



Capital Metropolitan Transportation Authority

Austin, Texas

Annual Report on New Starts

November 10, 1999

Executive Summary

Capital Metropolitan Transportation Authority, Austin, Texas

As required by Section 5309, the Capital Metropolitan Transportation Authority (Capital Metro) in Austin, Texas is submitting its annual report to the Federal Transit Administration (FTA), applying New Starts criteria to a proposed light rail transit (LRT) system in the North/South Central and Southeast Corridors.

Capital Metro's initial recommendation presented to its Board of Directors (Board) on October 8, 1999, and to the Capital Area Metropolitan Planning Organization (CAMPO) on October 15, 1999, incorporated LRT from the central business district (CBD) to north Austin and bus rapid transit (BRT) in south Austin. Community and neighborhood input obtained through an extensive series of public meetings indicated a preference for LRT in south Austin (Attachment 1). Public feedback seems to indicate that BRT addressed the corridor needs of the residents in south Austin. However, many of the residents who attended the public meetings on potential alternatives indicated that LRT would be the preferred mode. Capital Metro issued a detailed report outlining the various options examined in October 1999, entitled "Future Transportation Alternatives". A copy of the report has been previously provided to the FTA.

After a public hearing conducted by Capital Metro's Board on October 18, 1999, the Board directed staff to begin the analysis necessary to evaluate the feasibility of a mode change prior to the final submittal of this document and accompanying schedules (see Attachment 3). Accordingly, the recommended plan, referred to as the locally preferred alternative (LPA) and described in this document, has been revised to reflect the results of public comments and Board review. The project plan is depicted in the maps entitled "LPA - Minimum Operable Segment", "LPA - Initial Phase" and "Long-Range Development Plan". This report provides a detailed review of the mobility improvements, environmental benefits, operating efficiencies, cost effectiveness, land use and local financial commitment.

This document applies the New Starts criteria to Capital Metro's recommended initial phase of its

long-range transportation plan. After carefully considering public input, the Board adopted the following plan, by unanimous vote, at its meeting on October 25, 1999 (see Attachment 4). CAMPO's Policy Advisory Committee endorsed the plan on November 8, 1999. Copies of the Board and CAMPO resolutions are included (Attachments 2 and 5). This initial phase provides for the development of an LRT system in the North/South Central and Southeast Corridors and is briefly described below.

North/South Central Corridor This LRT alignment is referred to as the Red/Green Line throughout the remainder of this document. The minimum operable segment (MOS) of the Red/Green Line would operate along the existing railroad right-of-way (ROW) owned by Capital Metro from McNeil Road (in north Austin) to Lamar at Airport, and then operate in the street to the CBD. The project would also include the development of a maintenance facility. The next segment of Red/Green Line development, also included as part of the initial phase, would connect the CBD to Ben White Boulevard in south Austin. These two combined segments would provide service to 21 stations along the 18-mile alignment and provide direct access to the University of Texas (UT), the State Capitol Complex, and the CBD. Full buildout of the Red/Green Line, which is included in Capital Metro's long-range plan, would extend further south, eventually providing a connection from Ben White to Slaughter Lane.

Southeast Corridor The long-range system plan includes phased implementation of an LRT line (Orange Line) in the Southeast Corridor from the CBD to the airport, which is located in southeast Travis County. The Orange Line would be completed in two phases with construction of the first segment occurring as part of the initial development phase. This first segment would connect the western portion of the CBD to the inner core of east Austin at 5th and Pleasant Valley. The length of this initial segment would be approximately two miles, serving five stations.

Initial Phase

Construction of the initial phase would be completed in the following order:

- The MOS would first provide service between the CBD and McNeil Road, along the Red/Green Line.
- The second segment would provide service between the CBD and Ben White Boulevard along the Red/Green Line and would connect the western portion of the CBD to the inner core of east Austin at 5th and Pleasant Valley along the Orange Line.

The recommendation included in this submittal is referred to as the "Austin Area LRT System". The New Starts criteria have also been applied to the MOS to provide the FTA with separate information regarding the first segment of the initial phase, referred to as the "North Central Corridor MOS". Information regarding the BRT option has been included as a second mode alternative that will be evaluated further in an Environmental Impact Statement (EIS).

The long-range plan also includes:

1. Development of the final segment of the Orange Line connecting to the airport,
2. Completion of the far northern section of the Red Line, connecting north Austin to the City of Leander, and
3. Completion of the inner portion of the Red Line through east Austin.
4. Proposed Austin-San Antonio Corridor commuter rail service.

The recommended phasing for implementation of the long-range system plan has not yet been developed but would be prioritized by applying New Starts criteria and weighing key issues and policy considerations, both at the local and regional levels. Capital Metro will work closely with the City of Austin (COA), county governments within the service area, CAMPO, and other key stakeholders to develop the appropriate phasing plan.

These proposed transportation system improvements could be complemented by the phased addition of high occupancy vehicle (HOV) lanes along major Austin area highways. Capital Metro is not currently seeking federal transit funding for HOV facilities but plans to work with the Texas Department of Transportation to explore the possibility of providing a portion of the local match needed to leverage federal highway funds.

Ridership Modeling and Other Forecasting Assumptions

This report is based upon several key technical analyses (market research, ridership, costs, and financial capacity) performed during 1999. Throughout the analysis, Capital Metro has taken a conservative approach. Ridership estimates are based upon graduated fare increases and moderate service frequency assumptions (e.g. 10-minute peak service), and tend to be low. Cost estimates are based upon full contingencies, and tend to be high.

The information submitted in this report will be supplemented with additional information regarding projected ridership. The 2025 ridership data presented in subsequent pages of this report was modeled based on the most recent highway network (2007) developed for the long-range transportation plan currently being updated by CAMPO. The 2025 highway network will not be completed prior to final New Starts deadline. Based upon current long-range transportation plans for 2020, significant changes in the analysis are not anticipated when the 2025 network is modeled.

Background

Capital Metro is a corporate body and political subdivision of the State of Texas and was established by a referendum in January 1985 to provide mass transportation service to the greater Austin Metropolitan area. Capital Metro commenced operations in July 1985. Capital Metro's current service area includes the cities of Austin, Jonestown, Lago Vista, Leander, Manor, Pflugerville and San Leanna, in addition to several unincorporated areas of Travis and Williamson Counties.

Capital Metro is governed by a seven-member Board of Directors which has governance responsibilities over all activities related to Capital Metro. During the year ended September 30, 1997, the Legislature of the State of Texas enacted House Bill 883, effective August 15, 1997, which revised the composition of the Board. The seven members of the Board consists of five elected representatives from the City of Austin, Travis and Williamson Counties and two individuals appointed by CAMPO.

Current Transit Operations

Capital Metro's current service delivery includes:

- Fixed route services, including express park and ride, flyers, and trolleys ("the Dillo")
- University of Texas shuttle

- Dillo Dash (downtown circulator)
- Paratransit services
- Vanpool program
- Apple (shuttle service between Austin's magnet schools)
- E-Z Rider (demand response service for seniors) and public events service
- Fixed route ridership has increased over the last five years, in excess of 40% since 1993 when Capital Metro reported 14.7 million passenger trips to the National Transit Database. In 1998, fixed route ridership was 20.9 million. Total ridership in 1993 was 26.2 million, compared to 29.9 million in 1998.

Ridership by Service Type	Passenger Trips (1998)
Fixed route	20.9 million
Paratransit	0.4 million
University of Texas	7.1 million
Other purchased transportation	1.5 million
Total	29.9 million

Shortly after their appointment in August 1997, Capital Metro's new Board immediately went to work, emphasizing fiscal responsibility and accountability to the service area taxpayers. The Board began working to streamline bus operations, keeping annual operating expenses within $\frac{3}{4}$ of the one-percent sales tax and maximizing the accumulation of funding for future transportation improvements. The fiscal year 1998 budget achieved this goal, requiring 73.9% of the sales tax, with the remaining balance set aside to fund future transportation infrastructure. The Board hired a new General Manager in October 1998, who further reduced the percentage of sales tax required to fund bus operations to 67.4% in fiscal year 1999. The fiscal year 2000 budget limits the percentage of sales tax used to fund all operating expenses to 67.9%, including Capital Metro's current rail freight operation and transportation infrastructure repairs and improvements for member cities and suburban communities. This leaves approximately $\frac{1}{3}$ of the annual sales tax revenue available to fund transportation improvements. Capital Metro received \$98.3 million in sales tax in 1998 and \$89.1 million in 1997. The authority's service area includes two of the strongest growth areas in the U.S. – the City of Austin and southern Williamson County. Capital Metro has established an operating reserve of approximately \$20 million and has developed an intermediate-range forecast of capital improvement projects and replacement equipment. Over \$100 million in funding is expected to be available by the end of fiscal year 2000 for future transportation alternatives, in addition to funding a major vehicle replacement program over the next few years.

To achieve further operating efficiencies, Capital Metro has begun the process of redesigning its current route network and how bus transit service planning is conducted. The current route network is radial in nature with the focus on the downtown area (CBD, State Capitol Complex and the University of Texas). While downtown Austin is still a vital and redeveloping area, the route network has not kept pace with the residential and commercial growth outside of the downtown core. Major elements of the redesigning process include the development of service policy guidelines and a five-year service plan. Capital Metro estimates that the five-year planning process and service policy guidelines will be completed during the first quarter of 2000.

Key Transportation Issues and Policies

The Austin metropolitan area continues to be one of the fastest growing regions in the United States. Between 1990 and 1997, the population increased by almost 30%. By the year 2025, CAMPO estimates that the population will exceed 1.9 million residents, more than double the 1990 census data. Employment will also continue to grow with estimated jobs in excess of 1.1 million by 2025. A recent survey revealed that Austin area residents view mobility problems as the most significant negative consequence of the area's rapid growth. Over 70% of the respondents said that congestion and traffic are the most serious problems resulting from this rapid growth. CAMPO predicts that the fastest growing part of the Austin area over the next 25 years will be the suburban areas north of the current urban core. In 1997, 50% of commuters used north-south freeways on a daily basis. CAMPO has estimated that if current growth trends continue, highway capacity on Austin's two north-south highways will have to increase from the current 6-8 lanes on I.H. 35 to 12 lanes and from the current 4-6 lanes on Loop 1 (Mopac Expressway) to 8 lanes.

In addition to highway capacity issues, the Austin metropolitan area has exceeded Environmental Protection Agency (EPA) standards for ozone over the past three years, and may be designated as a non-attainment area in July 2000. Ozone levels have steadily increased as people continue to move to the Austin area and the single largest cause of air pollutants is attributable to vehicular emissions. Information from the Texas Natural Resources Conservation Commission indicates that the largest source of pollution in the Austin area is on-road vehicles. Capital Metro's role in providing viable transportation alternatives to the single occupancy vehicle is fundamental to helping reduce congestion, air pollution and improve mobility. Capital Metro is working closely with CAMPO to support a regional transportation plan and programs that have a positive impact on the environment, air quality and area communities.

The City of Austin contains approximately two-thirds of the existing CAMPO population. Austin's city government, concerned about maintaining a strong and healthy central core, launched its Smart Growth initiative to help manage future growth. Two principles of Smart Growth with particular importance to Capital Metro and CAMPO are:

- Creating development that is pedestrian and transit friendly, permitting a mix of land uses and increasing density where appropriate.
- Decreasing automobile congestion by providing alternative modes of transportation, such as bus, light rail, bicycle and improved pedestrian facilities.

Previous Planning Efforts

In March 1997, Capital Metro and CAMPO (then known as the Austin Transportation Study) jointly completed a major investment study (MIS), which recommended designation of the Red Line, running in the northwest/north central corridor, as the locally preferred alternative. Passenger rail service was proposed between the CBD and Leander in the far northwestern portion of Capital Metro's service area. The Red Line was considered a low-cost option and would make use of the existing 160-mile Llano-Giddings railroad, currently owned by Capital Metro. The MIS concluded that the passenger rail service could be jointly operated with the existing rail freight service. Using the existing rail line would also reduce difficult and time-consuming issues, such as right-of-way acquisition, and rail service would not compete with automobile traffic. Capital Metro's Board and the Austin Transportation Study's Policy Advisory Committee subsequently approved resolutions to

begin preliminary engineering (PE) and to complete an environmental impact statement (EIS) for the Red Line. The southeast corridor was designated the second highest priority and it was recommended that an MIS be completed to evaluate a potential rail line from the CDB to the new airport site in southeast Travis County (the Orange Line). Capital Metro received permission from the Federal Transit Administration (FTA) in October 1997 to initiate PE/EIS for the Red Line, as well as a letter of no prejudice (LONP) for both the Orange and Red Line.

The Austin Transportation Study's recommendation to proceed with preliminary engineering noted several conditions for further study prior to approval to enter final design and construction, including "review and analyze best transit alignments and systems to efficiently serve the State Capitol Complex and the University of Texas" and "review and reconsider reasons for priority phasing of the southeast corridor over the south corridor." A copy of the resolution is included in this document (see Attachment 5).

Capital Metro's new Board members, who assumed office in August 1997, organized a rail workshop in April 1998, with the participation of both national and local rail experts. The purpose of the workshop was to review past efforts regarding light rail system planning, and to determine the best future course for Capital Metro, in light of the region's explosive growth and development patterns. The participants concluded that the rail system should be an element of an overall system package of incremental mobility improvements to support a sustainable Austin region. The "best plan" for Capital Metro to bring to the voters would "connect the dots" of major destinations/activity centers, thus producing the most service to Capital Metro's customers and the best ridership for the system.

Current Planning Status

With the employment of a new General Manager, the Board met in January 1999 to review Capital Metro's five-year financial plan and to begin planning the best approach to assess future transportation options and, if necessary, to refine the LPA. This plan recommended a three-step approach, incorporating:

- Market research and public outreach to assess public opinion regarding current Capital Metro services and future transportation options (i.e., the Austin Area in Motion, or AIM, program),
- Ridership forecasting of potential mass transit options, and
- Financial feasibility and cost/benefit analyses.

The AIM program was a comprehensive market research, public involvement and communications initiative, seeking citizen input in order to develop a broadly supported transportation vision for the Austin metropolitan area. The AIM program provided many opportunities for area residents to participate and voice concerns regarding future transportation options. A wide range of communication tools were used to aid the public outreach process, including surveys, community meetings, internet access, focus groups and public forums. A copy of the AIM report has been previously forwarded to the FTA.

This planning process, associated public outreach program, and coordination with the CAMPO are substantially complete and the results are reflected in this New Starts submittal. The LPA was discussed extensively with the public through a series of meetings throughout the Austin area, including a public hearing on October 18, 1999. Copies of the meeting schedule, agenda, and a synopsis of the comments received are attached. The Board has committed to hold a voter referendum on the service area's preferences regarding light rail no later than November 2000. A copy of the

Board's resolution is included as Attachment 6. Current law governing Capital Metro (Texas Codes and Constitution, Chapter 451) limits referendum language to "whether the authority may operate a fixed rail transit system." Other options, such as expanding bus or vanpool service or implementing the bus rapid transit system included in this New Starts submittal, is not subject to voter referendum. However, if the issuance of debt is needed to fund any of these options, Capital Metro must seek voter approval if the debt will be secured by the one-percent sales tax that the authority is currently authorized to collect.

Description of New Start Fixed Guideway Project

As discussed previously, the initial phase of the recommended alternative would emphasize development along alignments with the highest ridership and would include partial buildout of the Red/Green LRT Line to provide service between McNeil Road in north Austin and Ben White Boulevard in south Austin. This alternative would operate along the existing railroad ROW owned by Capital Metro from McNeil Road to Lamar at Airport, and then would operate in the street through downtown to Ben White. The Red/Green LRT Line would provide service to 21 stations along the 18-mile alignment and provide direct access to the University of Texas, the State Capitol Complex and the CBD. Service would operate at 10-minute frequencies during A.M. and P.M. peak periods with a fleet of 51 vehicles. Off-peak frequencies of no more than 20 minutes are projected. The MOS, from the CBD to McNeil Road, would require a fleet of 39 vehicles and would serve 16 stations along the 14.6-mile north/south alignment. Adding the initial segment of the Orange Line from the CBD to 5th and Pleasant Valley in east Austin (2-mile length serving 5 stations) would require the addition of three vehicles to the fleet. A total length of 20.0 miles is proposed for the initial phase, serving a total of 26 stations.

Total project costs for the MOS are estimated at \$642.7 million in current dollars (1999). The total cost of the initial phase of the recommended alternative is estimated at \$919.6 million in current year dollars (1999) if a new bridge is constructed. Project costs are expected to be very similar if reconstruction of the Drake Bridge is pursued.

AUSTIN AREA LRT SYSTEM		
Key System Data		
Red/Green LRT Line	Opening Year	Forecast Year
	(2007)	(2025)
McNeil – CBD (MOS)	14.6 miles	
Average Weekday Ridership	32,100	37,400
Annual Ridership	9.4 million	11 million
Number of Stations	16	

Initial Phase	20 miles	
Average Weekday Ridership	43,200	51,000
Annual Ridership	12.7 million	15 million
Number of Stations	26	

Year of expenditure dollars were derived by using the average projected annual rates of inflation from the "Engineering News – Record Construction Cost Index (CCI) and the Building Cost Index (BCI). Both indices are "market basket" measures consisting of construction commodities (e.g., structural steel, portland cement, lumber) and unskilled labor (CCI) and skilled labor (BCI). The average compounded rate over the construction period is 3.0%.

AUSTIN AREA LRT SYSTEM (INITIAL PHASE)		
TOTAL ESTIMATED CAPITAL COSTS (Millions)		
	Current Year \$\$ (1999)	Year of Expenditure \$\$
Red/Green LRT Line		
CBD to McNeil Road (MOS)	\$ 642.7	\$ 739.0
CBD to Ben White Blvd.	\$ 204.1	\$ 255.5
Orange LRT Line		
CBD to 5 th & Pleasant Valley	\$ 72.8	\$ 91.3
TOTAL	\$ 919.6	\$1,085.8

2001 *944.4*

Capital cost estimates are based on the use of an LRT technology using low floor cars and an Overhead Catenary System and are depicted in the table below.

AUSTIN AREA LRT SYSTEM		
TOTAL ESTIMATED CAPITAL COSTS		
YEAR OF EXPENDITURE DOLLARS		
FISCAL YEAR	TOTAL COST INITIAL PHASE (in millions)	TOTAL COST MOS only (in millions)
2001	\$ 9.2	\$ 9.2
2002	\$ 44.0	\$ 44.0
2003	\$ 139.2	\$ 139.2
2004	\$ 216.8	\$ 212.4
2005	\$ 190.1	\$ 171.2
2006	\$ 166.4	\$ 102.8
2007	\$ 160.3	\$ 60.2
2008	\$ 82.6	-0-
2009	\$ 49.2	-0-
2010	\$ 28.0	-0-
TOTAL	\$1,085.8	\$ 739.0

The preliminary financial analysis assumes that Capital Metro could reasonably anticipate at least 50% federal participation for system development. The local share of project costs for the initial phase would come from existing cash reserves and sales taxes, requiring minimal issuance of short-term debt. Capital Metro's goal is to begin the necessary environmental studies in early 2000 for the proposed initial phase and to phase preliminary engineering, focusing first on the MOS.

Preliminary financial analysis addressed two different phasing scenarios regarding the outermost segments of the Orange and Red Lines included in the long-range plan:

1. Completion of the final segment of the Orange Line to the airport, after construction of the initial segment from the CBD to 5th and Pleasant Valley; or
2. Completion of the northern portion of the Red Line (from McNeil Road to Leander), after

construction of the initial segment of the Orange Line (from the CBD to 5th and Pleasant Valley), but prior to completing the final phase of the Orange Line to the airport.

If system development were phased based on achieving the greatest gains in ridership, then construction of the northern portion of the Red Line would likely occur prior to completing the outer segment of the Orange Line.

Full completion of the Orange Line would ultimately provide a connection to the airport. The City of Austin's encouragement of growth along the airport line through proactive development policies is critical to achieving a viable financing plan for the full buildout of the Orange Line (from the inner core of east Austin at 5th and Pleasant Valley to the airport). Partial funding from the City's Airport Capital Fund or the dedication of future passenger facility charges would also enhance Capital Metro's ability to advance the airport line more rapidly.

Long-range LRT system development would include completion of the Red Line, from McNeil Road to Leander, and the inner Red Line through east Austin. If communities outside of Capital Metro's current service area (i.e., Round Rock or Cedar Park) desire future rail service, these communities must allocate financial resources for the initial capital investment, as well as for future operating and maintenance costs. Capital Metro is also engaged in ongoing discussions with VIA Metropolitan Transit in San Antonio regarding commuter rail in the central Texas region.

Bus Rapid Transit

Capital Metro's initial recommendation presented to its Board of Directors on October 8, 1999, and to CAMPO on October 15, 1999, incorporated LRT from the central business district (CBD) to north Austin and bus rapid transit (BRT) in south Austin. The BRT concept described in the supplemental forms included in this document was originally conceived when the engineering team responsible for developing capital cost estimates of potential alternatives, discovered that the Congress Avenue bridge, which crosses the Colorado River (Town Lake), will not accommodate LRT in its current condition. However, feedback during recent public meetings indicated that a majority of residents in south Austin may prefer the LRT technology. This preference may exist in spite of the additional costs associated with the construction of a separate bridge for LRT, or the reinforcement of the Drake Bridge as an alternative crossover via South 1st Street, west of Congress Avenue.

BRT capital cost estimates of \$50.8 million in current year dollars (1999) are based on estimates from the light rail stations for similar categories – site modification, stations, systems environmental mitigation, right-of-way acquisitions and contingencies. These costs compare very favorably to the LRT option of \$204.1 million for rapid transit service in south Austin and could be implemented more rapidly. Capital Metro will continue to consider the BRT option as part of the EIS process, working closely with community and neighborhood groups to ensure that they have sufficient information to evaluate the BRT option.

Economic Impact Analysis of the LPA

In conjunction with the planning efforts undertaken to refine the LPA as it is described in this New Starts submittal, Capital Metro also examined the benefits of the LRT/BRT alignment in the Austin region, with assistance from HLB Decision Economics, Inc. (HLB). The goal of this assessment was to estimate the recommended alignment's impact on congestion management, affordable mobility and

pedestrian-oriented development. HLB's study incorporated similar methodologies employed in the nation-wide study on the benefits of transit, which was published by the FTA in 1996. The study is based on demographic and other data specific to the Austin area. A copy of the report is attached. The basic scope of HLB's study is outlined below.

- **Congestion management** HLB's review quantified the travel time benefits of transit, as well as other travel cost savings based on reductions in vehicle miles traveled (VMT). These savings result from reduced environmental, safety and vehicle operating costs.
- **Affordable Mobility** HLB also evaluated the prices of alternative travel modes, including taxicab, private auto, bus and the LRT/BRT option included in this New Starts submittal. To price these alternative modes, HLB considered fares, operating costs, travel time and parking.
- **Pedestrian-Oriented Development** Commercial and residential properties typically accrue value due to the proximity of transit, yet without necessitating higher residential taxes. The larger commercial tax base and the increase in population densities in transit-oriented communities often mitigate residential tax rates. The HLB study assessed the neighborhood benefits of transit accessibility in the Austin area, from both user and non-user perspectives, and the ultimate impact on businesses, within one mile of the LRT/BRT stations.

The study concluded that the recommended LRT/BRT alignment (20.5 route miles and 25 proposed stations) would yield an estimated \$892.7 million (1999 dollars) in economic benefits associated with congestion relief, affordable mobility and community economic development. This amount exceeds total estimated life-cycle costs of \$764.1 million by an estimated \$129 million, indicating that the investment is economically justified. The life cycle cost estimate of \$764.1 million reflects preliminary estimates of right-of-way acquisition, construction and other related capital costs, plus annual operating and maintenance expenses (estimated at \$20 million per year, in 1999 dollars). According to HLB's study, the comparison of life-cycle benefits and life-cycle costs indicates that the LRT/BRT option described in this document would yield a real rate of return on investment of approximately 19 percent.

Capital Metro is in the process of working with HLB to adjust the model for the initial phase of the LPA. The results of their report will be forwarded to the FTA by November 16th.



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