INTERMUNICIPAL
COMMUTER RAIL DISTRICT

Austin-San Antonio Intermunicipal Commuter Rail District

2004 FEASIBILITY STUDY UPDATE

December 2004

EXECUTIVE SUMMARY

INTRODUCTION

Almost 3 million people in Central Texas, living and working between San Antonio and Georgetown, north of Austin depend on Interstate Highway 35 for access to work, school, recreation, emergency and medical care and their every-day transportation needs. According to FHWA's study of the IH-35 corridor from Canada to Mexico[1], this 110 mile stretch of interstate in Central Texas contains the highest levels of automobile related fatalities, the worst congestion, the slowest average driving speed, the lowest levels of service and the highest levels of highway related pollution. Work has been underway for several years to provide a toll reliever route (SH 130) that will by-pass greater-Austin, and eventually provide an alternate route from Georgetown to Sequin, Texas on IH-10 east of San Antonio. Until 1999 when TxDOT sponsored an intercity commuter rail feasibility study [2] there had been no formal consideration of an alternative mode of passenger transportation with the potential to address transportation safety, travel time reliability, long-term pollution mitigation, smart-growth and economic development within the Austin-San Antonio corridor.

TxDOT's 1999 feasibility study took the first step in determining the viability of intercity commuter rail. In the years since 1999 an increase in population and employment growth, increasing highway congestion, freight rail safety concerns and other factors gave rise to the creation of the Austin–San Antonio Intermunicipal Commuter Rail District (ASAICRD) "the Rail District". [3]

The Rail District's Board of Directors is comprised of representatives from the Texas Transportation Commission, the cities of Austin and San Antonio, Bexar and Travis Counties, the transit agencies in the region, and the two Metropolitan Planning Organizations (MPOs). The Rail District's enabling legislation provides for expansion of the Board to include other cities and counties within and adjoining the IH-35 corridor.

In March 2004 the Rail District commissioned its consultant program management team to develop this comprehensive update of the original feasibility study, taking into consideration current demographics, a more detailed ridership model, and other changes that impact the viability of commuter rail.

The purpose of this Update Study is to provide information about the various changes in the five years that have passed since the original publication, in order to provide an updated basis for the ongoing work on the project. This Update will also reflect the direction that the Austin-San Antonio Intermunicipal Commuter Rail District "the Rail District" is now providing for the project.

The development of a feasible commuter rail system involves determining the optimum combination of a system that can be financed and a system that produces the maximum benefit to the public in terms of both ridership and economic development. This means keeping the initial capital and operating costs low while providing service the traveling public will find useful and beneficial. After determining what this initial system should be, then an expanded "full" system can be described which represents the future as public acceptance is demonstrated and financing becomes available.

This Update document describes the "Initial" and the "Full" system plans. Cost and ridership information are provided for both.

CONCLUSION

The 1999 study concluded *"The operation of a commuter rail system within this corridor is feasible, both from a technical and financial perspective*." Casual third-party observation of the increased highway congestion and decreased travel-time reliability, increasing population and employment demographics and increased freight rail and highway safety concerns, suggest that the 1999 conclusion has not changed. Other important technical factors such as capital and operating costs, funding capacity and plans of operation also conclude that intercity commuter rail is feasible. Detailed funding methodologies are described in Chapter 14 – "Financial Analysis Methodology". Local and Federal funding options and strategies will be developed during the Alternatives Analysis, following this Update.

SYSTEM SUMMARY (Concept Data)

Initial Train Schedule:
- Peak Hours: every 60 minutes
- Off-peak: every 90 minutes

One-Way Fares:
- Graduated Fare–maximum $12.00 (estimated)

Travel Time:
- Austin CBD to San Antonio CBD
  - 90 minutes – express train
  - 105 minutes – local train

System Length: 110 miles
Stations: 14
Design Speed: approx 80 mph
Operating Hours: 6am to 10pm
Ridership Projections:
- Year 2030: Initial Service
  - 1.4 to 5.0 million per year
- Year 2030: Full Service
  - 2.0 to 8.0 million per year

Costs (2004 dollars):
- Construction:
  - Initial Service $394 Million
  - Full Service $608 Million
- Operations & Maintenance:
  - Initial Service $28 Million per year
  - Full Service $41 Million per year

The 1999 Study also stated that "Should the position of the Union Pacific Railroad (UP) change regarding sharing of tracks, a lower cost alternative may be possible." This position is apparently changing and, as a result, this update describes an approach that would share some track usage with the UP.

The updated estimated capital cost of the commuter rail project to provide the initial service is $394 million in 2004 dollars. To contrast that cost with comparable highway transportation capital costs, it is estimated that adding two travel lanes to IH 35 from Georgetown to San Antonio would cost over $2 billion. The estimated cost for constructing SH 130 from Seguin to Georgetown on new alignment through largely rural areas is approximately $1 billion, including right-of-way costs. Of course, each of these transportation options has different costs, benefits, and effectiveness. A more detailed comparison of the various options and their social, environmental and economic impacts of the Commuter Rail Project will be a part of the Planning and Preliminary Engineering work.

SCOPE OF THE FEASIBILITY STUDY

Interstate Highway (IH) 35 generally defines the corridor between Austin and San Antonio. The actual limits of the project extend from Georgetown, north of Austin, to south of Downtown San Antonio. There are existing railroads passing all along this corridor, the potential use of which is the subject of this study.

The 1999 study and this 2004 Update include:

- Analysis of route and operational options [4]
- Analysis of ridership potential
- A Community Involvement Program [5]
- Evaluation of grade crossing safety along the corridor
- Development of an operations and maintenance (O&M) plan
- Development of costs and schedules
- Development of a financing plan [6]

BACKGROUND

The tracks and rights-of-way of the railroads in the corridor, except for the portion from Round Rock to Georgetown, are owned and operated by the Union Pacific Railroad (UP) and carry from 20 to 40 freight trains every day. The tracks were originally built in the late 1800s and have been an important part of the development of the economy in Central Texas.

As early as 1994, the UP expressed interest in operating commuter rail service along this route. At that time the concept of sharing tracks between freight and passenger trains was discussed. The concept included some modest improvements to the tracks along the route and the purchase of a small fleet of commuter trains. This would have permitted service between Austin and San Antonio on the order of four trains per day. Based on those early discussions, the need for an official study of this idea was identified. Preliminary work was done to assess the demand for such a service, with an origin - destination study conducted by the Texas Transportation Institute (TTI), published in 1997. That study indicated that 63% of the automobile drivers surveyed along IH 35 would consider using commuter rail. The original feasibility study was started in mid-1998, and was to be based on the concept of a track-sharing arrangement with the UP.

After the UP merger with the Southern Pacific Railroad in late 1996, the UP's view of a passenger rail initiatives, and particularly the sharing of tracks between freight and commuter rail trains, changed. At the time of the preparation of the 1999 Study, the concept of sharing the freight tracks in this corridor with commuter trains was not considered as good a business strategy as before by the UP. The UP has entertained meetings with TxDOT and representatives of the Rail District and remains willing to discuss options that do not interfere with their freight business or increase their operating costs. TxDOT is also conducting additional studies to evaluate other alternative routes for relocation of some of the UP trains from the existing corridor.

Chapter 2 includes additional information related to the background of this project.

REGIONAL GROWTH

The population of the region continues to grow. The table below shows the forecasted population for the five counties along the corridor (Bexar, Comal, Hays, Travis and Williamson).

Highway traffic on IH-35 is also indicative of the demand for travel along the corridor. There were up to 248,000 cars per day using the highway just north of downtown Austin. Although construction of additional highway capacity is occurring to relieve congestion, there are limits to the amount of highway expansion that can be accomplished within the IH35 corridor. Options for travel are desperately needed, now and in the future. Commuter rail is a complementary mode, which will also provide a sensible alternative to highway travel during the disruption caused by the planned construction projects along this corridor.

POPULATION GROWTH COMPARISON [7]

	Year 2005	Year 2030	% Change
Five County Population (Williamson, Travis, Hays, Comal & Bexar Counties)	3,065,000	5,175,000	+69%

RIDERSHIP ANALYSIS

The forecast of commuter rail ridership was based on a schedule of trains that would be recognized by commuters as providing regular and reliable service. Two scenarios were evaluated for their ridership potential. The first, an Initial Service Plan, is one involving a low capital and operating cost. The schedule for this initial plan provides a train every 60 minutes in the morning and evening rush hours and a train every 90 minutes during the rest of the weekday and all day on weekends and holidays. This analysis was based on an assumed graduated fare system, meaning a rider would pay based on the length of their trip. The actual fares have not yet been set, but for purposes of the ridership analysis the maximum fare would be $12.00 in 2004 dollars. It was further assumed that there would be various discount fares and passes, as is common on other public transit systems.

The Full Service Plan, which would be operated in future years as public acceptance was proven, would provide a train every 30 minutes during rush hours and every 45 minutes at other times.

The ridership was forecast for the years 2007 and 2030 to provide a sense of how it would change over time as a result of the steadily increasing population and employment in the region. The same schedule of trains was used for both forecast years to provide a basis for comparison. This analysis was done by developing a detailed regional transit model.

There is a range of ridership expectations, depending on the future residential and commercial development creating various population densities around the passenger stations. Development precipitated by the location of a transit station is referred to as Transit Oriented Development (TOD). The range of ridership forecasts vary from the low end; using current demographic data which does not include TOD resulting from yet-to-be available rail service, and more optimistic demographic

data which takes advantage of future TOD which has been shown in other cities to be encouraged by the introduction of passenger rail service.

The ridership study (which reflects boardings) concluded that by the year 2030 between 1.4 and 5.0 million people would board the train during an average year, depending on the extent to which TOD occurred as expected. This is based on continuing to provide the initial level of service. When the full level of service is implemented ridership numbers could be expected to increase to a range from 2.0 to 8.0 million per year.

The analysis of ridership is based solely on the assumptions and sources of information outlined in this feasibility study update. The achievement of any projection may be affected by fluctuating economic conditions and depends on the occurrence of future events that cannot be assured. Therefore, the actual results achieved may vary from the projections, and the variations could be significant.

Details of this ridership analysis are included in Chapter 7 and Appendix D.

PUBLIC INVOLVEMENT PROGRAM

A public involvement program was conducted during the 1999 study. Recently there have been a considerable number of stakeholder and agency meetings relative to potential transit station locations. However, the next open public involvement events are scheduled to coincide with the Alternatives Analysis, which is scheduled to take place in the spring of 2005. A discussion of that program will be included in the Alternatives Analysis reports.

An Internet web site has been established and is available at www.asarail.org. The web page gives important information about the history and progress of the program. Internet links are also provided with the web pages of other agencies to provide a wide range of information about commuter rail systems around the country.

ALTERNATE ROUTE EVALUATIONS

The 1999 feasibility report investigated possible alternate routes for commuter rail service. A preferred route was selected in the 1999 Report, so this update did not evaluate alternate commuter rail routes. A detailed description of the preferred route is located in Chapter 8.

DEFINING THE NEW RAIL LINE

New facilities would need to be built, including:

- New double-track sections within the existing UP right-of-way. The total length of these new sections will vary depending on the level of service to be provided. (See Chapter 10.)
- Special provisions at existing spurs and sidings along the route, to permit freight trains to continue to serve local customers.
- Passenger stations at each of the proposed locations.
- Maintenance and storage facilities for service, inspection and maintenance of the trains.

Passenger Stations
14 stations have been considered at the locations described in Chapter 8. Each station will consist of a platform, approximately 400 feet in length, with a short overhead canopy to shield passengers from the weather. Ticket dispensers will be located on the platform. Parking will be provided at each station for those wanting to park and ride. The stations, as well as the rest of the system, will be fully ADA accessible. Each station location took into consideration multimodal access, development or redevelopment opportunities and potential population densities.

Connections will be provided by the local transit service in each area. Such transit connections will be vital to the success of the system and will be carefully coordinated with each of the local public transit agencies all of which are represented on the Rail District Board.

Grade Crossing Safety
The present tracks include many crossings with streets and highways, called "grade-crossings." Safety at those crossings, for trains, pedestrians and motor vehicles is important. With a change in the type and number of trains operating, it was necessary to analyze the new configuration to be sure the current safety level was maintained. Through an analysis of all the crossings, a number of safety improvements are proposed. As is the case with the level of service, the extent to which these improvements are implemented will vary depending on the level of service to be provided.

Chapter 9 provides a more detailed description of the analysis as well as the upgrade program. All the crossings today that are passive (meaning they have neither lights or gates) or are flashing lights only will be upgraded to gates. Of the gated crossings, many will be upgraded to a four-quadrant gate. Some yet to be identified crossings will be closed and some new grade separations will be built.

OPERATING & MAINTENANCE PLAN
A plan of operations was developed based on the train schedules used for the ridership analysis. (On the last page of the Executive Summary is a train schedule showing the forecasted operating schedule for the Initial Service Plan.) This schedule, based on a train speed somewhat greater than currently operated by the UP and AMTRAK, produces the travel times shown in the following table.

TRAVEL TIMES BY TRAIN

Between	Time
Georgetown & South San Antonio	142 minutes
Downtown Austin & Downtown San Antonio (express with 2 stops)	90 minutes[8]

It was assumed that the trains would consist of two bi-level passenger cars, with a total seated capacity of 250 to 350. The train will either be two passenger coaches and a locomotive, or 2 bi-level DMUs. (A DMU is self-powered diesel-electric equipment that can operate in either direction without the need for a separate locomotive.) To support the initial schedule, 6 trains will be needed plus one reserve train.

Maintenance will be performed on the trains at night and during the mid-day period at a system maintenance facility. At both end stations, there will be a limited amount of storage track so that when the trains are not in service minor maintenance and cleaning can be performed.

Operations & Maintenance Costs

An analysis was made of the costs for operating and maintaining the system after beginning revenue service. These costs, based on experience of similar commuter rail systems, indicate that it will cost approximately $28 million per year (2004 dollars) for all operational and maintenance expenses to provide the initial level of service. After the full level of service is operating those costs will be $41 million per year (2004 dollars). Included in that cost is the operation of the trains as well as maintenance-of-way, which includes maintenance of everything other than the trains. This includes tracks, bridges, stations, parking lots, signals, etc.

Additional details of the Operating and Maintenance Plan are in Chapter 10, and more detailed discussion of the O&M costs is included in Chapter 12.

CONSTRUCTION COSTS

Millions - 2004 dollars		
	Initial Service Plan	**Full Service Plan**
Guideway & Track	$97	$222
Passenger Stations	42	42
Maintenance Facilities	8	8
Signaling	36	36
Purchase Trains	102	122
Rights-of-Way	6	6
Soft Costs	47	78
Contingencies	56	94
TOTAL	**$394**	**$608**

CONSTRUCTION COSTS

The costs to build the needed facilities and tracks and to buy the rolling stock were developed using data from recent similar projects around the country. As in the case of operating and maintenance costs, the construction cost will vary depending on the level of service to be provided. With more frequent service, additional double track sections must be constructed and more trains must be purchased. The total cost to build the system to provide the initial level of service along the 110-mile preferred route is approximately $394 million (2004 dollars), including all construction, rolling stock, rights-of-way, and design and management expenses. This equates to a cost of approximately $3.6 million per mile. This does not include the cost of acquiring rights to use the UP track, nor does it include costs for any relocation of the UP through freight trains. The construction cost for the full level of service is about $608 million (2004 dollars) or $5.5 million per mile.

PROJECT IMPLEMENTATION PLAN

A conceptual Implementation Plan was developed for use in the financial analysis. This plan is preliminary and has been developed to provide only a general sense of the overall project timing.

Project Initiation

Project initiation has already occurred, including establishing the implementing agency. Sources of funding, both federal and local, are being explored. Reaching an understanding with the UP is still needed. The process is expected to take from one to two years.

Environmental Permit Phase
In order to be eligible for federal funds, an environmental clearance will be needed. It is planned that an Environmental Assessment, leading to a Finding of No Significant Impact (FONSI) will be obtained. This process, which began in late 2004, is expected to take about two years, depending on the political will within the region.

Design & Construction Phase
This phase will take between two and five years depending on the process adopted. This would include the final design, the construction of all track and facilities, and the purchase of the trains. The finalization of all rights-of-way purchases would also be done during this period.

Testing and Start-Up Phase
After the completion of construction, the testing and safety certification of the overall operating system would be done. This must be completed prior to carrying the first commuters.

Depending upon the sequence and process for all the activities above, the first passenger service could start operations from four to nine years after project initiation.

PROJECT STATUS AND NEXT STEPS
The project is underway. There are two particularly critical next steps:

- Securing of financing thru a combination of local, state and federal funds.
- Finalization of an agreement with the UP Railroad.

Technical activities such as the environmental analysis and preliminary engineering should be done in parallel with these institutional activities.

Sample Time Table - Initial Service

South Bound	911	913	915	917	919	921	923	925	929	931	933	935	937	939	941	961	963	965	967	969	971			991
Georgetown				**6:03 A**		**6:40 A**	**7:28 A**		**8:23 A**	**9:43 A**		**11:10 A**	**12:29 P**		**1:54 P**			**5:19 P**	**5:56 P**		**6:35 P**			**8:12 P**
Round Rock				6:14 A		6:51 A	7:39 A		8:34 A	9:54 A		11:21 A	12:40 P		2:05 P			5:30 P	6:07 P		6:46 P			8:23 P
McNeil				6:20 A		6:58 A	7:45 A		8:40 A	10:00 A		11:27 A	12:46 P		2:11 P			5:36 P	6:13 P		6:52 P			8:29 P
North Austin				6:25 A		7:04 A	7:50 A		8:45 A	10:05 A		11:32 A	12:51 P		2:16 P			5:41 P	6:18 P		6:57 P			8:34 P
35th Street				6:33 A		7:13 A	7:58 A		8:53 A	10:13 A		11:40 A	12:59 P		2:24 P			5:49 P	6:26 P		7:05 P			8:42 P
Austin CBD			**6:15 A**	6:39 A		7:20 A	8:04 A	**8:38 A**	8:59 A	10:19 A	**11:12 A**	11:48 A	1:05 P	**1:45 P**	2:30 P	**4:00 P**	**4:52 P**	5:55 P	6:32 P	**6:52 P**	7:11 P			8:48 P
South Austin				6:51 A		7:33 A	8:16 A			10:31 A		12:02 P	1:17 P		2:42 P	4:12 P		6:07 P	6:44 P		7:23 P			9:00 P
Buda / Kyle				7:02 A		7:45 A	8:27 A			10:42 A		12:13 P	1:28 P		2:53 P	4:23 P		6:18 P	6:55 P		7:34 P			9:11 P
San Marcos	**5:42 A**	**6:18 A**	6:48 A	7:16 A	**7:36 A**	8:00 A	8:41 A	9:11 A		10:56 A	11:45 A	12:32 P	1:42 P	2:18 P	3:07 P	4:37 P	5:25 P	6:32 P	7:09 P	7:25 P	7:48 P			9:25 P
New Braunfels	6:00 A	6:36 A	7:10 A		7:54 A	8:20 A		9:33 A		11:14 A	12:07 P	12:50 P	2:00 P	2:40 P	3:25 P		5:47 P			7:47 P				9:43 P
Hwy 1604	6:17 A	6:53 A			8:11 A	8:39 A				11:31 A		1:12 P	2:17 P		3:42 P									10:00 P
Loop 410	6:28 A	7:04 A			8:22 A	8:51 A				11:42 A		1:23 P	2:28 P		3:53 P									10:11 P
San Antonio CBD	6:44 A	7:20 A	7:46 A		8:38 A	9:07 A		10:09 A		11:58 A	12:43 P	1:39 P	2:44 P	3:16 P	4:09 P		6:23 P			8:23 P				10:27 P
South San Antonio	6:52 A	7:28 A	7:54 A		8:46 A	9:15 A		10:17 A		12:06 P	12:51 P	1:47 P	2:52 P	3:24 P	4:17 P		6:31 P			8:31 P				10:35 P

North Bound	912	914	916		918		920	922		942	944	946	948	950	952	960	962	964	966	968	972	974	976	992
South San Antonio			**6:25 A**					**8:03 A**		**9:38 A**	**10:21 A**	**11:22 A**	**1:00 P**	**1:53 P**	**2:31 P**			**4:00 P**	**4:59 P**	**5:30 P**	**6:13 P**	**7:01 P**	**7:30 P**	**8:12 P**
San Antonio CBD			6:34 A					8:12 A		9:47 A	10:30 A	11:31 A	1:09 P	2:02 P	2:40 P			4:09 P	5:08 P	5:39 P	6:22 P	7:10 P	7:39 P	8:21 P
Loop 410										10:01 A	10:44 A		1:23 P		2:54 P			4:26 P		5:53 P	6:36 P		7:53 P	8:35 P
Hwy 1604										10:13 A	10:55 A		1:34 P		3:05 P			4:41 P		6:04 P	6:47 P		8:04 P	8:46 P
New Braunfels			7:11 A					8:49 A		10:33 A	11:12 A	12:08 P	1:56 P	2:39 P	3:27 P			5:03 P	5:45 P	6:21 P	7:04 P	7:47 P	8:21 P	9:03 P
San Marcos	**6:00 A**	**6:49 A**	7:33 A		**8:18 A**		**8:45 A**	9:11 A		10:56 A	11:40 A	12:30 P	2:16 P	3:01 P	3:47 P		**4:58 P**	5:23 P	6:07 P	6:41 P	7:24 P	8:09 P	8:41 P	9:23 P
Buda / Kyle	6:13 A	7:02 A			8:31 A		8:58 A			11:10 A	11:53 A		2:29 P		4:00 P		5:11 P	5:36 P						9:36 P
South Austin	6:24 A	7:13 A			8:42 A		9:09 A			11:21 A	12:04 P		2:40 P		4:11 P		5:25 P	5:47 P						9:47 P
Austin CBD	6:37 A	7:26 A	8:05 A		8:55 A		9:22 A	9:43 A		11:34 A	12:17 P	1:02 P	2:53 P	3:33 P	4:24 P	**5:05 P**	5:40 P	6:00 P	6:39 P			8:41 P		10:00 P
35th Street	6:42 A	7:31 A			9:00 A		9:27 A			11:39 A	12:22 P		2:58 P		4:29 P	5:10 P	5:47 P	6:25 P						10:05 P
North Austin	6:50 A	7:42 A								11:47 A	12:30 P		3:06 P		4:37 P	5:18 P	5:55 P	6:33 P						10:13 P
McNeil	6:55 A	7:47 A								11:52 A	12:35 P		3:11 P		4:42 P	5:23 P	6:00 P	6:38 P						10:18 P
Round Rock	7:01 A	7:53 A								11:58 A	12:41 P		3:17 P		4:48 P	5:29 P	6:06 P	6:44 P						10:24 P
Georgetown	7:13 A	8:05 A								12:10 P	12:53 P		3:29 P		5:00 P	5:41 P	6:18 P	6:56 P						10:36 P

Note: The numbers at the top of each column represent tentative "Train Numbers".
The **bold faced** times indicate the beginning of each run.
This schedule is based on very preliminary information. During later phases of the porject, more detailed schedules will be developed.

[1] I-35 Trade Corridor Study – FHWA in partnership with six states along the route
[2] Available on-line at http://www.dot.state.tx.us/mis/aus-sat/study.htm
[3] 1997 Texas Senate Bill 657
[4] A more comprehensive Alternative Analysis will begin in late 2004.
[5] The Community Involvement Program is not addressed in this 2004 Update Document. See Chapter 4.
[6] The conclusions of the financial analysis is pending, as of the December 2004 publication of this Update.
[7] CAMPO and SA/BC MPO demographic data.
[8] This compares with a driving time of between 94 and 105 minutes from downtown Austin to downtown San Antonio along IH35, measured during rush hour in September 2004.