Capital Metro's cooperation in accessing space for CARTS vehicles at the park and ride facilities. The plan calls for close

coordination between CARTS and STS to ensure the least cost service for persons with disabilities.

2. **Coordinate Service with Hill Country Transit** - HCT operates in Bell County to the North and Milam County to the east. In each of those counties, HCT operates through Williamson County to Round Rock for dialysis. In the case of Taylor, CARTS has more demand than it can manage, and HCT has excess capacity on its way to Round Rock. In Bartlett, both HCT and CARTS provide service to Round Rock for dialysis. It is recommended that CARTS purchase trips on the underutilized Rockdale to Round Rock route and that HCT purchase service from CARTS for the Bartlett dialysis trip. The second aspect of this could be the use of HCT vehicles while they are waiting in Round Rock, and the use of CARTS vehicles that sit in Temple.
3. **Coordinate Existing Pflugerville Service with Williamson County** - Currently service in Pflugerville is operated out of Travis County, while service in Williamson County is based in Round Rock. As a result, there is some duplication of services when there is more than one vehicle going to Austin at one time. Most importantly, since Pflugerville will become part of the Williamson County system under this plan, it would be best to implement that change operationally prior to implementation of new services.
4. **Implement Brokerage** - CARTS should set up the brokerage for Cedar Park and Pflugerville STS riders. This can be done very quickly due to the infrastructure that CARTS has in place. Passengers will call CARTS to set up their trip, and CARTS will assign each passenger the most appropriate mode for their needs. The few riders and the subscription nature of the service will ensure that the number of calls will be manageable with existing resources.

CARTS Implementation Activities

Year One (FY 2004)

- Fine tune existing system.
- Develop funding resources and secure commitments for sponsors and partners.
- Keep involved in regional transportation activities to identify partnering opportunities.

- Develop site specific feasibility and implementation plans for each city and the county.

Year Two (FY 2005)

- Purchase vehicles.
- Shelters/bus stop signs.
- Initiate marketing promotion:
 - name the system campaign to generate local interest,
 - go to the schools,
 - find sponsors/supporters, and
 - develop a speaker's bureau.

Year Three (FY 2006)

- Implement fixed-route and commuter together if possible-to maximize ridership.
- Closely monitor service and generate appropriate ridership reports.
- Continue marketing efforts.

Years Four and Five (FY 2007 - 2008)

- Fine tune the system, evaluate quarterly, making regular changes as necessary.
- Continue to be actively involved in regional planning activities.
- Continue marketing efforts.

Six to Ten Year Activities

Regional mobility efforts include several major infrastructure projects. Among them are development of SH 130 as part of the Central Texas Turnpike project, construction of HOV lanes as part of IH 35 improvements, and operation of commuter rail service between Georgetown, Austin, and San Antonio with a possible extension in

the future to eastern Williamson County. The proposed regional transit services identified in this plan are designed to complement these major infrastructure improvements and further support future growth in Williamson County. The regional transit system will connect communities throughout the county to the urban core of the county along IH 35 and Round Rock. Several of these infrastructure improvements are likely to be under development and may be operating within the six to ten year time frame.

Regional services may extend into Austin to serve commuters destined to downtown Austin, the Capital Complex, and University of Texas. Once HOV lanes on IH 35 begin operating, transit users will have a faster trip than auto drivers, but even services on existing freeway lanes can serve potential transit users who may prefer not to drive. These services could help establish a ridership base for future HOV transit services and commuter rail.

Commuter rail service may also begin in the six to ten year time frame. Expectations include frequent peak period service with some off peak and weekend service. Once commuter rail service begins operations, regional bus services in Williamson County would be realigned so that communities throughout the county would have connections to commuter rail stations to match train departure and arrival schedules. Parallel bus services would be minimized to eliminate competition with commuter rail services and better utilize resources to provide bus connections to the commuter rail system.

A second bus procurement will be required for local service in Year 8. In Year 10, another purchase will be required for the regional service.

Funding Issues

Federal funds are restricted in their use. Urbanized portions of the study area, such as Pflugerville and Cedar Park, are eligible only for FTA's Section 5307 urbanized area formula grants and its Section 5309 discretionary grant program. CARTS is already working with Cedar Park, Pflugerville, and Capital Metro to obtain a fair share

of Section 5307 formula funds using a population-based formula. It is likely that CARTS will be designated as a secondary recipient to these funds in the near future and that these funds will also be extended to Round Rock. This would effectively give these communities a stable source of the federal share of funding for transit capital programs for the purchase of transit facilities and vehicles. Federal funding is not available to support operations within the urbanized area, but the county's ability to leverage discretionary capital grant funds with strong support from elected officials should not be underestimated.

The State of Texas provides funding from its general revenues and allocates rural transit funds from FTA's Section 5311 program. State funding for transit has been declining dramatically in recent years, even for existing operators. State budgets are established each biennium, and the state operating budget for the next two years will be established in the first half of 2003. Given the existing fiscal climate, it may prove a challenge to obtain any significant amount of state funds in competition with existing operators who are already facing dramatic funding decreases. While a limited amount of state funding may be available to support new services, local funding sources have become increasingly important for local transit systems.

Local funding comes from several sources:

- Local government contributions from general or specialized tax revenue sources (property taxes, general sales tax, or special purpose sales taxes),
- Farebox revenues,
- Advertising and sponsor revenues,
- Contracted and subscription services.

Implementation of short-term transit improvements would likely take place with a mix of funding from various agencies:

- Section 5311 transit funds would remain to serve rural portions of Williamson County. These Federal funds are allocated through the TxDOT to CARTS.
- Section 5307 transit funds would be a new source of urban funds for CARTS. These federal funds would be allocated from the FTA according to a new agreement with Capital Metro. This requires that CARTS be designated a secondary recipient of the regional funds, a process that is already underway for portions of the study area.
- Section 5309 transit funds would be a new source of urban capital funds that could provide assistance in implementing new transit services through bus and facility purchases. These federal funds are obtained through Congressional earmarks.
- State funding allocations will continue, but the state has been reducing its local match for both rural and small urban transportation systems.
- Local funding, usually general revenue funds and increasingly from advertising, sponsorships/partnerships, can be pooled from multiple agencies to provide the local match for transit operating and capital funds. This is how CARTS and all other rural transit systems, along with most small urban transit systems receive their local funds. Local funds will increasingly be important as the state contribution is reduced. CARTS will have to seek alternative sources of funding.

Where transit services are provided to a single jurisdiction, local funding comes solely from that jurisdiction. Small urban systems in Tyler and Beaumont are examples of this type of system. However, transit agencies that cover multiple jurisdictions and receive local general revenue funds must decide on a more complex allocation of funds. This allocation is typically based on some combination of population, transit trips, and amount of services provided in each jurisdiction. As transit options are narrowed and a phasing plan for services is developed, the contribution of local funding for transit will increasingly be the focus.

SUMMARY

Williamson County is one of the largest counties in the state without a fixed-route public transit system. This is due primarily to the inability of funding to keep up with the unprecedented growth. For funding purposes until 2002, the county was recognized as a rural rather than urbanized county, resulting in a lower funding level.

This plan is designed to bring a practical set of transit solutions to the county and the larger municipal jurisdictions. While the local and the regional service can operate independently, they will be most effective when operated together as one seamless service. The greatest economies of scale can be gained by all jurisdictions participating in these efforts.

The key element in the success of this plan is funding in these fiscally constrained times. New approaches and new, private sources of funding should be explored to supplement the essential local contributions. With commitments from all key participants, CARTS and its partners in this effort will be able to implement and sustain a successful transit system.