

SYNOPSIS REPORT

MODERN STREETCAR PLANNING AND DESIGN, PHASES 1 AND 2

December 1, 2010

Prepared for:

The City of Fort Worth and The Fort Worth Transportation Authority

Fort Worth, Texas

Prepared By:

HDR Engineering, Inc.

203 East 3rd Street, suite 300

Fort Worth, Texas 76102



City of Fort Worth

Streetcar Planning and Design

Phase 1 and 2 Synopsis Report

Date: November 30, 2010
From: HDR Engineering, Inc.
To: The City of Fort Worth and The Fort Worth Transportation Authority (The T)
Subject: Synopsis Report

This memorandum summarizes key elements of the work completed thus far in the analysis of a potential streetcar system serving Downtown Fort Worth and its surrounding neighborhoods. HDR Engineering, with support from Shields, Obletz, Johnsen; Dunbar Transportation Consulting; Open Channels Group; and LTK Engineering were engaged by the City of Fort Worth in association with the Fort Worth Transportation Authority (The T) to provide analysis and implementation options for the proposed project. Over the past several months, the consultant team has analyzed potential alignments, ridership, financial feasibility, costs and other factors to develop the Recommended Phase 1 Project.

It is a goal of the City of Fort Worth to support and facilitate development in targeted areas: the Urban Villages and Mixed-Use Growth Centers identified in the City's Comprehensive Plan. The purpose of this study is to determine if a streetcar could serve as the necessary catalyst for this development, while also being an effective technology for central area circulation. The particular objective of the study is the identification of the single most viable initial streetcar project serving central Fort Worth. The initial segment should have "stand-alone" functionality, but also provide the basis for a larger network which could be developed over time.

Analysis Framework and Approach

The project team has been a technical resource to the City and The T staff, meeting regularly with the Streetcar Task Force, as well as upon request with the City Council of Fort Worth, the staff and boards of Tax Increment Financing (TIF) Districts, and organizations such as Downtown Fort Worth, Inc., the Fort Worth Chamber of Commerce, the Trinity River Vision Association and Fort Worth South to gather data and information, as well as report on the results of the analyses. Technical deliverables that have been completed include:

- Development and evaluation of alignment options based on [Guiding Principles and Evaluation Criteria](#);
- A set of [Design Assumptions](#) Technical Memoranda that describe specifications for the project, including track and systems, as well as vehicles;
- An evaluation of potential [Economic Development Impacts](#) with a [Literature Review](#) of the economic impact of transit projects;
- [Cost Estimates and Ridership Estimates](#) for the alignment options;
- An [Alignment Refinement](#) process, evaluating the alignments options;
- A description of the [Recommended Phase 1 Project](#);
- A [Business Plan](#) for implementation of the recommended project that addresses potential funding mechanisms to support the project; options for the entity which would implement and operate the project,
- A [Comparison of Bus and Streetcar](#) alternatives in the corridor which would be served by the Phase 1 project and;
- The [Next Steps](#) to support implementation of the project.

Outreach and Coordination Process

As this technical work was completed and products of the analysis were drafted, the project team conducted a series of outreach efforts to stakeholders, working in collaboration with City staff and the Streetcar Task Force members. Outreach efforts have ranged from formal public meetings to Task Force meetings to individual meetings and briefings with key stakeholders. Components of this effort have included:

- Task Force Briefings
- Community Council briefings;
- Public Meetings
- Presentations to organizations with a focus on downtown, and neighborhoods and activity centers near downtown including TIF Districts, and organizations such as Downtown Fort Worth, Inc., the Fort Worth Chamber of Commerce, the Trinity River Vision Authority and Fort Worth South; and groups representing the hospital and museum districts.

Guiding Principles

The motivation for analyzing the Streetcar project is based in the City of Fort Worth's goals of **enhancing and accelerating walkable, transit-oriented redevelopment and providing non-automobile, local circulation for residents and visitors**. To this end, principles were established to guide the project. The purpose of this project is to identify the initial alignment/project of a "rail transit system" (as described in the City of Fort Worth Comprehensive Plan) that will ultimately connect several of Fort Worth's Urban Villages and Mixed Use Growth Centers. Key goals include:

- support/facilitate transit-oriented development in the urban center and adjacent neighborhoods;
- support the development and revitalization goals of the 2010 Comprehensive Plan, the T's Strategic Plan, Downtown Fort Worth Inc's and Fort Worth South's redevelopment, housing and transportation visions;
- support the realization of the Trinity River Vision plan, providing non-automobile access and circulation to a large new high-density district;
- provide a complementary connection to the existing and planned regional rail system; and
- provide mobility and circulation to key destinations among the Urban Villages and Growth Centers identified in the 2010 Comprehensive Plan.

Evaluation Criteria

Evaluation criteria were established to test which of the alternatives had the highest potential for meeting the project's goals. The HDR team, after conferring with the City staff and the Streetcar Task Force, identified a series of qualitative and quantitative criteria for assessing the relative strengths of each of the options. These criteria are listed below:

- Existing and anticipated population in the alignment corridor
- Existing and anticipated employment in the alignment corridor
- Major Destinations served
- Developable Land
- Potential Yield from TIF and other locally-generated sources
- Assessed Value Base
- Compatibility with City and TIF District Plans
- Relative lack of engineering or traffic management constraints to implementation
- Estimated Ridership
- Capital and Operating Costs
- Public and stakeholder Support

Design Assumptions

In order to conduct a technical evaluation of alternatives, provide cost estimates, and to define a basis for later project refinement work, a set of design assumptions were developed. The design assumptions provide detail for the engineering basis for a potential project. They are documented in a series of Technical Memoranda (See **Appendix A- Design Assumptions**). In general, the assumptions are based on a modern streetcar system similar in design to those now in operation in Portland and Seattle and under development in Tucson and Cincinnati. That is, the assumed project consists of:

- Modern, partially or fully low floor streetcar vehicles,
- Operating on track embedded in the roadway surface of a shared travel lane in city streets,
- Stopping at simple stations that would consist of a curb extension and a shelter, and
- Powered by a single overhead electric wire, connected to the vehicle by a flexible arm (called a pantograph).

Development Impacts – Principles and Literature Review

A key set of objectives provides the policy foundation for recent streetcar projects, either open-and-operating like those in Portland, Tacoma, Tampa, Seattle, Little Rock, Memphis and Kenosha, or projects now being implemented, like those in Cincinnati, Washington DC, Dallas, Tucson, and Charlotte. In all cases, these projects are:

1. Initiatives of city governments (with more or less assistance from transit agencies), due to these projects' role as:
2. Catalysts for economic development and redevelopment, especially in terms of:
3. Changing the form, intensity and location of new development to a more concentrated and urban pattern than was achieved without the streetcar project.

These assumptions have generally been rewarded with the results that these cities have hoped for in making the investment, in some cases spectacularly so. In the experience of these cities, this dramatic "streetcar effect" has also made it clear that bus transit, no matter how packaged or priced, has not been able to replicate these economic effects.

Fort Worth has invested significant effort in plans and policies intended to change the pattern and nature of future growth in the City. For Fort Worth to consider investing in a streetcar project as an economic development strategy – an implementation tool for those plans and strategies - an analysis of the results in other cities and of the prospects for such results here is in order.

Also presented are examples of how other cities in the United States have leveraged similar development opportunities to create streetcar funding and/or business partnerships with parties due to their having large amounts of property holdings, business interests or other interests along the lines. The sources examined were drawn from HDR's experience throughout the United States and from published reports.

Many studies have been conducted to estimate the economic development impact of passenger rail with varying results. These studies have calculated the impact to retail, commercial and residential properties and looked at various rail technologies including light rail, heavy rail, commuter rail and streetcar. The results can be affected by many factors including development policies, access to other transportation modes, amenities surrounding the rail stops, amount of time since the rail system opened and the rail mode. The literature review summarized a sampling of the various studies that have been conducted to provide an overview and understanding of rail economic impacts in various communities.

The resulting economic impacts of rail vary based on the modes and cities. Cities like Dallas saw positive economic impacts as a result of the light rail system and yet other communities like Los Angeles did not have consistent impacts. Premiums were seen for one type of property and decreases for other types of properties in the same

city along the same rail line. One finding noted “having services and public uses nearby like restaurants, repair shops, pubs, and child-care centers also increased the commercial land values ...” (*Cervero & Duncan, Rail Transit's Value-Added: Effects of Proximity to Light and Commuter Rail Transit on Commercial Land Values in Santa Clara County, California, June 2001*)

For purposes of this synopsis, the focus will be on two systems, DART light rail and the Portland streetcar. DART, because Fort Worth and Dallas are in the same metropolitan region and economy and Portland because it is one of the few streetcar projects with a long enough history to have data on its economic development effects.

The Initial Economic Impacts of the DART LRT System by Bernard L. Weinstein, Ph.D and Terry L. Clower, Ph.D, (July 1999) studied both the changes in property valuations and the growth of retail sales since the opening of DART rail because there was interest in determining the economic effects of DART Light Rail (LRT) after its opening in 1996. In summary, the property valuation growth near DART LRT stations was approximately 25 percent greater than the comparable properties outside of the LRT station area and retail sales grew by 36.2 percent in the Central Business District (CBD) compared to citywide growth of 3.6 percent.

Appraisal data was gathered on approximately 700 commercial and residential properties within a ¼ mile of the 15 rail stations and similar data was gathered on 160 properties in comparable neighborhoods. From the period 1994 to 1998, property values around rail stations increased in many of the areas examined. This study shows that the DART LRT has had a positive impact on property values, occupancy rates and retail sales in areas near a LRT station.

The initial alignment for the Portland streetcar project was to connect to major redevelopment areas in Portland; 70 acres of abandoned rail yards and a contaminated brownfield site just north of Downtown (the Pearl District) with 128 acres of underused or vacant industrial land at the opposite end of Downtown (the South Waterfront). The investment in streetcar has changed development patterns and yield of properties in Portland. A study by E.D. Hovee & Company, in 2005 found that the “properties located closest to the streetcar line have experienced the largest share of development – and at Floor Area Ratios (FARs) that more closely approach the properties’ zoned density potential – than properties situated further from the streetcar alignment.”

Some of the additional findings of the Hovee study include:

- New development achieved an average of 90% of the FAR potential within one block of the streetcar and the percentage drops to 43% at three or more blocks from the alignment
- 55% of all new development in the CBD occurred within one block of the streetcar compared to 19% before the streetcar line

In summary, the Literature Review confirms a strong correlation between rail transit and an increase in both real estate values and the rate of development. This correlation appears to be particularly strong for streetcar projects.

The complete analysis can be found in **Appendix B – Literature Review**.

Alignment Refinement

The Project Team conducted a series of interviews with stakeholders to gather input regarding alignment options for a potential Phase 1 project in each corridor. Through these interviews, review of previous studies, initial discussions with City and The T staff, and fieldwork, alignments were identified. **Appendix C: Alignment Refinement Technical Memorandum** documents this early analysis of the range of alternatives. Figure 1 below portrays the initial lines that were screened for performance against the evaluation criteria.

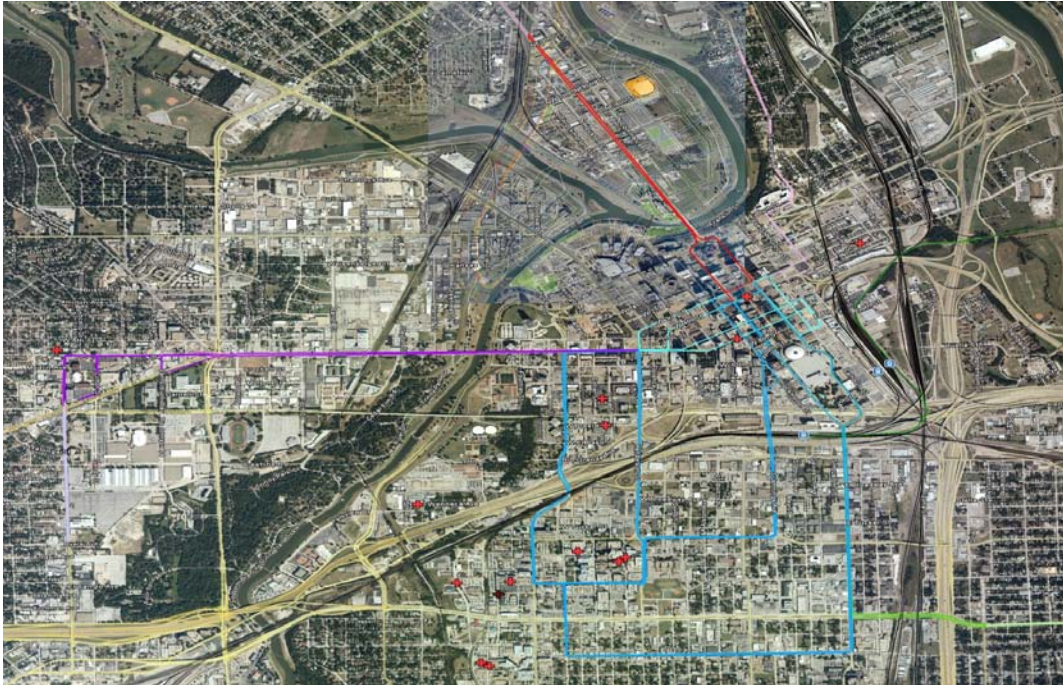


Figure 1. Configuration of Conceptual Streetcar Alignments

An evaluation of all of the initial line alternatives shown in Figure 1 was undertaken, measuring each alignment’s general ridership/economic development effectiveness and the capacity to finance it. A table comparing the results among the various alignments was generated (see Table 1 in the following section). Each line was analyzed as a potential “stand alone” Phase 1 project. The results of this and other analysis in the study were used to develop combinations of these segments as the Recommended Phase 1 Project. To maintain equity in the evaluation, they were first looked at individually. As shown above the initial set of alignments considered included:

- West 7th Street to the Cultural District
- North Main Street to the Stockyards
- the Trinity Bluffs neighborhood
- the Hospital District with two alignment options:
 - Jennings Street, serving primarily Harris Methodist and Baylor Surgical hospitals, and Plaza Medical Center
 - South Main Street, serving primarily John Peter Smith Hospital
- East Rosedale Street to the vicinity of Vaughn Boulevard

Economic Analysis Methodology

A review of economic development potential of the initial set of potential alignments was conducted to make an early determination whether, from a development and financial perspective, any of the initially proposed alignment options represented a clearly superior “starter line” or, conversely, a clearly poorly performing line; or were generally comparable in performance. Based on this type of analysis, segments of better performing lines were then combined to see if they produced an even stronger “starter line”.

The economic analysis focused on the “streetcar influence zone,” which was defined as the area within a 5 to 7 minute walk of a streetcar line whose activities (offices, stores, hotels, residences, performance venues, public facilities) would generate the largest share of the streetcar ridership (either as an origin or destination). That area captures most of the benefits (in terms of increased business activity, added economic development, sales and

property values) because of the presence of the streetcar. These benefits were estimated by including all land within a quarter-mile radius of the streetcar line. The complete analysis can be found in **Appendix D – Economic Impact Technical Memorandum**.

It is important to note that a conservative set of assumptions were used to conduct this analysis. A modest 5% one-time average increase in the value of real estate located along the corridor was assumed to be a reasonable effect of the project. This percentage is much lower than the increase that has typically been experienced along streetcar and light rail projects that have been implemented. A similarly modest increase in the rate of development along the alignment was also assumed: approximately doubling the rate of net residential construction and increasing by 20% the rate of net commercial construction, over the observed rates for the ten year period of 2000-2009. Much larger increases in development activity (in terms of both absolute quantities and percentage increases over “baseline” growth) along streetcar corridors have been observed in other cities. Finally, although the implementation of a streetcar project in these corridors could be expected to produce an increase in retail sales (and thus retail sales tax revenues), hotel occupancy (and thus an increase in room tax revenues), and business and professional license taxes and similar revenues, forecasting these increases is much more speculative due to the lack of well documented studies. Therefore, to be prudent and conservative, no attempt has been made to quantify or add in these very real and additional sources of benefit.

In summary, all of the candidate alignments considered were found to be feasible streetcar projects from a planning perspective, serving a variety of existing destinations and accessing significant potential development. From an economic perspective there are significant differences in the alignments’ potential impact on development and on shaping the future growth of Fort Worth that affected the selection of the Recommended Phase 1 Project.

Cost Assumptions for the Economic Analysis

The anticipated costs of each line are an important variable in determining its ease of financing. A line that costs substantially more to build and operate is not a good candidate as a “starter line,” unless it offers clear advantages over other choices, based on other criteria, such as ridership or destinations served. These choices were evaluated in terms of cost effectiveness as well as other criteria. At this stage, the study used comparisons between capital costs of the lines as a rough proxy for their overall cost index of a line (operations costs will rise or fall roughly in parallel with the length, and hence capital cost), other things being equal between lines (e.g. amount of service provided, hours of operation per day, etc.).

To compare costs for screening purposes, the project team used the following order-of-magnitude planning estimates, based on a review of recent streetcar projects’ capital costs:

- Each line’s total length (in track miles) was multiplied by \$20 million per track mile to assess basic “all inclusive” costs (track, power, vehicles, engineering, project management, testing, contingencies, etc.)
- An additional allowance of \$5 million was added to each line to cover a maintenance facility.

An initial planning estimate also included any “unusual costs” specific to an individual line (such as complicated road, railroad or river crossings or known utility relocation issues). Operating costs were also estimated for each potential alignment. These initial planning-level cost estimates are found in **Appendix E – Initial Planning Cost Estimates**.

Existing Development Served

Measures of the amount of existing development and economic activity along each potential “starter line” are important criteria for determining the potential for early success of the line (in terms of immediate ridership) and short term economic impacts on existing properties, businesses and revenue streams. The more people, jobs, hotel rooms, activities and property value in a line’s particular “influence zone,” the higher the likely level of immediate ridership and the greater the resource base available to potentially help finance the line.

Several measures of “existing development served” were calculated for the areas within quarter-mile of each of the lines under study. These measures included:

- population and employment;
- hotel rooms and major venues connected;
- enrollment and faculty/staff at higher education facilities;
- parking spaces; and
- total assessed value in zone.

New Development Potential

Development potential was evaluated through the following measures:

- Maximum Projected Growth during Next 15 Years: This was an estimate of the upside market absorption potential for development in each “influence zone” over the next 15 years under the most favorable economic conditions. The resulting upside absorption scenarios were based on underlying market trends, not the ultimate holding capacity of an area.
- Percent of Area Capacity Used: In each case, this 15-year absorption potential was compared to the “longer range” build-out potential for the given corridor to determine whether it exceeded likely capacity.
- Potential Growth in Assessed Values (15 Years): The taxable value of the 15-year build out potential in a corridor was estimated by applying recent building square foot and housing unit assessed values (AV) to the projection of potential development over the next 15 years. A percentage premium was added to this amount, and to the 2010 taxable base, within the “streetcar influence zone,” to approximate the pattern of property value increases observed in other cities with streetcars.

Benchmark Measures

The following benchmark comparative measures were calculated for each of the line alternatives using the datasets above. Each of these measures considered either singly or in combination, was used to cross-compare the effectiveness of an investment in one line versus the others, including these factors:

- capital cost relative to taxable assessed value
- new development potential relative to capital cost (leverage potential)
- total capital cost relative to ridership generated

A comparison table with the economic evaluation criteria for each of the routes was created and is shown in Table 1 below.

Route Description	Jennings	North Main	South Main & Magnolia	South Main, Rosedale to	Trinity Bluff	West 7th	Jennings Short	North Short
Route Miles	2.0	1.4	3.2	2.2	2.2	3.0		
Cost (\$Millions)	\$98,500,000	\$69,900,000	\$138,300,000	\$105,900,000	\$88,700,000	\$128,800,000	\$54,700,000	\$54,700,000
Ridership:								
Per Day: 2015 Low	2,700	1,250	3,300	1,800	1,550	1,550	1350.0	925.0
2035 High	5,350	3,000	7,250	4,250	3,100	3,450	3800.0	2750.0
Max. Percentage Increase	98%	140%	120%	136%	100%	123%	181%	197%
Annual: 2015 Low	985,500	456,250	1,204,500	657,000	565,750	565,750	492,750	337,625
2035 High	1,952,750	1,095,000	2,646,250	1,551,250	1,131,500	1,259,250	1,387,000	1,003,750
Basic Data: 2010								
Existing Development								
Employees	66,800	41,500	68,900	51,700	46,500	59,700	47,200	44,800
Residents	3,500	1,600	5,300	2,700	3,600	6,200	2,400	1,600
Hotel Rooms	2,600	2,000	2,400	2,400	2,000	2,000	1,500	1,500
Students & Faculty/Staff	6,300	5,300	1,800	1,800	5,300	5,300	800	4,500
Venues - Annual Attendance	2,150,000	2,375,000	2,150,000	2,150,000	2,150,000	2,800,000	2,150,000	2,150,000
Total Value Base (including tax exempt)	\$2,400,000,000	\$1,700,000,000	\$2,200,000,000	\$1,700,000,000	\$2,000,000,000	\$2,800,000,000	\$1,400,000,000	\$1,900,000,000
Taxable Base	\$1,400,000,000	\$1,000,000,000	\$1,400,000,000	\$1,200,000,000	\$1,300,000,000	\$1,800,000,000	\$1,000,000,000	\$1,200,000,000
Land Use								
Acres - not on streets	580	445	745	485	430	890	410	450
Vacant/Redevelopable Acres	120	115	120	85	115	170	90	175
Growth (permit data):								
Housing (units)								
New and completed since 2000	420	240	540	500	820	860	480	240
Per Year (10 years)	42	24	54	50	82	86	48	24
Streetcar Max/yr (2 times)	84	48	108	100	164	172	96	48
Commercial (sf)								
New and completed since 2000	1,150,000	1,300,000	1,700,000	600,000	1,300,000	1,800,000	1,400,000	2,100,000
Per Year (10 years)	115,000	130,000	170,000	60,000	130,000	180,000	140,000	210,000
Streetcar Max/yr (1.2 times)	138,000	156,000	204,000	72,000	156,000	216,000	168,000	252,000
Calculated Variables								
Upside Value Added Projection: (15 Years)								
Value Added Baseline Growth	\$335,000,000	\$335,000,000	\$480,000,000	\$225,000,000	\$440,000,000	\$560,000,000	\$400,000,000	\$515,000,000
Value Added Streetcar and Premium at 5%	\$220,000,000	\$175,000,000	\$280,000,000	\$195,000,000	\$305,000,000	\$365,000,000	\$225,000,000	\$230,000,000
Total Value Added in 15 Years	\$555,000,000	\$510,000,000	\$760,000,000	\$420,000,000	\$745,000,000	\$925,000,000	\$625,000,000	\$745,000,000
Holding Capacity:								
Capacity of vacant or redevelopable sites	12,900,000	9,300,000	10,900,000	8,000,000	15,000,000	18,000,000	8,000,000	11,000,000
Maximum Growth in 15 years - million sf.	3,600,000	3,200,000	5,000,000	2,900,000	5,300,000	6,300,000	4,200,000	4,600,000
Max 15 year growth as % of Capacity	28%	34%	46%	36%	35%	35%	53%	42%
Cost/Annual Ride: 2015 Low	\$100	\$153	\$115	\$161	\$157	\$228	\$111	\$162
Assessed Value								
Cost as % of Assessed Value	4.10%	4.11%	6.29%	6.23%	4.44%	4.60%	3.91%	2.88%
New Development Potential (SF)								
Cost per SF of Long Term New Development Potential	\$7.6	\$7.5	\$12.7	\$13.2	\$5.9	\$7.2	\$6.8	\$5.0
Dollars of AV Added per \$ of Capital Cost of Line	\$2.2	\$2.5	\$2.0	\$1.8	\$3.4	\$2.8	\$4.1	\$4.2

Table 1. Comparison of Economic Development Potential for Alignments

Ridership Estimates

The ridership estimating process was developed to provide another basis of comparison among the corridors under consideration, balancing the economic development-based ridership approach with this more traditional transportation service approach. The goal was to provide a tool for comparing the various corridors to each other in an effort to identify the best candidate for initial streetcar implementation. Therefore, the absolute value of the ridership estimated here is not the critical factor but rather the relative strength of the ridership of the alignments relative to each other.

The approach outlined here follows a traditional framework of direct demand estimation. The Federal Transit Administration (FTA) has supported the use of this type of approach for estimating streetcar ridership, especially for urban regions where streetcars are not currently operating. The complete analysis can be found in **Appendix F – Ridership Estimates Technical Memorandum**.

Figure 2 shows the study area and the six alternative streetcar alignments evaluated: Hospital-Jennings, North Main, Trinity Bluffs, West 7th, Rosedale and Hospital-South Main-Magnolia.

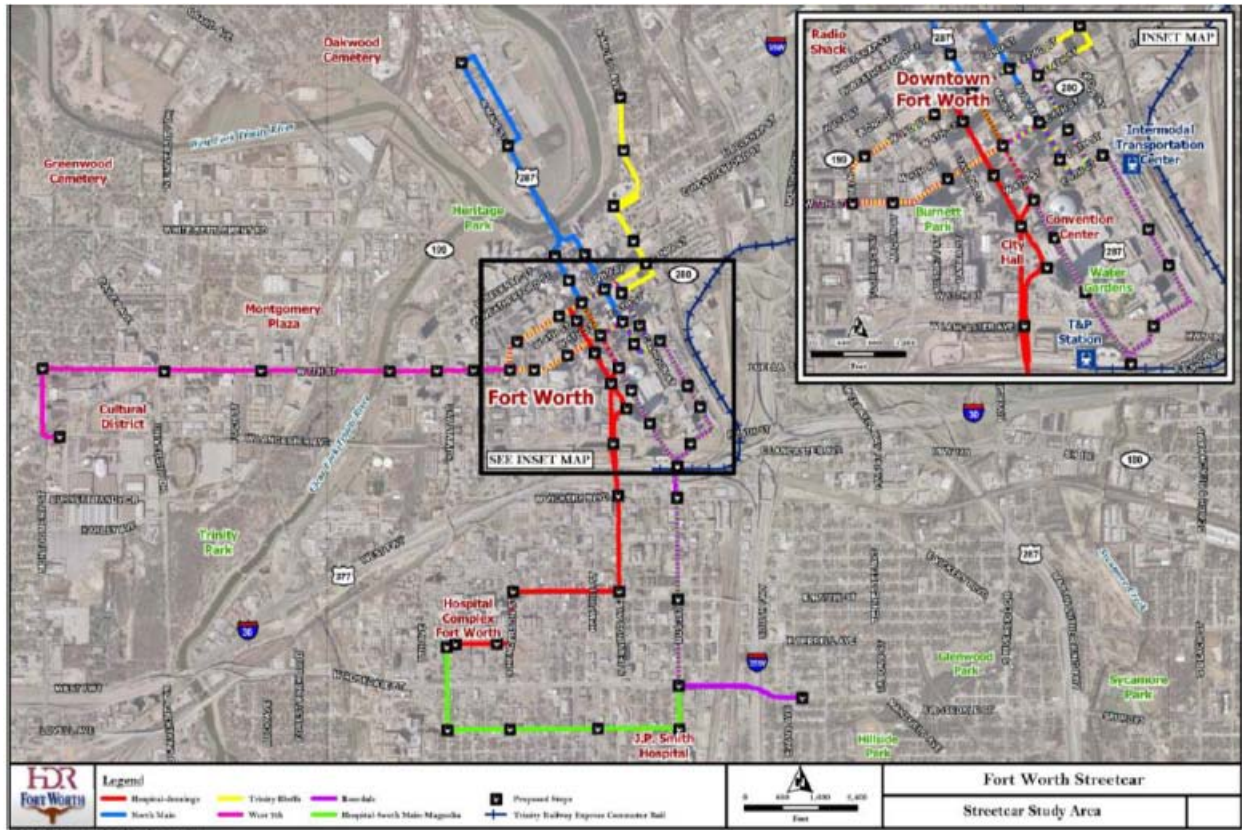


Figure 2. Conceptual Stop Locations on Streetcar Alignments

Methodology/Estimation/Calibration

A stop level direct demand model was developed for estimating ridership for the streetcar alignments. Transit ridership at an individual stop depends on various factors including socio-economic characteristics, site conditions, transit supply variables, etc. The concept behind a direct demand model is to observe the relationship of these variables with stop level transit ridership and develop an instrument that can be applied to predict stop level ridership for future conditions. The underlying assumption is that observed transit usage in the area is an indicator of future transit usage, given the opening year (near future) and unique characteristics of the streetcar mode. Figure 3 shows the overall model development and application process explained in the following sections of this technical memorandum.

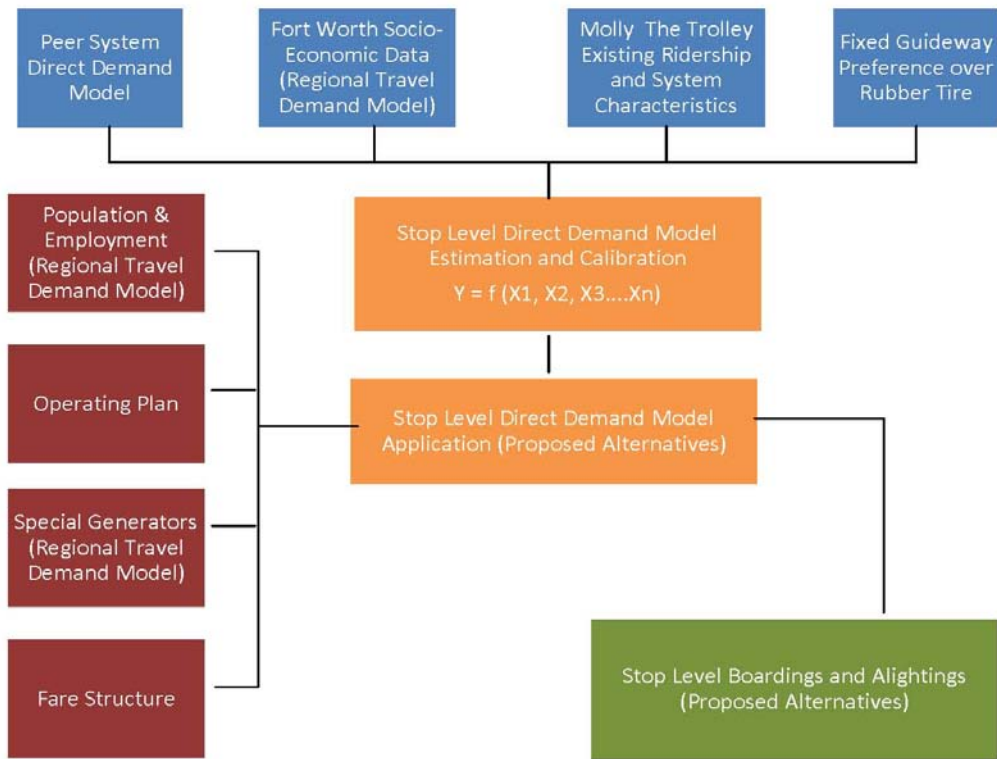


Figure 3. Stop Level Direct Demand Model Development Methodology

Once developed, the model was applied to the alternative streetcar alignments. Stop level daily ridership was generated and accumulated into a corridor total for each alignment. The model captures all direct boardings generated within the walk access (¼ mile) buffers and also accounts for transfer boardings associated with other modes of access. Table 2 summarizes the results of the analysis for each corridor:

Alignment	2015 Opening Day Ridership	2035 Future Ridership
Hospital-Jennings	2,700 - 2,950	3,900 - 5,350
North Main	1,250 - 1,350	1,600 - 3,000
Hospital-South Main-Magnolia	3,300 - 3,600	4,950 - 7,250
Rosedale	1,800 - 2,050	2,700 - 4,250
Trinity Bluffs	1,550 - 1,700	2,050 - 3,100
West 7th	2,150 - 2,350	3,150 - 3,450

Table 2. Ridership for Alignment Options

The model captures all direct boardings generated within the walk access (¼ mile) buffers and also accounts for transfer boardings associated with other modes of access. The analysis shows that all six alignments have the potential to attract more patrons than the current Molley the Trolley system (132,000 annually). Figure 4 below shows a comparison of other streetcar ridership estimates for existing and proposed streetcar projects. Ridership is expressed in annual riders per route mile to normalize the impact of longer routes.

In summary, the Hospital-South Main-Magnolia and the Hospital-Jennings streetcar alignments perform the best from a ridership perspective. This outcome is consistent given the significant employment base at the hospitals. Hospitals are also designated regionally as special generators, further enhancing the results for these corridors. Review of Table 2 demonstrates the top performance of Hospital-South Main-Magnolia and Hospital-Jennings as well, but also indicates the other streetcar alignments evaluated for this study are anticipated to have reasonable ridership under the opening year scenario displayed. All are higher than the existing systems in Memphis, TN and Tampa, FL.

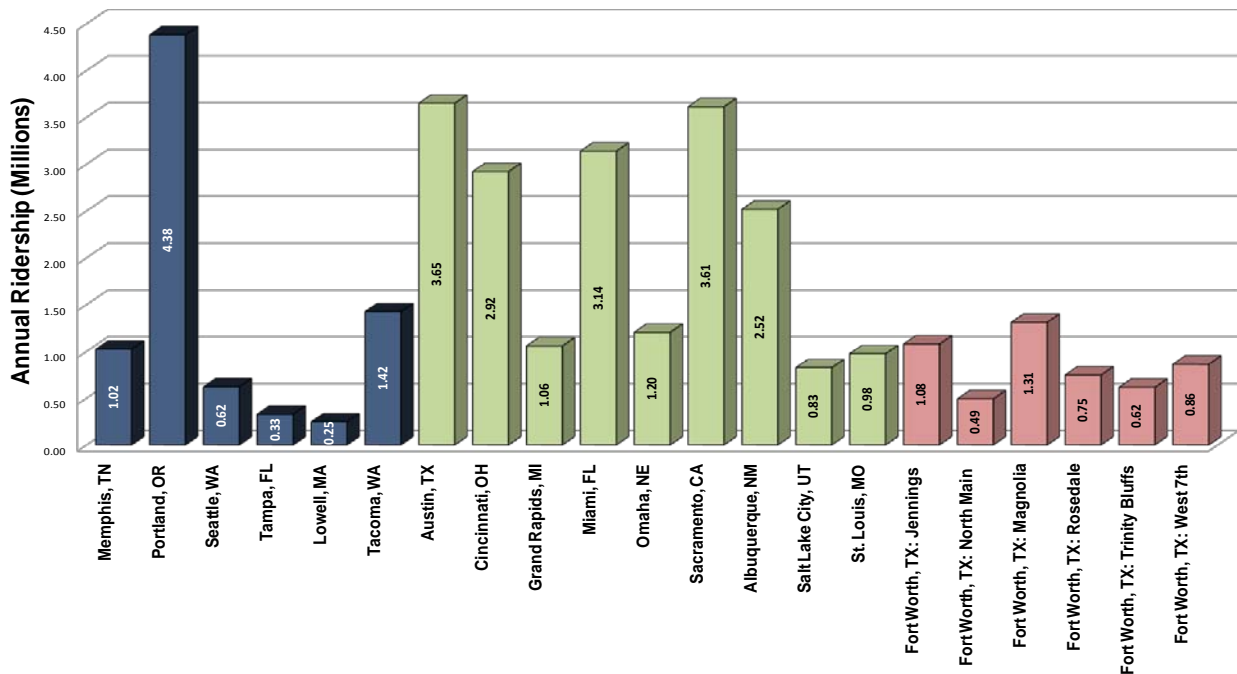


Figure 4. Comparison of Fort Worth Projected Streetcar Ridership to Other Projects

Recommended Phase 1 Project

During the course of the project, the Federal Transit Administration approved an Urban Circulator grant of approximately \$25 million for this project. The award of the grant and the necessity of meeting its requirements established additional parameters for the project. These factors were taken into account and in combination with the results of previous analyses, were used to develop a Recommended Phase 1 Project.

The Recommended Phase 1 Project is shown in Figure 5. This proposed project accesses the major development opportunities both north and south of the Downtown core. It is financially viable as well, since its construction can be funded with a combination of TIF District funds and the federal Urban Circulator Grant funding awarded to the project.

From north to south, it would provide service to the planned Trinity River Vision development, then follow Main Street to the Tarrant County Courthouse. The streetcar would use the one-way pair of Houston and Commerce Streets from the Courthouse to 9th Street. 9th Street would provide a connection between Houston and Commerce

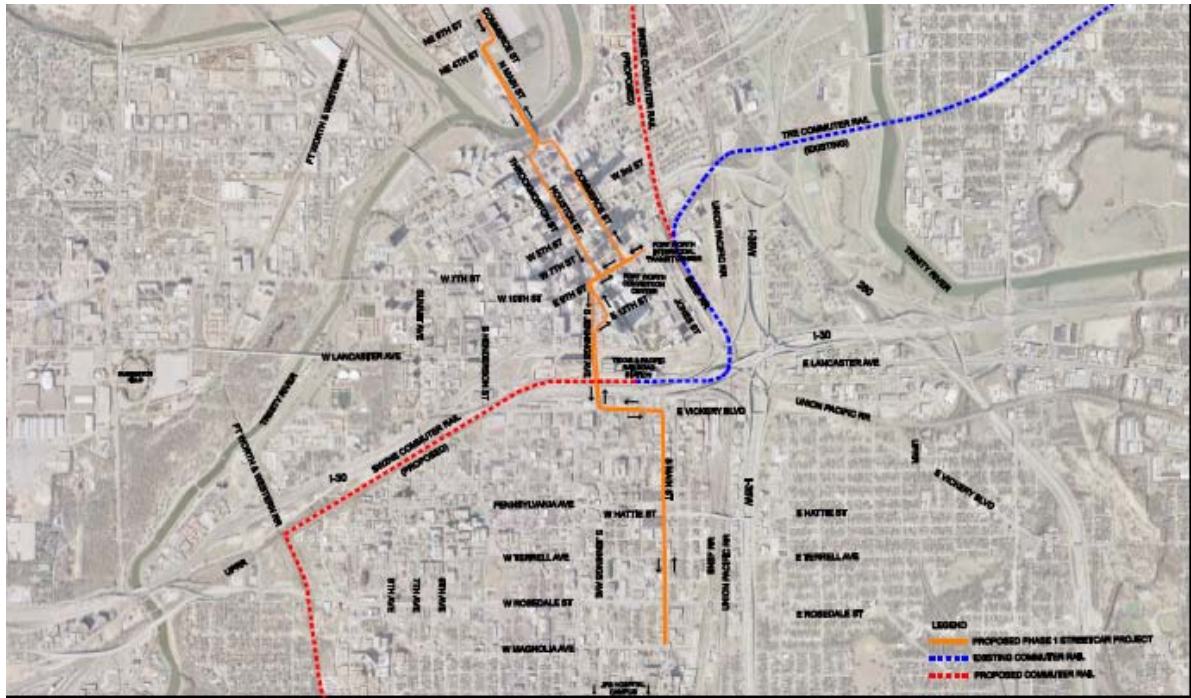


Figure 5: Recommended Phase 1 Project

Streets and to The T’s Intermodal Transit Center. From 9th Street the alignment generally follows Jennings Avenue to Vickery Boulevard to South Main and stopping near Magnolia Avenue within a short walk of John Peter Smith Hospital. This alignment not only serves a major employment center in the Fort Worth South area, it also provides access to the ongoing redevelopment along Magnolia Avenue and redevelopment areas along South Main Street. It also serves the entire central business district and will support the development of the Trinity River Vision area. The alignment was also developed in such a way that future extensions to the Cultural District, East Rosedale and other areas are feasible.

A more rigorous Cost Estimate was prepared for the potential Phase 1 alignment, using recent bid costs from the Tucson Modern Streetcar project and other current data. Using this approach generates a cost estimate of approximately \$86 million. A number of design options and other cost-saving measures could be considered which would affect this total amount. Depending on which of these are actually used, the capital cost of the project is estimated to range from \$81M to \$86M. This cost estimate appears below as Table 3.

Operations and maintenance costs will be approximately \$1.6M per year. Daily ridership for an opening year in 2015 is projected to be 2,050 -2,250. Daily ridership in 2035 is projected to range from 2, 950 to 5,800.

SCC	Item	Unit Cost (2010)	Quantity	Unit	Alloc Conting	Escalation to Const Year	Subtotal
10	EMBEDDED T-RAIL TRACKWAY MATERIAL & INSTALLATION	\$ 977	5.65	TRK MI	25%	5%	\$ 7,176
10	115RE #4 Turnout	\$ 100	6	EA	25%	5%	\$ 780
20	STATIONS	\$ 60	14	EA	20%	5%	\$ 1,050
30	MAINTENANCE FACILITY & YARD	\$ 5,500	1	EA	30%	5%	\$ 7,425
40	CIVIL (EXCLUDING WATER, SEWER, OTHER UTILITY RELOCATIONS)	\$ 1,350	5.65	TRK MI	30%	5%	\$ 10,297
40	Utility Relocation Allowance	\$ 825	5.65	TRK MI	30%	5%	\$ 6,293
40	Upgrade of Existing Paddock Viaduct	\$ 500	1	LS	30%	5%	\$ 675
40	Upgrade of Existing Underpass (Railroad and I-30)	\$ 3,000	1	LS	30%	5%	\$ 4,050
50	TRACTION POWER & OCS	\$ 9,131	1	LS	30%	5%	\$ 12,327
60	RIGHT-OF-WAY	\$ 500	1	LS	30%	5%	\$ 675
70	VEHICLES (INCLUDES SPARE PARTS)	\$ 4,100	4	EA	5%	0%	\$ 17,220
80	PROFESSIONAL SERVICES	\$ 10,195	1	LS	0%	0%	\$ 10,195
90	PROJECT RESERVE (UNALLOCATED CONTINGENCY)	\$ 7,816	1	LS	0%	0%	\$ 7,816
	TOTAL						\$ 85,979
	TOTAL TRACK MILES						5.65
	PER TRACK MILE						\$ 15,218
POTENTIAL COST SAVINGS							
Single-Tracking							
	Single-Tracking on South Main	\$ 867	1	LS	25%	5%	\$ 1,127
	Single-Tracking on North Main	\$ 474	1	LS	25%	5%	\$ 616
Utility Coordination/Funding							
	Utilities Coordinated/Funded by Trinity Uptown	\$ 824	1.05	TRK MI	30%	5%	\$ 1,168
	Utility Coordinated/Funded by South Main	\$ 824	1.74	TRK MI	30%	5%	\$ 1,936
Streetscape Improvements Coordination/Funding							
	Streetscape Improvements Coordinated/Funded by Trinity Uptown	\$ 27	1.05	TRK MI	30%	5%	\$ 38
	Streetscape Improvements Coordinated/Funded by South Main	\$ 27	1.74	TRK MI	30%	5%	\$ 63
	TOTAL POTENTIAL COST SAVINGS						\$ 4,949
	TOTAL COST RANGE: \$81 million - \$86 million						\$81,030 to \$85,979

Table 3. Capital Cost Estimate for the Recommended Phase 1 project

This Phase 1 project is fully functional as a stand-alone transit project. It is configured in a way that will allow further expansion over time, if the community desires such expansion.

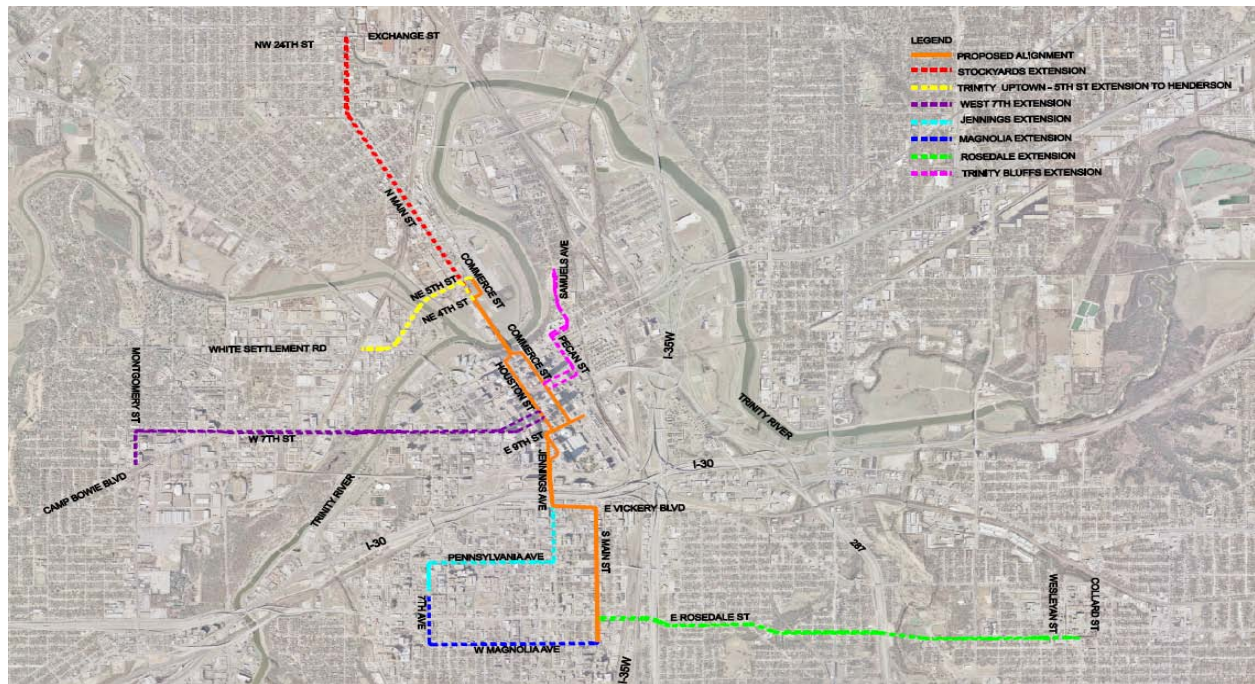


Figure 6. Potential future expansions

Comparison of Circulator Buses and Streetcar Modes

The scope for this project included preparation of an analysis of the strengths and weaknesses of rubber-tired, circulator buses and rail-running streetcars. This comparison was to address a number of factors including capital and operating costs, development and economic impacts, and consistency with the City of Fort Worth's Comprehensive Plan and subarea/neighborhood plans. The complete analysis can be found in **Appendix G – Bus Option Analysis Technical Memorandum**.

In the initial stages of conducting this analysis, very little research was found where a one-to-one comparison could be made between the modes. Where streetcar projects have been implemented and bus service replaced, the streetcar alignments seldom follow the former bus routes, and there are often differences in the level of service provided. Perhaps most importantly, bus circulator and streetcar projects often differ significantly in their purposes and functions. Determining which mode is appropriate for a project is function of the goals and objectives of the project.

The approach taken to compare Circulator Buses and Streetcars for service Central Fort Worth was to:

- consider existing and/or terminated bus circulator system services;
- make a direct “apples-to-apples” comparison, if possible;
- cite both positive and negative impacts;
- consider a variety of comparative evaluation measures; and
- as appropriate, present the results in an evaluation matrix and/or text and illustration format

Initially and after consulting with team staff familiar with the cities that have or have had circulator bus systems, a combination phone and email survey was conducted of twelve operators in the U.S. Information was requested on **operating costs** (operation per hour/mile/day/week/month/year), **capital costs** (vehicles/stop shelters/signing), **fares** (\$/ride), **vehicle fleet** (number & type of vehicles/capacity), **operations** (hours/headways), and **funding sources** (local/state/federal/other). In addition, operators were asked to provide subjective and/or anecdotal information about development-related impacts attributable to the bus service. In addition, a literature search was conducted of research documents, federally-required studies, newspaper articles, and contractual agreements that might provide information on the characteristics of both circulator buses and rail-running streetcar systems and their impact on land development

In October 2010, the staff of The T completed a technical memorandum “to evaluate the service and capital costs of using bus trolleys to approximate the service being considered by the Modern Streetcar Task Force and to propose a viable option suited to implementation in the near term”. In this memo, routes, operating characteristics, capital costs, and annual operating costs were developed to replicate this information for the six routes being recommended in the Modern Streetcar Study. With the assistance of The T, the route length and cost/mile information from this memo was then used by the streetcar consultant staff to generate these same measures, as well as ridership, for both the bus and streetcar operating on the Recommended Phase 1 Project alignment.

There was a small difference, eight tenths of a mile, in the lengths of the routings used for the “Rubber-Tired Trolley” and the “Modern Streetcar” in the analysis prepared by The T’s staff. Most notably, the analysis prepared by The T’s staff showed a streetcar fleet of 11 vehicles. The operations plan prepared by the HDR team indicated that four vehicles would be sufficient. As would be expected, the capital costs differed significantly between the Rubber-Tired Trolley and the Modern Streetcar, by over \$75 million, at the low end of the capital cost estimate for the streetcar. The difference in annual operating costs was much closer – at less than less than \$1 million per year for the Rubber-Tired Trolley and just over \$1.5 million for the Modern Streetcar. The T’s analysis also did not address long-term, life-cycle costs of a bus-based system versus a streetcar-based system. Life cycle costs for electrically powered rail vehicles are lower than for buses due to differences in the intervals between major overhauls and the vehicle life between the two modes.

It should be noted that the differences in the route lengths and number of vehicles required is due to the different route patterns followed in the downtown area and at the ends of the lines on North Main Street. It should also be noted that the vehicle cost for the bus circulator is for a small vintage trolley replica and that the cost of a modern “Rapid Bus Circulator”, with low floor boarding, more capacity, and a modern body exterior would be significantly higher. While the capital and operating costs for the modern streetcar are higher than for Circulator Buses, the anticipated ridership is higher, as well

The importance of identifying the purpose of the project in selecting the mode is exemplified in the Alternatives Analysis (AA) conducted for the Tucson streetcar project. As illustrated below, in the two-tiered evaluation process that was used for this project, cost was considered as well as other factors such as economic development potential.

Overall for the Tucson project, the “Rapid Bus Circulator” rated “Medium” and Modern Streetcar rated “High”. Advantages for bus included ease of implementation and lower capital cost. Disadvantages for bus included less TOD potential, and lower attractiveness to tourists. Advantages for streetcar included higher capacity, high TOD potential, potential for expansion and longer trip suitability.

Tucson AA Tier 2 Evaluation Results:

Rapid Bus Circulator	
Advantage	Disadvantage
<ul style="list-style-type: none"> • Lower capital cost than Modern Streetcar • Least impact on traffic • No property impacts 	<ul style="list-style-type: none"> • Less people carrying capacity than modern streetcar • Higher operating cost over 20 years • Less economic development potential than modern streetcar • Does not enhance Old Pueblo Trolley operation
Modern Streetcar	
Advantage	Disadvantage
<ul style="list-style-type: none"> • Highest ridership potential • Largest people carrying capacity • Lower operating cost over 20 years • More economic development potential than rapid bus circulator • integrates well with Sun Tran and enhances Old Pueblo Trolley operation 	<ul style="list-style-type: none"> • Higher operating cost in the short term • Higher capital cost than rapid bus circulator

Based on the results of the Tier 2 evaluation, the recommended transit alternative was a Modern Streetcar. Overall, the Modern Streetcar “...transit alternative provides the best opportunity to connect major activity centers in the central core...” The Modern Streetcar alternative provides a sustainable transportation investment within the central core that is best able to meet the project’s purpose and need, which is to:

- Connect Major Activity Centers
- Create Economic Development
- Support Population and Employment Growth
- Improve Transit Service
- Mitigate Parking Constraints

Note that of the five factors used to define the project’s purpose and need, cost and ridership are not included.

The City of Miami Corridor Feasibility study examined both rubber-tired and rail options. Questions that came up during the course of the project included, “Why not just add more buses?” and “How is the streetcar different from the Coral Gables Trolley” The conclusions were that there are two key reasons why adding more buses would not work as well as the streetcar for circulation: (1) The number of buses required to equal the capacity of

one streetcar makes buses more expensive to operate and maintain, and (2) Examples show that streetcars attract new riders, people who otherwise would not ride a bus, because of the convenience, comfort, attractiveness and reliability of the streetcar – thus, the streetcar increases the number of people who will use transit.

Other Factors Considered

Of the two modes rail running streetcars are more consistent with the City of Fort Worth’s Comprehensive plan and plans for Urban Villages and Mixed Use Growth centers. The City’s principal strategies for central city revitalization are:

- Develop compact, pedestrian-oriented mixed-use growth centers.
- Revitalize distressed commercial corridors by developing mixed-use urban villages along those corridors.
- Develop a rail transit system that connects the growth centers and urban villages, and promotes transit-oriented development (TOD) in appropriate transit station locations. (City of Fort Worth Comprehensive Plan Chapter 10, Economic Development, page 86, emphasis added).

In addition to looking to results of other projects that had evaluated rubber-tired circulators and rail-running streetcars, the HDR team also compared the two modes based on other factors: vehicle capacity, vehicle life and energy costs. Generally, the carrying capacity of streetcars is two to three times that of rubber-tired vehicles that are designed to look like historic streetcars. As reflected in the evaluation made in the Tucson AA, rail-running streetcars have a vehicle life twice that of their rubber-tired counterparts. Buses generally rely on diesel fuel which is a more volatile energy market than that for electricity (and the primary fossil fuel used to generate electricity – coal).

Economic development was another factor that was considered. Economic development effects are cited by streetcar proponents as both a reason to build the projects and a mechanism to fund them. Studies of the economic development impact of bus projects have primarily focused on Bus Rapid Transit (BRT) projects that provide line-haul transit service with wide station spacing (about one mile on average) and represent a large capital investment. These projects are comparable to light rail systems such as those in Phoenix, San Diego, and Portland’s Tri-Met service, not to a circulator/distributor system such as is being proposed for the City of Fort Worth.

There is a body of evidence that demonstrates that street car projects do facilitate and encourage economic development. Perhaps the most well documented streetcar project in the United States is the Portland streetcar. The following historical evidence strongly indicates that economic development impact will occur with the implementation of a streetcar system:

- **The streetcar attracted development projects.** Since 1997, when the Streetcar Project broke ground, over half of all new development within the Portland Central City has been within one block of the existing Streetcar’s alignment.
- **The streetcar has led to higher development densities.** Proximity to the Streetcar line matters to developers and development densities. The existing Streetcar line has led developers to build to approximately 90 percent of allowable densities along its alignment - and developed densities in the Central City noticeably drop off as their distance from the Streetcar alignment increases. Achieved development densities on parcels two blocks from the alignment dropped to just over 70 percent of those allowed, dropping to approximately 40 percent of allowed densities for projects more than three blocks from the Streetcar.
- **The streetcar has led to increased land values.** In a recent interview, a prominent developer, active in the Central City, said that the existing Streetcar alignment brings a 33 percent premium to directly-adjacent property.

Given all of these factors, streetcars have been the preferred, long-term investment of many communities across the country. The results of analyses conducted for Phases 1 and 2 of the Streetcar Planning and Design Study

indicate to the study team that a streetcar project would support the goals and objectives of the City of Fort Worth and many other stakeholders in the study area. The Recommended Phase 1 Project:

- would support the development and growth strategies in the City’s Comprehensive plan, specifically, the Urban Villages and Mixed Use Growth Centers;
- would facilitate circulation and mobility in downtown and adjacent neighborhoods;
- has significant stakeholder support as reflected in the actions of the boards of the TIF districts;
- has significant support of the Federal Transit Administration through an Urban Circulator grant; and
- as shown in the analysis summarized here, has both excellent ridership potential and redevelopment potential that would add to the tax base.

While there are unique advantages to implementing a modern streetcar in Fort Worth, there are opportunities to enhance and expand the above initial Phase 1 streetcar route through possible extensions of transit service consisting of the T’s Molly the Trolley system in a manner similar to that proposed in the T’s staff-prepared Technical Memorandum referenced above. This service would serve to develop transit ridership for the other streetcar routes prior to their ultimate, incremental implementation.

Business Plan

For the project to move forward several issues of governance and financing need to be addressed. There are several options for the organization that would construct and operate the project, and methods for funding the local share of capital costs and operating costs. These issues are addressed in the Business Plan section of this report.

The Business Plan Technical Memorandum outlines potential funding sources for capital and operating costs, implementation issues and recommendations, and an implementation plan and schedule. The complete analysis can be found in **Appendix H – Business Plan Technical Memorandum**.

Potential Local Funding Tools for District-Based Funding Approach

Texas law enables use of a number of geographically based, special-purpose funding tools applicable at a small district level – that is, areas with boundaries different from and smaller than those of the entire City of Fort Worth. The principal ones identified that might support streetcar funding include:

- Tax Increment Financing
- Public Improvement Districts
- Parking Zones
- Hotel/Motel Tax

Potential Funding Tools for a Benefits-Based Funding Approach

The following list of tools uses a “benefits” based approach to raising revenue. They are not “district defined” as in the case of the previous described tools, but nevertheless target the collection of revenues in a generally direct manner from “beneficiaries” who stand to obtain some clearly identified direct benefit from either using or being near the streetcar line. These include:

- Farebox
- Reallocation of Transit Funds
- Bulk User Agreements
- Events Surcharge
- Advertising/Sponsorships
- Property Sales/Lease Proceeds

Evaluation of Revenue Potential of Local Finding Sources

Two principal tools emerged for further consideration: tax increment financing (“TIF”) for both capital and operating costs; and possible Public Improvement District funding as a potential backstop for a portion of operating costs. The discussion below provides a rough estimate of the maximum revenue potential for each of the selected sources.

Tax Increment Financing

The four existing Tax Increment Districts along the Recommended Phase 1 Project currently generate approximately **\$14.5** million/year in tax increment funds. It is clearly feasible that some or all of these districts could allocate some of their existing annual tax increment flows and projected future increases to support the streetcar, either for capital costs or ongoing operating costs.

Early, up-front investment in the streetcar out of existing levels of tax increment flows can repay substantial dividends in the future. By way of example: The presence of streetcar may increase Assessed Values in the first 15 years along the proposed Recommended Phase 1 Project alignment by \$390 million over and above the baseline projection of growth in those areas without streetcar. This increase equates to a total 15 year “bonus” increase of \$510 million in taxable value when factoring in inflation at 2% per year. At the City’s current tax rate of \$.855 per \$100 Assessed Value, that would be an additional \$4.4 million/year of City property tax receipts distributed into the four TIF Districts (adjusted for 2%/year inflation). Due to the effect of the streetcar project, the added cumulative City Tax Increment collected in the first 15 years could total \$35 million from the City share and \$62 million from all of the TIF District partners (excluding the school district). By Year 40, the streetcar is projected to have added \$ 930 million in Assessed Value over and above the baseline projection (\$2.0 billion factoring in inflation at 2%, equivalent to an increase in annual City tax revenues alone of \$17.2 million/year). By that time, all of the TIF districts will have expired and the projected revenues would be flowing directly into the City’s General Fund and to the other taxing entities. Over those 40 years, due to the effect of the project, the additional cumulative City tax revenues (excluding any TIF flows attributable to the other TIF district taxing jurisdictional partners) flowing either into the Tax Increment Districts (or later directly into the General Fund) could total \$290 million. This amount alone far exceeds the cumulative capital and operating costs of the project over that time period and is a return of 8.5 times the City’s initial investment of \$34 million in TIF district dollars.

Public Improvement Districts

With the support of affected property owners, the City could collect special assessments to be applied towards either the capital costs (debt financing) and/or the operating costs of the streetcar. A single “streetcar corridor PID” following the boundaries of the Recommended Phase 1 Project’s ¼ mile influence zone could be established. While it could generate significant resources, it has the drawbacks of requiring approval by at least 50% of the property owners (in terms of Assessed Value and number of owners and/or land area), which could be difficult to do along the full length of the Recommended Phase 1 Project alignment. It would also overlay the existing Downtown PID district. At four and a half cents per \$100 Assessed Value, an assessment on ALL taxable property within the streetcar zone in 40 years would be sufficient to finance 100% of then ongoing operating costs of \$3.7 million per year (which is current year operating cost inflated at a rate of 2% per year).

Funding Capital Costs

The capital cost of the Phase 1 Project is estimated at between \$81 and \$86 million assuming construction is completed by 2014. An additional reserve of roughly \$2 million might be needed to cover “bridge” financing costs for possible interim term (3-7 year) gaps in cash flow in the capital account. Thus, the total project cost, including financing costs, might range from \$83 to \$ 88 million. The proposed long term funding of this amount is as follows:

Source of Funds	Amount
Federal Urban Circulator Grant	\$25 million
TIF Funds from some or all of the 4 TIF Districts covering the alignment	\$58 to \$63 million
TOTAL	\$83 to \$88 million

The Federal Urban Circulator grant funds are anticipated to flow on a monthly or quarterly cost reimbursement basis so that interim financing needs for costs covered by the grant share should be minimal and could probably be accommodated through either the City’s or The T’s revolving fund balances. The remaining \$57 to \$65 million is proposed to be derived from the TIF districts. Trinity River (#9) and Southside (#4) have both considered taking on a disproportionate share of the cost (up to perhaps \$60 million between the two of them) given their recognition of the benefits the project would bring their areas. **The final allocation of TIF District commitments to the project should be re-evaluated as part of the preparation of the final detailed Finance Plan** to be completed early in 2011 in the overall Project Schedule.

Funding Operating Costs

Annual operating costs for the Phase 1 project are estimated at \$1.6 million/year for 7 days per week, 14 hour daily service at 15 minute intervals. The T staff has recommended that The T fund 100% of the initial operating costs for up to five years and a declining amount thereafter while other revenue sources ramp up. A total commitment of up to \$10 million has been assumed. The T has made no commitments as to a formula beyond the initial five year operating period. As the grantee under the \$25 million Federal Urban Circulator program, the T will be required to commit to operating the line for at least 20 years. It does not have to demonstrate a specific plan or source of funds for such out-year operations provided they are less than 5% of its total annual budget, which is certain to be the case. **The project partners will need to further delineate operations financing in order to both put the project on a sound long-term basis and to satisfy the Federal Transit Administration as a grantor.**

Implementation Issues and Recommendations

Some of the questions that need to be addressed to implement the project include:

- Who is the grantee for the Federal Transit Administration grant?
- Who will build the project?
- Who will operate it?
- Who will own it?
- What management structure is needed?
- What steps need to be followed for implementation?

Table 5 below describes the options for an entity to implement the project and their respective pros and cons.

Table 5: Potential Entities for Development of Streetcar

Entity	Description	Pros	Cons
City of Fort Worth	The City was incorporated in 1873 and operates under the Council-Manager form of government. Services provided by the City include typical	<ul style="list-style-type: none"> • Experience with procurement and development of large capital projects in City Right-of-Way 	<ul style="list-style-type: none"> • No experience in development of transit projects • No dedicated staff for development of this

Entity	Description	Pros	Cons
	<p>municipal services. Some examples include: public events, public safety, municipal courts, housing, planning and development, engineering, street maintenance, traffic control, parks operation and maintenance, recreation, library services, water and sewer services, solid waste collection, golf courses, airports, and parking garages.</p>	<ul style="list-style-type: none"> City owns the right-of-way where the project will be located 	<p>project</p> <ul style="list-style-type: none"> Cumbersome project development processes
The T	<p>A regional transportation authority of the State of Texas providing public transportation to certain cities in Tarrant County, Texas confirmed by a public referendum on November 8, 1983. In January 1989, the sales tax was increased to one-half of one percent.</p>	<ul style="list-style-type: none"> Understands the FTA process Dedicated agency to providing public transit services to the community 	<ul style="list-style-type: none"> No experience in development of large rail projects Staff currently focused on the development of the Southwest to Northeast (SW2NE) Commuter rail project Cumbersome project development processes
Local Government Corporation	<p>A non-profit corporation created to aid and act on behalf of the local government to accomplish any governmental purpose of the entity. The LGC may issue bonds or any other debt necessary for the implementation of the project. The LGC may own the assets of the project.</p>	<ul style="list-style-type: none"> New corporation focused solely on the development of this project Allows all funding parties to be involved in the development Method used to develop other projects in Fort Worth Ability to bond 	<ul style="list-style-type: none"> Need to hire, or borrow from the City or the T, the appropriate technical staff, either as consultants or employees to implement transit project Development process could be complicated given the number of parties involved in the LGC
Municipal Management District (MMD)	<p>A MMD is a special district that is self-governed, but must be approved by the host municipality. They have the ability to construct public infrastructure and provide services within the District as approved in a service plan.</p> <p>MMDs may issue tax exempt bonds, which are not a city debt and do not impact city bonding capacity. They may levy taxes, assessments and impact fees in accordance with a service plan.</p>	<ul style="list-style-type: none"> Ability to bond without impacting city bonding capacity New corporation focused solely on the development of this project Allows all funding parties to be involved in the development 	<ul style="list-style-type: none"> New project delivery method to the City of Fort Worth Need to hire the appropriate technical staff, either as consultants or employees to implement transit project Development process could be complicated by all of the parties involved in the MMD

Entity	Description	Pros	Cons
	Assessments are collected only by petition of affected property owners and property taxes require approval by majority of eligible voters within the MMD boundaries.		
Non-Profit Corporation	<p>An organization organized and operated exclusively for exempt purposes, set forth in section 501(c)(3).</p> <p>Organizations described in section 501(c)(3) are commonly referred to as <i>charitable organizations</i>. Organizations described in section 501(c)(3), other than testing for public safety organizations, are eligible to receive tax-deductible contributions in accordance with Code section 170.</p>	<ul style="list-style-type: none"> • New entity to be created • Can receive tax-deductible contributions 	<ul style="list-style-type: none"> • No history in Fort Worth of using this type of entity to implement major infrastructure projects • Need to hire the appropriate technical staff, either as consultants or employees to implement transit project • No bonding authority

It is recommended that the project sponsors create a Local Government Corporation (LGC) to implement the Recommended Phase 1 Project in Fort Worth. The City of Fort Worth, the T, the TIF districts served by the project, property owners and the North Central Texas Council of Governments (NCTCOG) should all have representation of the LGC Board.

Next Steps

The project is now at a milestone, where the basic route and characteristics of the Phase 1 project have been determined, and where sources for the necessary capital and operating funds have been identified. In order to advance the project from this point, additional technical work is required, specifically:

- Preparation of an environmental document required by the National Environmental Policy Act (NEPA) for review and acceptance by the Federal Transit Administration. This is a necessary step prior to receiving federal funds.
- Preparation of Preliminary Engineering Plans sufficient to support the NEPA document and to prepare the project for final design and construction
- Continuing public involvement and stakeholder outreach for the project, both for the purposes of properly completing the NEPA document and for more direct engagement of property owners who will be benefited and affected by the project
- Further development of the finance plan for the project, detailing all sources and uses of funds.

The steps and timeline sequence for implementation are shown below:

Actions and Timeline for Implementation

Action items for implementation	Date
---------------------------------	------

Coordination with the FTA	Ongoing, beginning in Fall 2010
NEPA process	December 2010 – November 2011
Preliminary Engineering	December 2010 – November 2011
Create LGC	March 2011
Develop community facility agreements	Spring 2011
Develop Interlocal Agreements with TIF districts	Spring 2011
Determine final finance plan	Spring 2011
Formation of PID(s)	Initial discussions in early 2011
Hire Program Manager (if determined necessary)	Summer 2011
Determine delivery method	Summer 2011
Community Facility Agreements and Contracts	Fall 2011
Final Design	Fall 2011 – Spring 2012
Procure Vehicles	Fall 2011 – Spring 2013
Construction	Spring 2012 – Summer 2013
Begin Operations	Late 2013/Early 2014