

FINAL REPORT

JACKSONVILLE STREETCAR PRE-FEASIBILITY STUDY

September 2008



JACKSONVILLE TRANSPORTATION AUTHORITY

Regional Transportation Solutions

HDR/RS&H

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I. OVERVIEW

INTRODUCTION

The City Jacksonville is becoming more urban on a daily basis. As a result, congestion is growing, and highways and streets approach gridlock during peak hours. As the City pursues a comprehensive *mobility* system, transit is becoming a more recognized element of this system. Transit can serve the City in many ways, from long-haul bus rapid transit to rapid bus applications. However, once riders reach the transit center or their last stop, there is a need to complete “the last mile of the trip”. This simply means that a more local form of circulation is necessary to carry the riders to their final destination. That is a unique role the streetcar plays.

Consequently, cities across the nation are again returning to the streetcar for two primary purposes – **to connect** residents and visitors and move them conveniently and quickly and **to shape urban districts** as a means to fulfill their economic promise.

These twin purposes of **connecting and shaping** are:

- **Connecting**
 - Pedestrians are the first class passengers – the streetcar is a “pedestrian accelerator”
 - Short-trip urban circulation is the Intent
 - Activities and destinations are linked
- **Shaping**
 - Redevelopment is enhanced
 - Commercial and active uses are reinforced
 - Public/private investment is maximized
 - “Places where people want to be” are created

PURPOSE

However, prior to constructing a streetcar, there are several steps in the project development process, and they can prove costly. Because the streetcar is a circulator, it generally serves a defined district. With a city of Jacksonville’s complexity, there are likely several candidate districts. The purpose of a pre-feasibility study is to establish district criteria, identify the candidate districts, and assess each district’s ability to accept the streetcar as a viable mode of transit. Once the evaluation is complete, the intent is to

evaluate and recommend the districts in a rank order. The potential of the pre-feasibility study is to:

- Develop an understanding of the opportunities and constraints in identifying districts. A viable district is essential to making the streetcar an effective district circulator.
- Identify redevelopment and joint development areas that can serve as trip attractors and producers of pedestrian streetcar riders
- Establish the parameters for successful districts
- Consider a conceptual streetcar route. The conceptual alignment must serve existing activity centers; offer another transportation mode for employees; visitors and residents, as well as to stimulate a diverse mix of uses in an urban context
- Help to stimulate on the current and proposed transit system, foster inter-modal exchange, improve accessibility to districts, and promote economic development.

GOALS OF THE STUDY

While the ultimate focus of the study is to rank one (and possibly more) candidate streetcar districts, the first step is to set forth the goals that direct the outcome. There are four basic goals for the study.

- **Define Potential Districts**
 - Define a set of district criteria and parameters
 - Review existing plans, studies, and mapping
 - Conduct a district reconnaissance using the initial boundary criteria to identify potential districts validate the decision and assess opportunity areas
 - Engage the JTA and selected stakeholders to validate the potential districts boundaries, based on the criteria and their understanding of the areas’ characteristics

- Rank and select the “starter” district to assess its full potential as a streetcar district.
- **Develop a District Concept**
 - Consider the range of streetcar vehicle types that could be used
 - Identify existing and future activity centers
 - Locate potential redevelopment and joint development opportunity areas
 - Suggest an initial alignment and, if appropriate, any future extensions
 - Engage the JTA and selected stakeholders to validate the initial district concept
- **Define a Basic Implementation Strategy**
 - Prepare a magnitude of cost estimate
 - Identify general financing sources
 - Coordinate with JTA and other appropriate agencies
 - Develop a general implementation strategy
 - Engage the JTA and selected stakeholders to validate the strategy,
- **Produce Materials to Support Future District Exploration**
 - Summary Report
 - PowerPoint Presentation

II. DEVELOPING DISTRICTS

II. DEVELOPING DISTRICTS

INTRODUCTION

This section describes how the streetcar districts were initially selected and revised based on input from the JTA staff and Steering Committee.

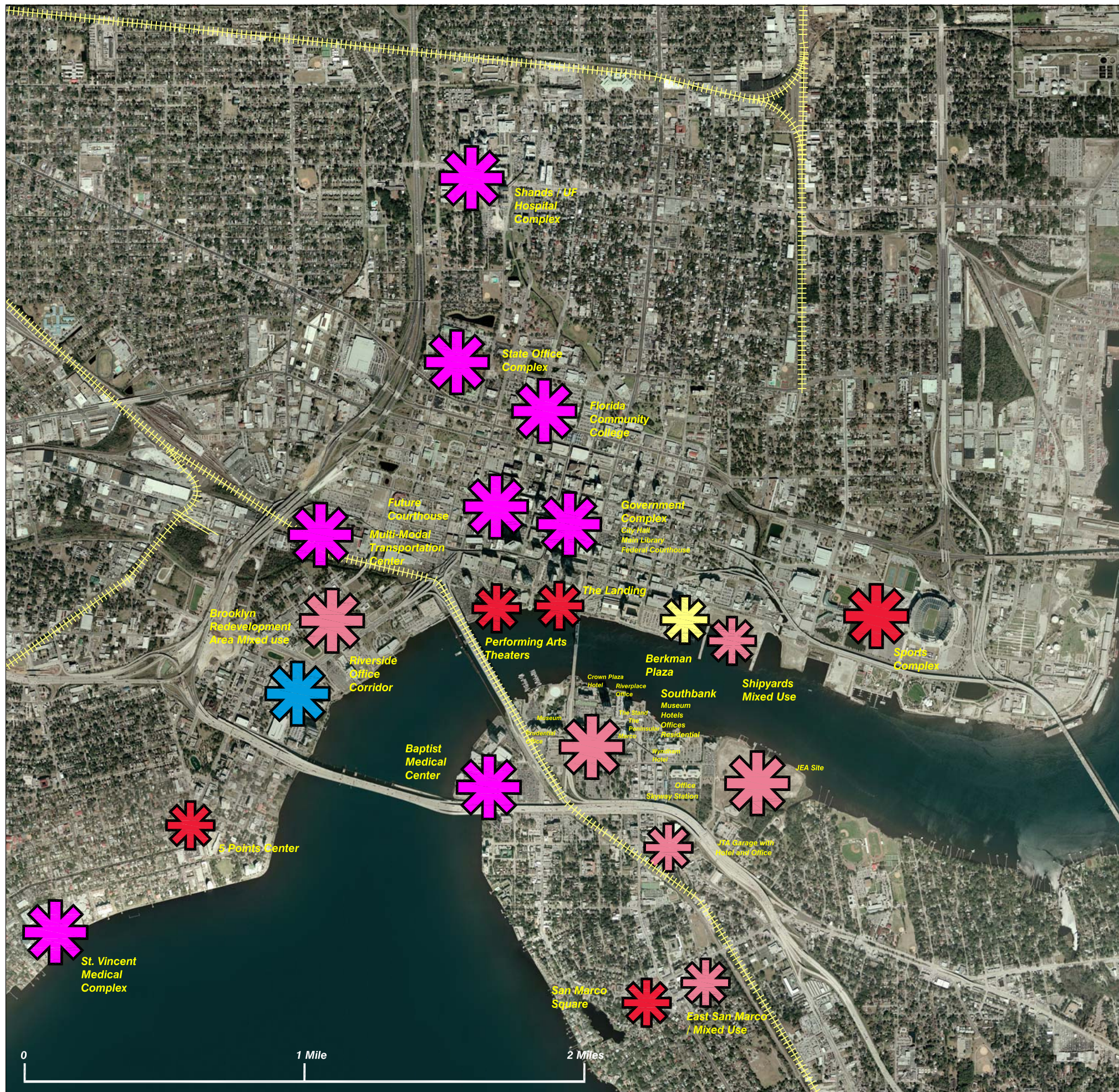
STREETCAR DISTRICT CRITERIA AND PARAMETERS

Since the streetcar's principal functions are connecting and shaping, the size of the district must be manageable and contain opportunity areas. Identified factors and characteristics for a successful district are – a definable boundary; attractors and producers of streetcar riders; opportunity areas; high quality pedestrian environment; visibility; connectivity; and potential for public/private collaboration. Following is a summary of the essential district characteristics:

- **A Definable Boundary** – A boundary may be defined by:
 - Natural features or topographic constraints
 - Major roadways or other physical impediments to movement or connectivity
 - Land use restrictions that affect boundary expansion, such as abutting historic neighborhood patterns or abrupt land use changes
 - Defined activity centers or special districts (redevelopment, employment, etc.)
 - Areas with compact urban form and grid network
 - An internal circulation system central to the primary uses that might accommodate an initial alignment of +/- 3 miles, and
 - Connectivity to abutting complementary uses and circulation patterns for potential extensions
- **An Appropriate Set of Pedestrian Producers and Attractors** – With the pedestrian as the first class rider and with the streetcar deemed a “pedestrian accelerator”, a district must have (or the potential to have) land uses that produce and attract pedestrians. Uses would include:
 - Higher density, compact residential areas
 - Offices
 - Lodging
 - Active retail
 - Restaurants and entertainment uses
 - “Destination” uses, and
 - Public assembly areas
- **Opportunity Areas.** The streetcar has demonstrated its ability to buttress existing development and to serve as a catalyst for redevelopment. Consequently, a successful district should have one or a combination of:
 - **Infill Properties**, those preferably that are proximate to existing, viable streetcar-supportive development. These properties can be considered “quick start” opportunities, especially if they are within three blocks of a proposed streetcar alignment. “Vacant” also may apply to publicly-owned parking lots that can serve as “land banks” for future mixed use development.
 - **Redevelopment Properties**, those that are underutilized, aging, or dysfunctional. Typically, these properties have experienced abandonment and a continued decline in property values. Such properties may range from residential, to commercial, to industrial uses. Properties often described as “greyfields” and “brownfields” fall into this category. Such areas are appropriate as community redevelopment (tax increment finance) districts. Redevelopment may be accomplished as a public effort, as private enterprise, or as a combination of the two. Public/private partnerships are increasingly common, both for as development mechanisms, and as potential streetcar finance tools (capital and/or operating).
- **Joint Development Properties**, those existing properties that can accept new or expanded uses. These are generally single use properties, but, due to changing market dynamics, may be threatened by more “competitive” mixed use projects. They can be developed by more than one development entity. Public and private sectors can be involved in joint development initiatives. The goal is to have a greater concentration of diverse activities that generate not only higher income but also higher “pedestrian trips”. Older malls and under-developed strip shopping centers are good candidates in this category.



Main Street Streetcar 1920's



LEGEND

Activity Centers






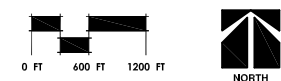
-  Residential
-  Entertainment / Retail
-  Mixed Use
-  Office
-  Government / Institutional

Figure 1



II. DEVELOPING DISTRICTS

- **High Quality Pedestrian Environment.** Passengers and drivers are pedestrians when they reach their destination. Along with pedestrian-generating uses, the area must have a pedestrian environment that is high quality, safe, and inviting. Pedestrian environments must have an amenity level that promotes walking - well maintained, street lights, trees and shade, interesting materials and clear way-finding features. In some locations, streets may hold “potential” for a high quality pedestrian environment, and these are important to identify.
- **Route Visibility and Identity.** One element of a district’s (and streetcar’s) success is the visibility of the potential route. Since most systems have some “one-way” elements, the ability to maintain visual contact with the streetcar is important as it “comes and goes”. This visual contact builds system identity, familiarity and confidence. Typically, a well-defined grid street network facilitates visibility and identity.
- **Multiple Modes and Connectivity.** A successful district should have, or at least accommodate, multiple travel modes. Having a network of auto, transit, pedestrian and bicycles helps connect streetcar riders to the other modes. When operational, the streetcar can enhance transit rider-ship, and this connectivity provides passengers for the streetcar.
- **Coordinated Public/Private Efforts.** The private sector is an important partner to the public sector in developing a streetcar. A successful district can benefit from a development community that understands the redevelopment potential and a public sector with assets that might be redeveloped.

Activity Centers Identified

Within this boundary, the Steering Committee was then challenged to identify activity centers that should (or could be) connected by a streetcar (**See Figure 1**). In addition to identifying the centers, they were asked to prioritize them as:

- **Primary Centers-** Those places that seemed to form a compact core of uses, had the highest possibility of initially being served by the streetcar, and had natural connection potential.

- **Secondary Centers** - Those places that were proximate to or supportive of the Primary Centers and seen as attractive destinations.
- **Tertiary Centers** - Those places that were more distant from the core but possessed positive features.

Activity Centers / Redevelopment Potential. The activity centers are a combination of what was identified by the Steering Committee and others identified by the Consultant and JTA staff. There are classified by 5 use types. (See **Figure 2**)

Residential
Entertainment / Retail
Mixed Use
Office
Government / Institutional

Some of the major activity centers include:

Shands / UF Hospital
State office Complex
FCCJ
Government Complex:
City Hall, Library, and Federal Court House
The Landing
Performing Arts Center
Southbank JEA Site
Shipyards
St. Vincent Hospital
Baptist Medical Center
Sports Complex
San Marco Square

Producers and Attractors. By looking at the various characteristic and uses of the activity centers they can be group into categories of **producers** or **attractors**. The producer will generate pedestrian trips and attractors are the destination for those trips. Examples include:

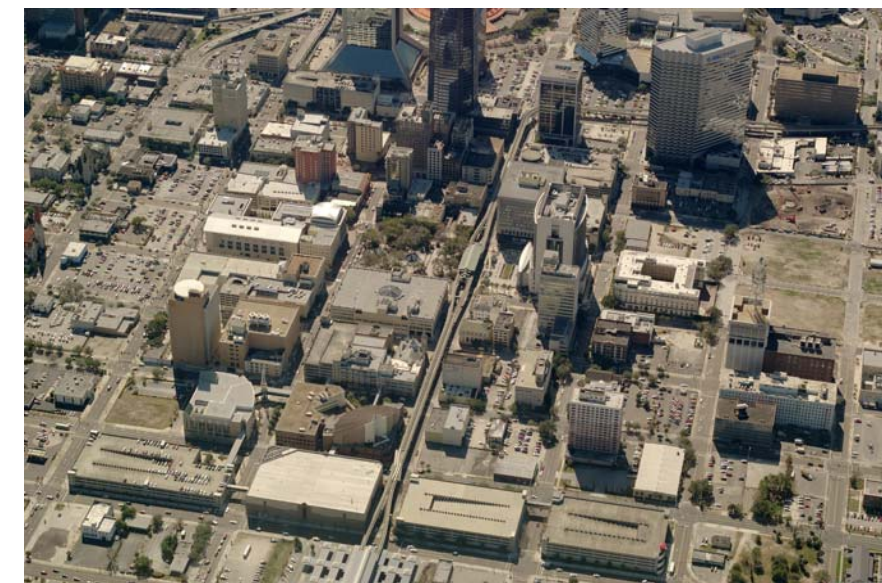
Attractors
Five Points
San Marco Square
Sports Complex

Producers

St. Vincent Hospital
 Baptist Medical Center
 Jacksonville Regional Transportation Center
 FCCJ
 State Office Complex

Some areas are both attractors and producers such as The Landing and office workers located downtown with in walking distance. (See **Figure 3**)

Linkages. With location of producers and attractors the next step was to find broad linkages which would be further analyzed to define districts. (See **Figure 3**)








Jacksonville Downtown Core

ACTIVITY CENTERS REDEVELOPMENT POTENTIAL

LEGEND

Activity Centers

-  Residential
-  Entertainment / Retail
-  Mixed Use
-  Office
-  Government / Institutional

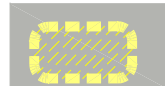





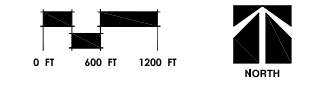
-  Potential Redevelopment Areas
-  Joint Development Potential
-  District Boundaries
-  Railroad Track
-  Skyway / Stations
-  BRT/ Stations








Figure 2






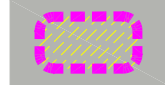




PRODUCERS / ATTRACTORS

LEGEND

Activity Centers

-  Residential
-  Entertainment / Retail
-  Mixed Use
-  Office
-  Government / Institutional

-  Producer
-  Attractor

-  Potential Redevelopment Areas
-  Joint Development Potential
-  District Boundaries
-  Railroad track
-  Skyway / Stations
-  BRT / Stations

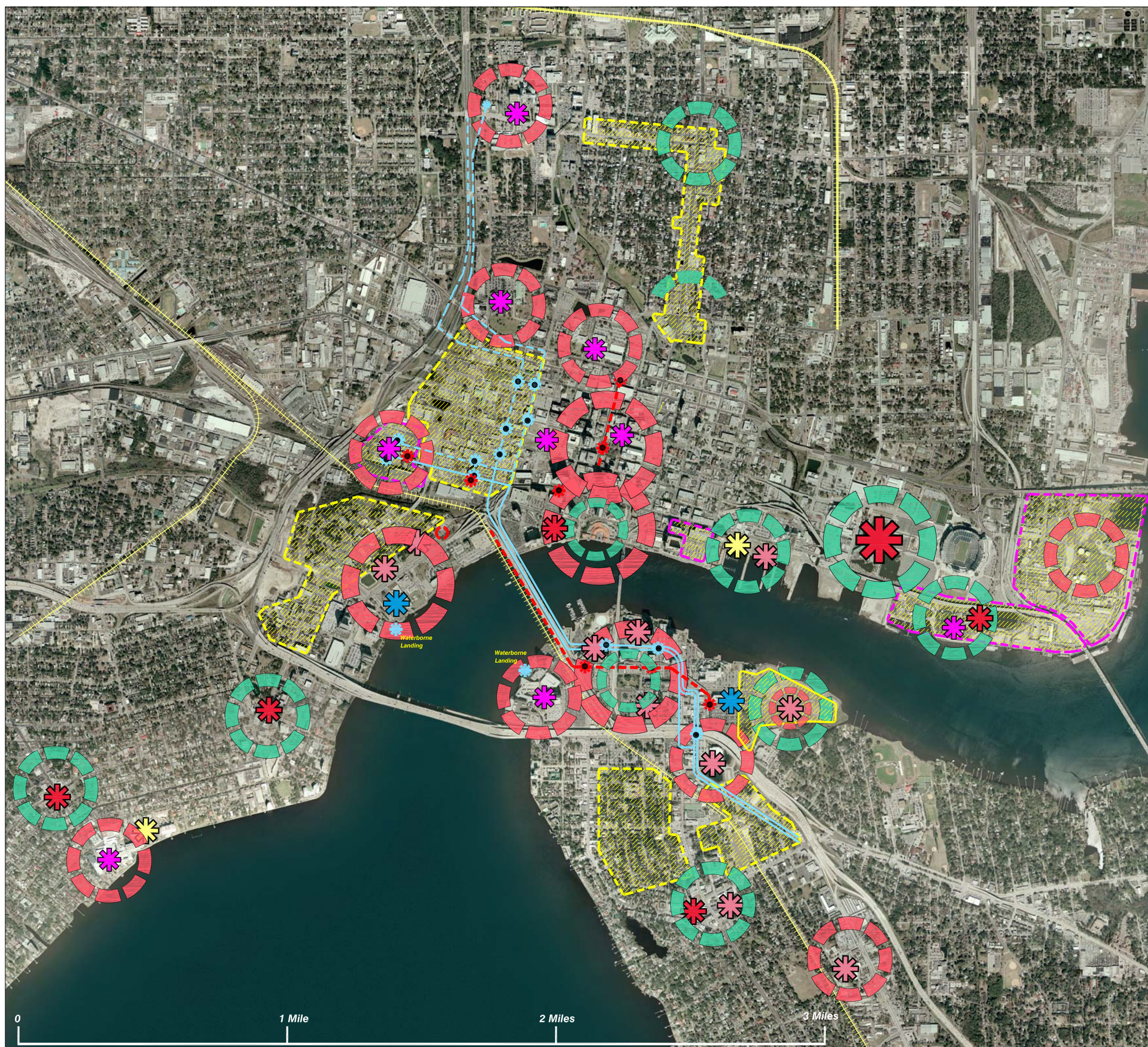
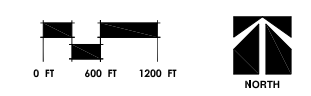
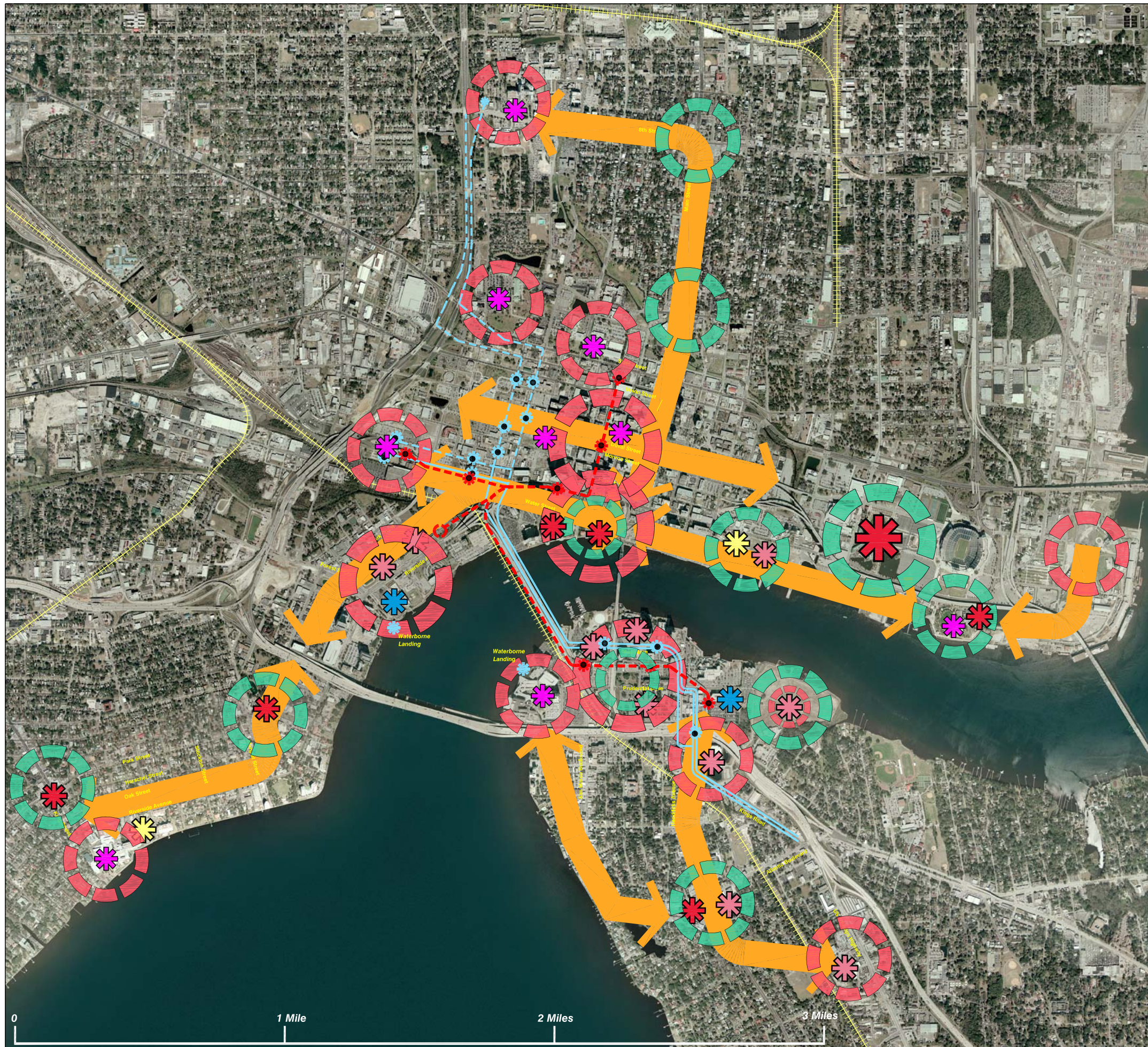


Figure 3





POTENTIAL LINKAGES

LEGEND

Activity Centers






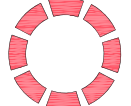



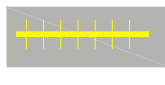


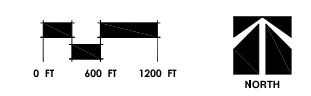
-  Residential
-  Entertainment / Retail
-  Mixed Use
-  Office
-  Government / Institutional
-  Producer
-  Attractor
-  Linkages
-  District Boundaries
-  Railroad track
-  Skyway / Stations
-  BRT / Stations

Figure 4



II. DEVELOPING DISTRICTS

DEFINING STREETCAR DISTRICTS

The first assignment was to define possible streetcar districts. With input from the JTA staff and the consultant team an initial map of potential streetcar districts was developed. Because Jacksonville has some well recognized neighborhoods and districts, these were used as a starting point for defining the initial districts.

Initial Districts

The following are the initial districts (See Figure 5) as:

- **Springfield.** The area from the Norfolk Southern railroad on the north, and I-95 on the west, Hogan Creek on the south and Liberty Street on the east.
- **Brooklyn/ LaVilla / CBD.** The area bound by Adams Street on the north, I-95 on the west; the Goodwin Street on the south; and the St. Johns River and Newnan Street on the east.
- **Downtown North.** The area bound by Hogan's Creek on the north; I-95 on the west; Adams Street and the St. Johns River on the south; and the river on the east.
- **Riverside.** The north boundary is Selma Street; west is one lot depth west of King Street; the east is Goodwin Street and the River on the south.
- **Southbank.** The area with the St. Johns are the north and west boundaries; I-95 is the south; and the JEA property on the east.
- **San Marco.** The area bounded with I-95 on the north and east; the River on the west; and approximately 600 feet south of San Marco Boulevard and to the FEC railroad; and on the south near river Oaks Road.

Refined Boundary Definition

After the initial boundary definition, the JTA, consultant team and the Steering Committee reviewed it, and boundary adjustments were made. The Final Districts are (See Figure 5) are supported by the following characteristics

Core. The Core area is not a district unto itself; rather it is "common" to all potential districts. This is due to the strong, central role "downtown" plays related to its surrounding

neighborhoods. The Core has several major producers and attractors, including City Hall, Federal Courthouse, Main Library, Performing Arts Center, and the Jacksonville Landing, along with the several large office/bank developments.

Riverside/Avondale. This district includes the St. Vincent Medical Center, which is a major producer of pedestrian trips. The only pedestrian environment is located at the corner of King and Park streets. The area is predominantly single-family residential with a few apartments. Oak Street was one of Jacksonville's original streetcar alignments. Riverside/Avondale likely would be an extension of the 5 Points/Brooklyn/Core district.

5 Points/Brooklyn + Core. This district is very strong across all the criteria. The 5 Points/Brooklyn area has substantial "producers" with several corporate offices along Riverside Avenue. The Brooklyn area is primed for redevelopment and several projects have been announced: Hallmark Properties and the Miles Development. The substandard housing, obsolete commercial, and underutilized industrial properties offer great redevelopment opportunities. The District has the Skyway maintenance facility and three stations, the Performing Art Center, the Jacksonville Landing along with other Core producers and attractors.

LaVilla + Core. The LaVilla area experienced some limited development but has several undeveloped or underdeveloped parcels. The area is currently "suburban" with one and two story development with surface parking. The Convention Center and future Multi-Modal Transportation Center have the potential to attract more pedestrians to the area, as does the new County Courthouse. The State Office Center is an example of that suburban development pattern along with the La Villa Performing Arts School. The downtown route of the BRT is planned to run north and south along Broad and Jefferson Streets respectively, promoting connectivity. The area does lack producers of pedestrians such as housing.

Springfield + Core. Springfield is an historic district with a recent, strong turn around over the past several years. Main Street is one of the newest streetscape projects in the City. The second phase of this project is under construction. The uses along Main Street are out-dated, with the remnants of automobile dealerships and auto related businesses. The street has the potential to become a great street, but it will take time for the market to respond.

Development along Main Street is limited by shallow lot depths, and height restriction or 35 feet. A coordinated approach to development standards, increased intensity and density, and design guidelines will help accelerate its development potential. Like Main Street, 8th Street has been rebuilt with improved landscaping and lighting. The major pedestrian producers in the district are the University of Florida/Shands Medical Center at I-95 and 8th Street, and Florida Community College of Jacksonville, and they anchor each end of the district. The planned BRT system has a proposed station near the I-95 interchange at 8th Street and Shands Medical Center.



New condos in the 5 Points Area



Proposed Jacksonville Transportation Center



Neighborhood Center 5 Points



New and renovated housing as been a catalyst for commercial redevelopment



INITIAL DISTRICT

LEGEND





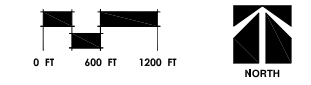
-  District Boundaries
-  Railroad track
-  Skyway / Stations
-  BRT / Stations

Figure 5



II. DEVELOPING DISTRICTS



Shands / University of Florida Medical Center

Sports Complex + Core. The Sports District is a major attraction for the downtown attracting thousands of visitors annually with football being the significant attractor ten times a year. The streetcar is not the appropriate mode to handle that event pattern. The Suns, while playing more home baseball games, do not attract the magnitude of traffic, either auto or pedestrian. The Arena is used more frequently, but it generally is limited to mostly evening hours. The area does have some of the first new housing in the downtown area including Berkman Plaza and Berkman Plaza II that is currently under construction. The planned Shipyards Development and the Bay Street Entertainment District are potential generator and attractor respectively. This eastern district (beyond the Core), is considered a longer-term extension candidate.



Jacksonville Municipal Stadium

Southbank / San Marco. The Southbank and the San Marco areas are combined to one district. While the area has many attributes no streetcar connection is currently envisioned across the Main Street Bridge. This is due to the increased costs from complex track work on the existing bridge. For the streetcar to serve this district it must cross active FEC rail lines requiring extensive track work and time-consuming negotiations with FEC and the Federal Railroad Administration adding additional cost to the system.



Southbank with Friendship Fountain

The Southbank area has major producers and attractors including several hotels - the Crowne Plaza, the Wyndham Hotel, Hampton Inn, and Stay America. It also has several fine restaurants - the Wine Cellar, Morton's, Ruth's Chris Steakhouse, and BB's. There are several large office/banks, the largest being the Prudential complex. The Baptist Medical Center and the Children's Museum are also located in this district. Three new high-rise housing projects are completed or just being completed, including the San Marco Place, the Strand, and the Peninsular. The area is served by the Skyway with three stations. The JEA decommissioned power generating plant site is the largest single undeveloped parcel on the waterfront in the Downtown area.

The San Marco Square area is one of the City's most successful locations. The Square was a catalyst for other older retail commercial centers to make improvements. The recent streetscape of Hendricks Avenue has generated some new businesses and renovation of older structures in the area. San Marco Boulevard has plans for major streetscape improvements once funding becomes feasible. Housing is predominantly single

family with a few duplexes and apartments. The area along Kings Road is lined with older commercial buildings, and it offers opportunities for redevelopment. The JTA parking garage on Kings Avenue serving the Skyway station, and the hotel/office complex currently under construction, have created a Transit Oriented Development potential which will produce increased pedestrian trips. The residential area between Hendricks and San Marco Boulevard has several opportunities for infill housing.



New development by St Joe in San Marco



San Marco Square



RECOMMENDED DISTRICTS

LEGEND

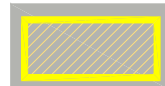
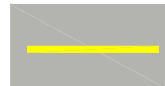





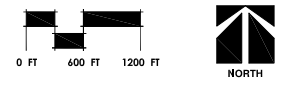
-  Phase 1 District
-  Future District Boundaries
-  Railroad Track
-  Skyway / Stations
-  BRT / Stations
-  Existing Skyway Maintenance Facility
-  Jacksonville Regional Transportation Center

Figure 6



III. DISTRICT EVALUATION

III. DISTRICT EVALUATION

COMPARATIVE DISTRICT EVALUATIONS

In the section on *Developing Districts*, six criteria were identified. The intent was to frame the general parameters to guide the definition of potential districts. Working with the JTA staff and the technical committee, seven “districts” emerged. Here the purpose is to evaluate each district to identify which have greater concentrations or grouping of factors to see if any one “separates” itself from the others.



Modern Streetcar: Portland Pearl District



Portland Streetcar

- **Definable Boundary.** While “Definable Boundary” is a criterion, there are no particular distinguishing characteristics that create separation between districts.
- **An Appropriate Set of Pedestrian Producers and Attractors.** With the pedestrian as the first class rider and with the streetcar deemed a “pedestrian accelerator”, a district must have (or the potential to have) land uses that **produce and attract pedestrians.**
- **Opportunity Areas.** The streetcar has demonstrated its ability to buttress existing development and to serve as a catalyst for redevelopment. or a combination of *Infill Properties, Redevelopment Properties, and Joint Development Properties.*
- **High Quality Pedestrian Environment.** Passengers and drivers are pedestrians when they reach their destination. The area must have a pedestrian environment that is high quality, safe, and inviting. Pedestrian environments must have an amenity level - or the potential - to promote walking. Ratings are based on the occurrence of key factors.
- **Multiple Modes and Connectivity.** A successful district should have, or at least accommodate, multiple travel modes. Having a network of auto, transit, pedestrian and bicycles helps connect streetcar riders to the other modes. When operational, the streetcar can enhance transit rider ship, and this connectivity provides passengers for the streetcar. Future connectivity by streetcar between districts further promotes connectivity.

- **Coordinated Public/Private Efforts.** The private sector is an important partner to the public sector in developing a streetcar. A successful district can benefit from a development community that understands the redevelopment potential and a public sector with assets that might be redeveloped.

District Ranking

Ranking districts was based on the JTA’s and consultant’s knowledge of the area and preliminary data collected for the areas under study. The ranking of the proposed districts was done on a quantitative basis, using scale and weight as the factors. Once the scale is determined, the weight is applied giving the total ranking. The rankings are detailed in Table 1, Comparative District Rankings, and the summary ranking is listed for each district in the description.

Scale - The District Criteria ranking was based on a scale that provides an understanding of the predominance of the factors utilized. The scale is from 1 through 5, with 5 being the high and 1 being the low.

Weight - A weight factor is used to provide a range of relative importance to and between the criteria.

Weight Factors

- High 3
- Moderate 2
- Low 1

Using the above factors, each of the criteria was assigned a weight. The determined scale (1-5) is multiplied by the weight to give a composite “score” for each criterion.

Pedestrian Producers and Attractors

Weight Factor 3

This criterion is given the highest weight factor because without the land uses to support pedestrian activity, the streetcar’s ability is limited.

Opportunity Areas

Weight Factor 3

This criterion also has the highest weight factor because the streetcar is deemed an economic development tool.

III. DISTRICT EVALUATION

Pedestrian Environment

Weight Factor 2

The quality of the pedestrian environment further enhances the streetcar district, because the street environment promotes walkability.

Multiple Modes and Connectivity

Weight Factor 2

Streetcars can be moderately successful connecting to limited modes. Future connectivity by streetcar between districts further promotes connectivity.

Coordinated Public/Private Efforts

Weight Factor 1

Public/private development partnerships can be successful in developing a streetcar system. Public and selected private lands that can be jointly developed with private partners may be somewhat limited.

District Framework and Ranking

Through the analysis process, several district configurations emerged, and the final disposition came as a result of client, stakeholder, and consultant discussions. In total there are six potential districts, but the Riverside/Avondale and San Marco districts are considered later stage opportunity areas, as noted in the following descriptions.

CORE

Scale: The Core's has a **scale of 20**, and this number is **added equally to each District** before the weight factor is applied.

COMPARATIVE DISTRICT RANKINGS

Riverside/Avondale: **Ranking: 22**

5 Points/Brooklyn + Core: **Ranking: 93**

LaVilla + Core: **Ranking: 82**

Springfield + Core: **Ranking: 85**

Sports Complex + Core: **Ranking: 75**

Southbank / San Marco: **Ranking: 37**

Chart 1 reflects the comparative rankings of all the districts, but the districts that are the focus of attention are: **5 Points/Brooklyn + Core, La Villa + Core, Sports Complex + Core, and Springfield + Core.**

As shown on the chart, the highest ranked districts in order are:

1. **5 Points/Brooklyn + Core: 93 Points**
2. **Springfield + Core: 85 Points**
3. **La Villa + Core: 82 Points**
4. **Sports Complex + Core: 77 Points**
5. **Southbank / San Marco: 37 Points**
6. **Riverside / Avondale: 22 Points**



Development in Portland's Pearl District along Streetcar Route

Figure 7: Streetcar Districts Evaluation Matrix

Ranking the Districts	Potential Districts													
	Weight Factor	CORE	Riverside / Avaondale	Riverside / Avaondale Weighted Rank	5 Points / Brooklyn	CORE + 5 Points / Brooklyn Weighted Rank	LaVilla	CORE + LaVilla Weighted Rank	Sports Complex	CORE + Sports Complex	Springfield	CORE + Springfield Weighted Rank	San Marco	Southbank / San Marco Weighted Rank
Producers and Attractors	3	5	2	6	5	30	2	21	4	27	3	24	4	12
Opportunity Areas	3	3	2	6	4	21	4	21	3	18	3	27	3	9
Pedestrian Environment	2	4	2	4	3	14	3	14	2	12	3	14	4	8
Multiple Modes and Connectivity	2	5	2	4	5	20	5	20	1	12	2	14	3	6
Coordinated Public/Private Efforts	1	3	2	2	5	8	3	6	3	6	3	6	2	2
Total		20	10	22	22	93	17	82	13	75	14	85	16	37

<u>Weight Factor</u>		<u>Ranking</u>	
Highest	3	Scale	5 to 1
Moderate	2	Highest	5
Lowest	1	Lowest	1

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Waterfront Trolley in Astoria, Oregon



Seashore Museum Trolleys, Lowell, Mass.



St Charles Streetcar in New Orleans

VI. CONCEPT DEVELOPMENT

INTRODUCTION

Concept development takes information from the existing conditions and the opportunities and constraints and begins to envision 5 Points / Brooklyn / Core as a potential streetcar district. This purpose of this section is to:

- Consider the available streetcar technologies for the District
- Suggest an array of conceptual routes
- Correlate the opportunity areas with the alignment alternatives
- Discuss available streetcar technologies and
- Outline a menu of finance approaches – federal and non-federal funds

GENERAL STREETCAR CHARACTERISTICS

While there was a discussion of the goals and purposes of the streetcars, a review of their general characteristics can be helpful. There are common characteristics among the various technologies to be considered. Streetcars are:

- Powered by overhead electrification (catenary or string wire)
- In-street running on steel rails, generally sharing traffic lanes
- Typically 33% of the cost of and about 65% of passenger capacity of light rail
- Cost-effective, with total costs averaging \$15M-\$17.5M/track mile, including vehicles and electrification (exclusive of expensive bridge structures) and maintenance facility
- Initiated as “starter systems” in the 3-4 mile range, and expansions can vary
- Served by an initial fleet of four to five vehicles, with four in revenue service and one in reserve (depending on the operating plan)
- Built quickly, with track construction averaging 3-4 weeks per 700’ length of track

AVAILABLE STREETCAR TECHNOLOGIES

There are several categories of streetcar projects, or rather, a spectrum of variations in these projects. The relationship between the type of vehicle used and the purpose of the project is important. A clear view of the project’s purpose looks at the question of image and perception and asks: “Is the project perceived as a *serious transit option* or as an *excursion ride*?” The latter is often termed “transpo-tainment”. Streetcar technologies can be characterized in three categories, based on the project purpose and the type of equipment being used.

- Historic or Vintage - “Trolleys” - these are restored historic streetcars
- Replica Streetcars – new vehicles but using some recycled components and styled to resemble historic vehicles
- Modern Streetcars - contemporary European tram-type vehicles

Historic or Vintage Trolleys

A number of “historic trolley” projects are at one end of the spectrum, and they are often sponsored by dedicated volunteers. These projects usually are intended to resume service in former streetcar areas and using restored original vehicles. The focus is to restore streetcar service as a community amenity and as an historical asset. Tucson’s Old Pueblo Trolley project is a successful example of this category. Other historic examples can be found in Lowell, MA, Dallas, TX, Philadelphia, and Astoria, OR, among others.

In general, these are projects that *restore streetcar service* on a route that formerly operated with heritage trolley vehicles. Often some of the original track-way is used. They typically are located in a historic district or along a historic waterfront. These trolleys serve as tourist amenities and “living history”, as well as having limited transit function for local residents. However, the transit function is limited due to several technical characteristics of vintage trolley vehicles and their operations, such as:

- Alignment, location and adjacent uses often are not always at the most intense nodes of population and employment density or pedestrian activity, due to the re-use of existing tracks;
- Passenger capacity is on the lower end of the scale
- Single doors increase dwell time for loading and unloading

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- High-floor design of historic vehicles requires either on-board lifts, ramps or bridge plates at stations for ADA compliance, also increasing dwell time
- Ride quality is inferior, especially if original trucks (wheel and propulsion units) or original tracks are used
- HVAC systems are difficult to retrofit into historic vehicles, so passenger comfort is inconsistent

The general characteristics of the vintage trolley will depend on the specific vehicle, and there was a wide range of them. The following are typical characteristics for a vintage trolley:

- Double-ended, Double-sided
- High Floor Ends
- Double panagraphs
- Open Air
- 39' L, 8'-6" W, 12" H
- Capacity: 48 Passengers
- Up to \$1M Per Vehicle (Restoration)

Sacramento's number 35 trolley is representative of these factors. The net effect of these tangible differences, plus some intangible differences of perception, add up to lower rider-ship and less use of these lines for transit purposes.

Moving more toward the transit function, there is a smaller number of "streetcar revivals" projects, in which restored historic trolley vehicles are used to provide local circulation and tourist use. Some have a relationship to land use or development strategies. San Pedro, CA operates a very successful example of this type. A much smaller community, Kenosha, Wisconsin, contains another well-known example of this approach, using restored vehicles on a new track-way. Another very successful example of this approach is the "F" Line in San Francisco, now carrying a



Sacramento Car 35



Birney Safety Car, Charlotte Area Transit System



F Line Streetcar in San Francisco

staggering 20,000 passengers per day on restored historic vehicles.

Replica Streetcars

There are some new streetcar projects that are generally conceived as a combination of a local transit circulator and an economic development stimulant. What distinguishes this project type is the introduction of the replica streetcar. This vehicle is newly constructed, and it has an historic design, combining new and recycled components. Tampa, FL was the first city to use this vehicle type, known as the Birney Safety Car, and traditionally it was a vehicle widely used across America. Charlotte, NC; Little Rock, AR; and Memphis, TN also now use the same vehicle, adapted to their particular local and have added air conditioning for passenger comfort. However the compressors generally are loud. The typical characteristics of the replica streetcar are:

- 46' L, 8'-8" W, 11'9" H
- Double-ended, Double-sided
- High Floor Ends (2'-10")
- Air Conditioned
- Capacity: 80 Standing and Sitting
- \$800K - \$1M Per Vehicle

These project types generally have restored good streetcar service to lively urban areas where it once existed (although not necessarily on the original tracks or alignment).



Tampa's TECO Line Streetcar

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Glendale, CA – Americana-at-Brand

The replica version achieves a higher level of transit function than the historic trolley. In several cases, this higher level of transit function is facilitated by offsetting the disadvantages of historic vehicles with the advantages of an exclusive guideway and enhanced passenger comfort. Several operate in a separate track-way occupying part of the street right-of-way; Memphis's Main Street Trolley runs the length of a street and was converted to a pedestrian mall and transit-way. Rider surveys on the Memphis line indicate that over 50% of riders are "riding for transportation purposes."

Similarly, compared to the projects at the historic trolley end of the spectrum, replica streetcars demonstrate a more substantial impact on development form and the pace of redevelopment in the areas they serve.



Seattle's Central City Streetcar

Another version of the replica trolley is the *Americana at Brand*, by Gomaco, the same manufacturer as the Birney Safety car. This car operates in Glendale, CA, and the specifications are for that specific application. The principal difference is that it is battery-powered, requiring no overhead contact system. The main car is equipped with a lithium carbide battery pack that would produce 400vdc. The car runs on steel tracks, and it is equipped with regenerative braking, hydraulic tread brakes and emergency rail brakes.

The performance specifications are five mph for five hours, one hour of mid charge and then another five hours of running. Maximum grade is 2%. The current car gets nine hours out of one charge, and the batteries are capable of 2500 charge cycles. Replacement costs of a battery pack are around \$75,000.



Tacoma Link Streetcar

The total package includes the cars, charging station (which is located in the barn), lifting jacks and spare parts. They can be "made-to-order". The general characteristics are:

- Main car - 43.5' L, 10.5' W, 13' H
- Trailer – 22' L, 10.5' W, 12' H
- Single-ended, double-sided
- High floor ends (2'-10")
- Capacity: 90 standing and sitting

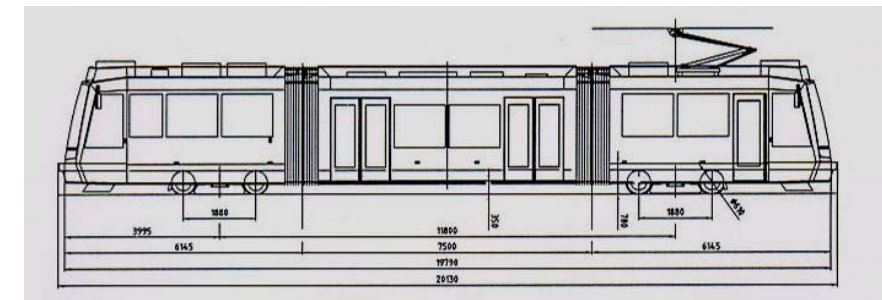
- Open air - can be enclosed and air conditioned
- \$1.5M per vehicle

Modern Streetcars

At the other end of the spectrum is the "modern streetcar", which is intended to play a significant transit and economic development role. Portland's Central City Streetcar, Sound Transit's Tacoma Link, the just-completed first phase of the Seattle's South Lake Union Streetcar, and Washington, DC's Anacostia River Demonstration Project (now under construction), are examples of this vehicle type. The modern streetcar is an attractive vehicle because of its neighborhood friendly design and quiet operating qualities. The characteristics of the modern vehicle are:

- 66' L, 8' W, 11'3" H
- Double-ended, double-sided, 3 sections
- High floor ends (30")
- Low floor center section (14"); level entry
- Air Conditioned
- Quiet operating characteristics
- Capacity: 110 standing and seated
- \$2.5 - 3M Per Vehicle

Places with modern streetcar have seen very high rider-ship and the greatest impact on development form and the pace of redevelopment.



Modern Streetcar, Portland Streetcar, Inc.

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Narrow Gauge Tram Plaza International Orlando, FL

Proposed Jacksonville Narrow Gauge Tram

A local development group is purposing a narrow gauge tram for its project in downtown Jacksonville. While the idea is good it does not fit with a more permanent long term mobility system for the area.

This 24 inch gauge tram vehicle, built for conversion for use on a 30 inch gauge track, has been operating in Orlando, Florida on International Drive for the last six years. This vehicle needs to be refurbished for a Demonstration Project in downtown Jacksonville. Further, two low floor air conditioned trailer cars need to be built to similar specifications. The estimated cost for this Demonstration Project is \$5 million inclusive of the following:

- Installation of two miles or less of 30 inch narrow gauge rail track (30 pound weight) within or immediately adjacent the existing and expanded mixed-mode corridors and walking areas between Jacksonville Terminal area and The Jackson Landing;
- Retrofitting and installation of the existing vehicle as shown above for the demonstration project purpose (to verify functionality of diesel hydraulic in narrow gauge rail vehicles and provide a continuing system component of a full system application from the Jacksonville Regional Transportation Center to the Jacksonville Municipal Stadium (JMS) service;
- Building and installation of two air conditioned ultra low floor trailer vehicles to 7 foot wide by 9 foot tall dimensions to fit with the demonstration vehicle providing seating for a approximately 20 passengers each and standing capacity to be determined with Jacksonville Transportation Authority (JTA),
- Temporary storage and maintenance structure on land provided by the JTA.

The route, additional track, and vehicle costs to extend the demonstration system to JMS needs to be estimated based upon JTA directed specifications adjustments, but assume \$10 million for additional track installation costs and two additional three-car trams based on additional distances and destinations involved. Further, assuming 15 additional three-car trams are needed for

special events, game days, and more frequent daily service at \$1 million or so for each such additional three-car trams, additional vehicle costs will total \$15 million. Assume a trolley barn is sized at 5000 square feet on JTA land; additional costs for a trolley barn would total \$1 million.

A five year maintenance contract should be negotiated based upon an hourly rate to be charged and a not-to-exceed amount for maintenance costs annually incurred.

Demonstration vehicle specifications are provided as follows:

Size:	<ul style="list-style-type: none"> • 25 Passengers • Overall Length – 300 inches • Overall Width – 74.5 inches (up to 84 inches for new vehicles) • Overall Height – 100 inches
Chassis:	<ul style="list-style-type: none"> • Custom Built 6" x 10.5#, Trussed Heavy Wall Structural Steel Channel Main Frame Weldment with Formed A-36 Structural Cross Channel Braces • Custom Engineered Wheel S0ets with Hardened High Carbon Alloy Steel Wheels • Parallel Shaft Pass-Through Gear Reducer and Hydraulic Motor on Each Axle • Speed Ratings Variable to Meet Operating Requirements • 25 H.P. to 50 H.P. Diesel Engines Available for Solo or Tandem Operation; • Capable of Negotiating a 3% Grade with 2 Trail Cars • On-Board Generator for Air Conditioned Units
Frame:	<ul style="list-style-type: none"> • Floor – 1½" square tubing (steel) • Walls – 1¼" square tubing (steel) • Roof – 1" x 2" rectangular steel tubing • (Floor and walls treated with rust inhibiting primers and undercoating)
Body Panels:	<ul style="list-style-type: none"> • Exterior - .063 Aluminum riveted on 6" centers and bonded to steel framing
Roof:	<ul style="list-style-type: none"> • Seamless Fiberglass Exterior Panel Bonded to Steel Frame • Birch Ceiling Panels and Solid Mahogany Trim • Clerestory Window Details
Flooring:	<ul style="list-style-type: none"> • 11-Gauge Steel Sub-Floor Covered with 3/4" Marine Plywood and Skid Resistant Vinyl Transit Flooring
Windows:	<ul style="list-style-type: none"> • Operable Lower Windows in Closed Section with Etched Fixed Glass in Arches, Doors, and Front and Rear Wall Sections • All Glazing meets FMVSS Standards
Seats:	<ul style="list-style-type: none"> • Slatted Wood Bench-Type Seats. Body Details Create Arm Rest/Restraint Details
Trim Details:	<ul style="list-style-type: none"> • Solid Brass
Specifications:	<ul style="list-style-type: none"> • Weight – 16,000 lbs. • Track Gauge – 24" • Recommended Track Curve Radius – 50 ft. • Minimum Track Curve Radius – 38 ft. • Recommended Grade – 3%* • Maximum Grade – 5%* • Recommended Ride Speed – 5 to 10 mph • Maximum Ride Speed – 18 mph
Other:	<ul style="list-style-type: none"> • All Exterior lighting Details meet FMVSS Standards • Courtesy Lighting • Driver Interrupt P/A System • Choice of Single Color Paint with Pin Striping and Client Logo

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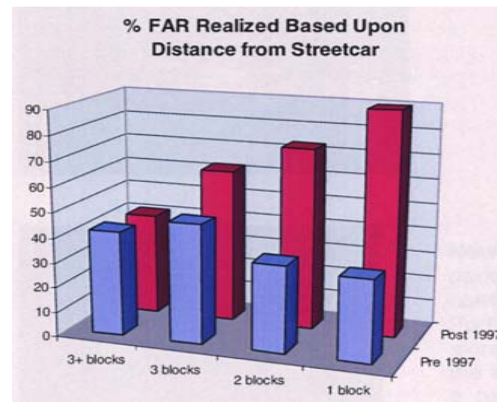


Figure 8: Percentage of Maximum Possible Development Intensity
Source: Portland Streetcar, Inc. and E. D. Hovee & Company

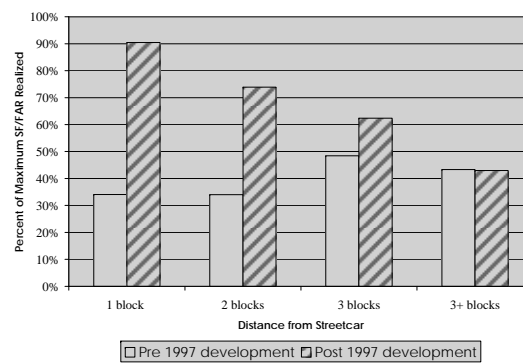


Figure 9: Market Share of Development along the Streetcar Line vs. Elsewhere
Source: Portland Streetcar, Inc. and E. D. Hovee & Company

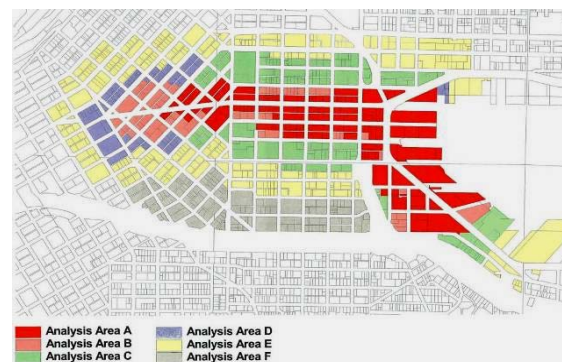


Figure 10: Seattle Analysis Areas
Source: City of Seattle and Bruce C. Allen & Associates

STREETCARS AS DEVELOPMENT CATALYSTS

In the discussion of the modern streetcar, there is a reference to an increase in development activity. There is a triple benefit – rider-ship increases, higher percentages of allowable intensities and densities are realized, and property values appreciate. With property value appreciation there is an increase in tax revenues for the communities. This revenue stream can be used to enhance the district where the streetcar runs, or it may be used to fund the cost and operations of the system. This is dealt with in the Implementation section.

A look at two communities can demonstrate the development power of the streetcar. In a recent comprehensive review of the development effects of the Portland Streetcar, it demonstrated a powerful cause-and-effect relationship. The benefits are expressed in terms of the higher development intensities realized. This review documented development intensities (what was built versus what could *theoretically* be built according to zoning code) changed substantially after the Portland streetcar project was launched (See Figures 8 and 9). Up until 1997, properties in the downtown area were generally developing at about 45% of the maximum allowed development intensity (floor area ratio). That pattern continues in downtown Portland today *except* within three blocks of the streetcar line. Since 1997, the intensity of development in the band of property located within three blocks of the streetcar line has doubled. This phenomenon represents a huge “upside” for the benefited property owners.

This strong nexus between an increased development and streetcar projects is not confined to this now-well-documented experience in Portland. In fact, it is gaining traction nationally.

A second example is Seattle. Here, the Seattle City Council approved the \$45 million South Lake Union Streetcar line that collects over 55% of its capital funding from properties within three blocks of the 1½-mile track-way. The City conducted a *Special Benefits Study* as a required precursor to the formation of an assessment district. The study found that nearby property owners, those located in Analysis Areas A - D (See Figure 10) would see a \$69 million increase in the value of their properties as a result of the streetcar project. Thus, the collection of less than half of that amount as a capital contribution toward the streetcar project’s cost was well-justified.

An interesting summary of streetcars and economic activity is found in *Street Smart – Streetcars and Cities in the 21st Century*. In it is a review of four “new” streetcar projects (since 2000) and

the return on investment (ROI) each realized. The four systems documented are Kenosha, WI, Little Rock, AR, Tampa, FL, and Portland, OR.

Kenosha - The initial investment was \$6.2M, with development investment of \$150M, resulting in a ROI of 2,319%.

Little Rock - The initial investment was \$19.6M, with development investment of \$200M, resulting in a ROI of 920%.

Tampa - The initial investment was \$48M, with development investment of \$1B, resulting in a ROI of 1,970%.

Portland - The initial investment and first extension was \$73M, with development investment of \$2.4B, resulting in a ROI of 3,288%.

THE CONCEPTUAL PLAN AND ALIGNMENTS

Against this backdrop of development potential, the next step is to propose potential Phase 1 alignments for the 5 Points/Brooklyn/Core district. Since this is not a feasibility study, the alignments are conceptual only. A more specific alignment, developed in the feasibility study, will be based on detailed technical evaluations of rights-of-way, age and location of utilities (overhead and underground), bridge structural evaluation, inter-modal connectivity, on-street parking and related factors.

DISTRICT OPPORTUNITY DEFINITION

With the district boundary defined, the next assignment was to identify “opportunity” areas. In addition to the current activity centers, these are areas that show the potential for change of use, densification, or intensification. Since this is not a feasibility study, the following areas are identified based on the consultants knowledge of the district. Three opportunity area types were identified.

- **Infill.** These are well-located properties near existing uses that are available for immediate development. This is seen along Park Street, and Main Street in the Core.
- **Redevelopment Areas.** With the streetcar as a catalyst for redevelopment, the district needs areas that have the capacity for change. By intensifying the use structure, the district can more effectively support the streetcar. Redevelopment areas are those where a complete conversion and/or succession of land uses might occur. Such areas are generally underutilized (vacant buildings, lower improvement value to total value),

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have poor platting patterns, or show conditions of decline, and can accommodate more productive economic uses. .

For the District two levels of “Redevelopment Areas” were identified.

- **In Process.** There are two projects currently underway - the Hallmark Development and the Miles Development, both along Riverside Avenue. Also there is Interlines Brands, Inc. property between Bay and Water Streets, and Park and Riverside. These projects account for approximately 24 acres.
- **Potential areas,** Those areas having uses perceived to be “less productive” economically, such as substandard housing and businesses. The uses were in Jacksonville’s first tier of suburbanization, principally located near railroad and highway facilities. The old Brooklyn housing area is this type of opportunity. This area account for 147 acres
- **Joint Development Areas** – Joint development describes a technique where an existing (single use) project is “enhanced” through the addition of additional compatible uses that support the primary use. There are significant commercial, and office uses in the District that are largely single use in character. The analysis also illustrates that they were generally located within large surface parking lots. These two factors – single use and large parking lots - reflect the general character of the District. These two characteristics also reflect the properties that have the ability to accept a more diverse mix of uses. Therefore, they are prime candidates for joint development.

As with the Redevelopment typology, there are two potential Joint Development types - Private and Public

- **Private Joint Development,** those privately-owned properties with available land or parking areas that can accept a compatible use. Often the owner of the property to be developed does not have experience in developing the “new” use, so an experienced developer is brought in to “jointly” develop the property. For example, The Haskell property has potential for additional mixed use development as does the parking lot for the Times-Union. Creative planning, especially in the provision of parking, is essential to making the joint development approach work. Forty-three (43) acres have been identified in this category.

- **Public Joint Development,** those publicly-owned properties that have large open area (or parking) that can be candidates for this type of cooperative development approach. This typology can be more complex, especially if there are any imposed limitations regarding private development being place on public property. These joint efforts are increasingly common, since the public entity is able to add a recurring source of income. The only public joint development sites that offer potential are several parcels owned by the City of Jacksonville near the Jacksonville Regional Transportation Center. This accounts for approximately 4 acres.

THE DISTRICT DEVELOPMENT OPPORTUNITIES

While the intent of the long-term streetcar system is to link the five districts that, in effect, define the greater downtown, the focus is on the 5 Points/Brooklyn/Core district’s Phase 1 route and alignment. Regardless of the alignment, a principal goal is to serve the highest number of committed projects and redevelopment, infill, and joint development opportunity areas. These are areas that will provide the potential for enhanced ridership, since they will be attractors and producers of pedestrian trips.

Within the district, there are 694 acres, with the following opportunity areas by acreage and percentages of the total area:

- Committed projects - 24 acres and 3% of the total
- Infill properties - 11 acres and 2% of the total
- Redevelopment properties -147 acres and 21% of the total
- Joint **private** development properties - 43 acres and 6% of the total
- Joint **public** development properties - 4 acres and 1% of the total

This translates to 33% of the total area with the opportunity for new development and redevelopment that can support, and is a function of, the streetcar’s presence.

THE ROUTE ALTERNATIVES AND ALIGNMENT OPTIONS

There are two potential route alternatives – one using the Riverside Avenue bridge and one using the Park Street bridge.

Each alignment has two variations, one single track and one double-track. Decisions on the final route and alignment are a function of the feasibility study.

The Riverside Bridge Route Alternative. There two alignment options – one is principally single track (Option A, **Figure 10**) and the other is principally double track (Option B, **Figure 11**). In either case, the actual 5 Points area and the Core entertainment area are equally served. The single track option with the Riverside Avenue/Park Street couplet serves the maximum number of opportunity sites. The double track option focuses on Riverside Avenue opportunity areas and does not address the Park Street redevelopment opportunities. Brooklyn area joint development sites along Riverside Avenue are maximized.

The Park Street Bridge Route Alternative. Although longer than the Riverside Avenue bridge route, Park Street serves the proposed Jacksonville Regional Transportation Center (JRTC) and reaches the front door of the convention center. These route alternatives enhance the inter-modal connectivity between JRTC, the Skyway, the proposed BRT, the commuter rail investments and the streetcar. The streetcar does parallel the Skyway longer than the Riverside Avenue route alternative.










As with the Riverside Avenue bridge route, the actual 5 Points area and the Core entertainment area are equally served by either option. The single track alignment (Option A) with the Park Street/Riverside Avenue couplet serves the maximum number of opportunity sites in the district. The double track alignment (Option B) focuses on the Park Street opportunity areas and does not maximize the Riverside Avenue joint development sites.



Hemming Plaza Government Center

5 POINTS / BROOKLYN / CORE DISTRICT

**RIVERSIDE AVENUE BRIDGE
ROUTE ALTERNATIVE
ALIGNMENT OPTION A**

-  **STREETCAR**
4.38 Track Miles
-  **Committed Projects**
-  **Potential Redevelopment Areas**
-  **Joint Development Potential**
-  **Infill Development Potential**
-  **Jacksonville Regional Transportation Center**
-  **BRT/ Stations**
-  **Skyway / Stations**
-  **Railroad Track**
-  **District Boundaries**
-  **Joint Maintenance Facility Streetcar and Skyway**

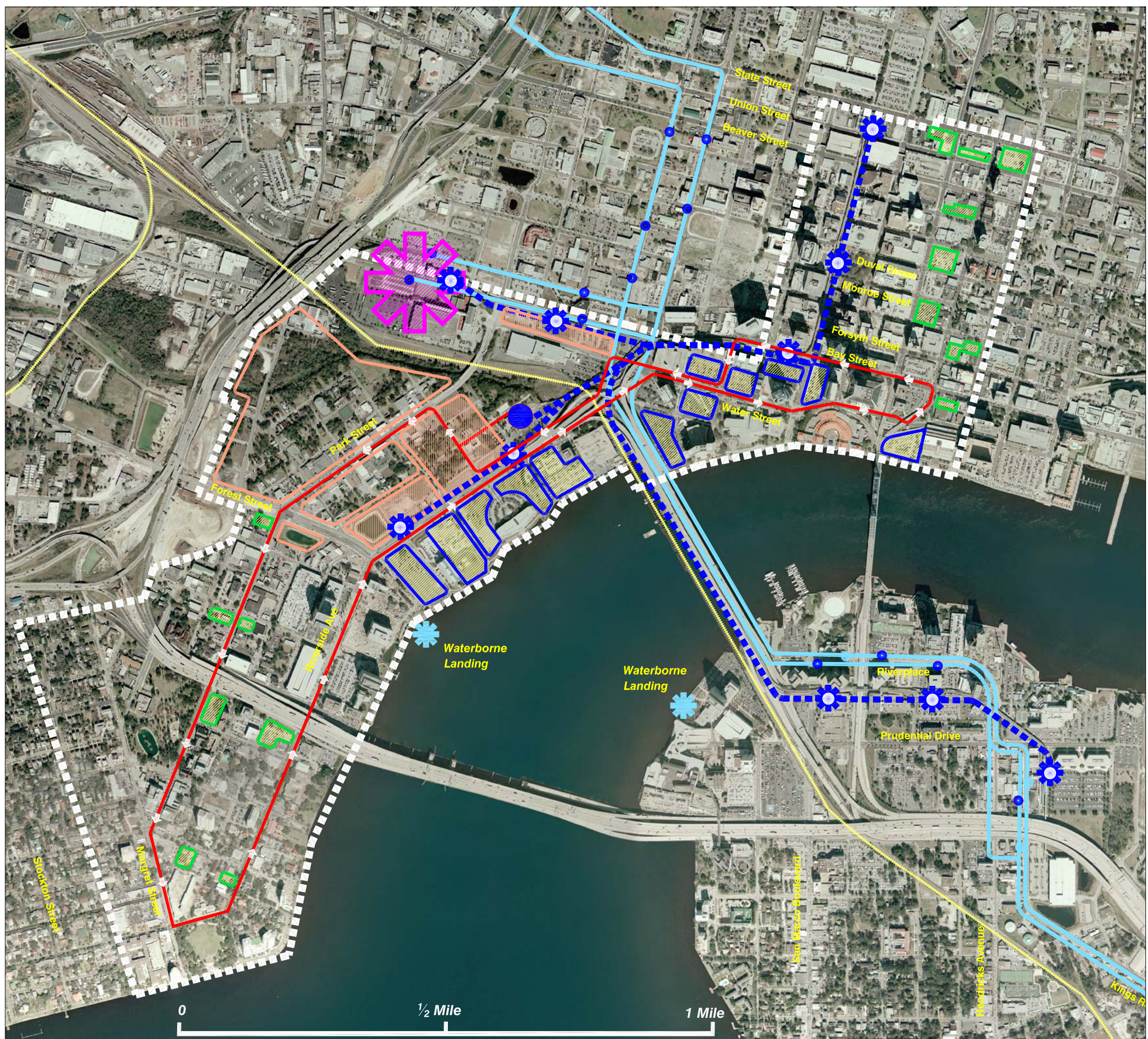
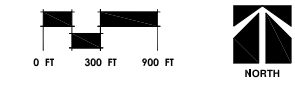



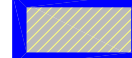









Figure 11



5 POINTS / BROOKLYN / CORE DISTRICT

**RIVERSIDE AVENUE BRIDGE
ROUTE ALTERNATIVE
ALIGNMENT OPTION B**

-  **STREETCAR**
4.3 Track Miles
-  **Committed Projects**
-  **Potential Redevelopment Areas**
-  **Joint Development Potential**
-  **Infill Development Potential**
-  **Jacksonville Regional Transportation Center**
-  **BRT/ Stations**
-  **Skyway / Stations**
-  **Railroad Track**
-  **District Boundaries**
-  **Joint Maintenance Facility Streetcar and Skyway**

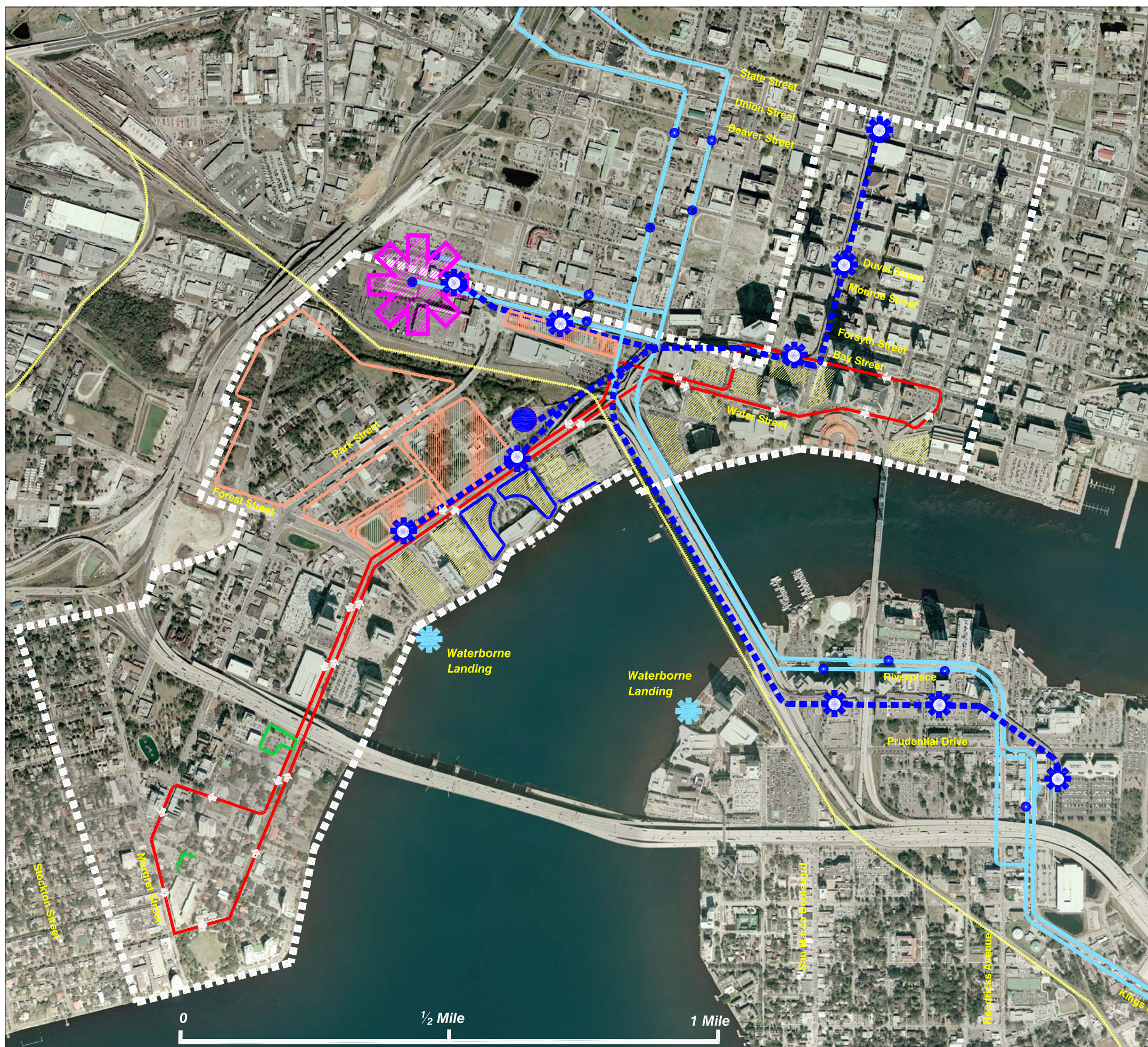










Figure 12

5 POINTS / BROOKLYN / CORE DISTRICT

**PARK STREET BRIDGE
ROUTE ALTERNATIVE
ALIGNMENT OPTION A**

-  **STREETCAR**
4.65 Track Miles
-  **Committed Projects**
-  **Potential Redevelopment Areas**
-  **Joint Development Potential**
-  **Infill Development Potential**
-  **Jacksonville Regional Transportation Center**
-  **BRT/ Stations**
-  **Skyway / Stations**
-  **Railroad Track**
-  **District Boundaries**
-  **Joint Maintenance Facility Streetcar and Skyway**

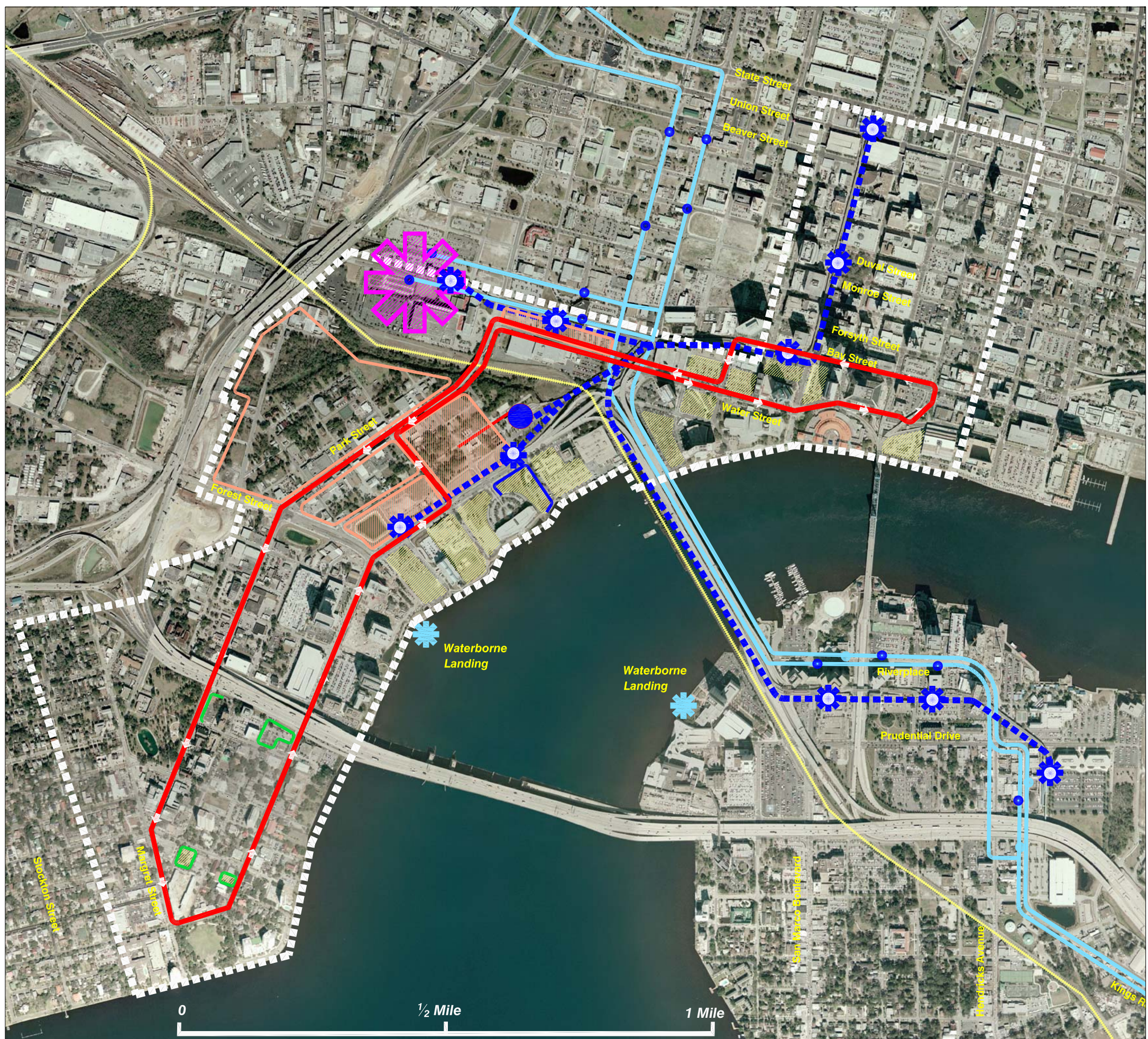
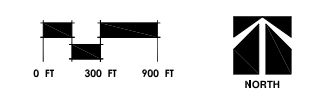











Figure 13



5 POINTS / BROOKLYN / CORE DISTRICT

**PARK STREET BRIDGE
ROUTE ALTERNATIVE
ALIGNMENT OPTION B**

-  **STREETCAR**
4.75 Track Miles
-  **Committed Projects**
-  **Potential
Redevelopment Areas**
-  **Joint Development
Potential**
-  **Infill Development
Potential**
-  **Jacksonville Regional
Transportation Center**
-  **BRT/ Stations**
-  **Skyway / Stations**
-  **Railroad Track**
-  **District Boundaries**
-  **Joint Maintenance
Facility Streetcar and
Skyway**

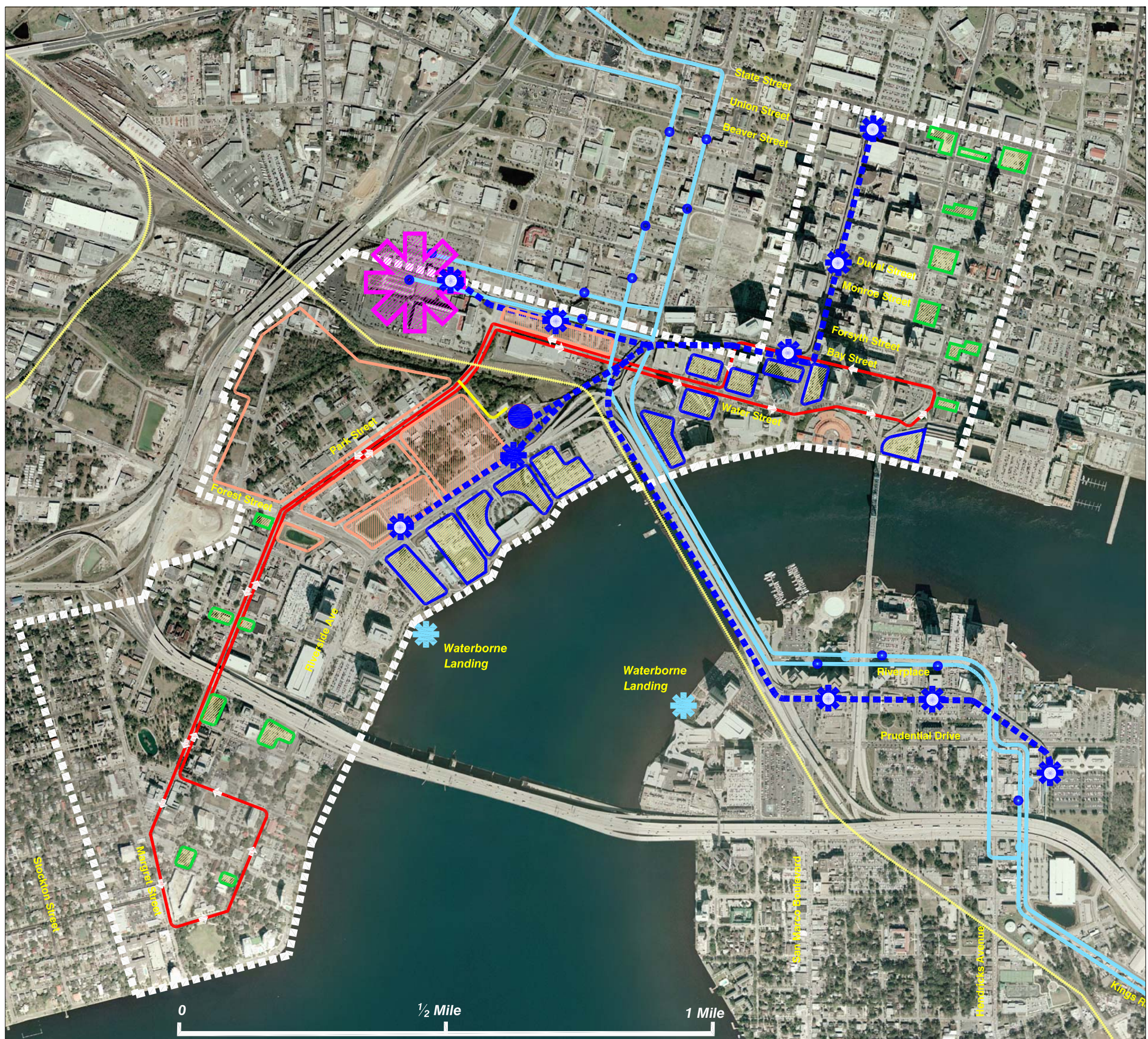
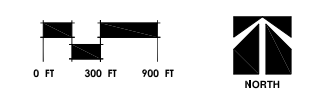


Figure 14



FUTURE STREETCAR ROUTES

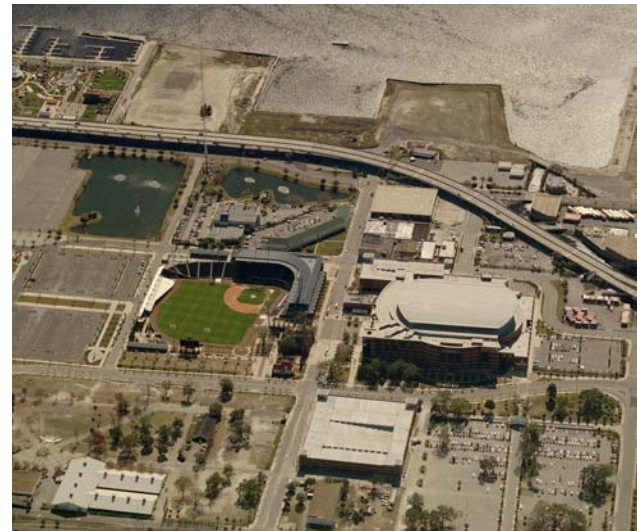
Once the Phase 1 route and alignment is complete and operational, there are four potential downtown extension options (See **Figure 15**), as well as one for the San Marco area. The significance of the downtown extensions is the development of a complete network of routes that serve the entire area. Beyond that is the inter-modal connectivity with the JRTC, the Skyway (a requested priority), the BRT and the commuter rail. Here the streetcar is the integrating technology, thereby helping complete a passenger's "the last mile of the trip".

The general description of potential route extensions and districts are:

- **Springfield**
Springfield was the second highest ranked district. This alignment is approximately 4.7 track miles long.
- **LaVilla**
This alignment is approximately 1.8 track miles long.
- **Sports Complex**
This alignment is approximately 2.2 track miles long.
- **Riverside / Avondale**
This alignment is approximately 1.5 track miles long.
- **San Marco**
This alignment is approximately 3.0 track miles long.

MAGNITUDE OF COST ESTIMATE

For the 5 Points/Brooklyn/Core alignment options, using the modern streetcar, the cost estimate is between \$65 and \$85 million, depending on the option selected. The estimate is based on a range of \$15 to 17.5 million per track mile, with distances ranging from 4.3 miles to 4.8 track miles. By using the JTA maintenance facility, this cost will likely range toward the lower end of the scale. However, there is likely to be bridge structural work (regardless of which bridge is ultimately selected), and that can affect the final cost.



Sports Complex



UF / Shands Medical Center



5 Points Business Center Park Street



TRANSIT MOBILITY FRAMEWORK

LEGEND









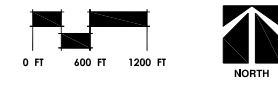
-  **STREETCAR PHASE I**
-  **STREETCAR (FUTURE)**
-  **BRT/ Stations**
-  **Skyway / Stations**
-  **Railroad Track**
-  **District Boundaries**
-  **Joint Maintenance Facility Streetcar and Skyway**
-  **Jacksonville Regional Transportation Center**

Figure 15



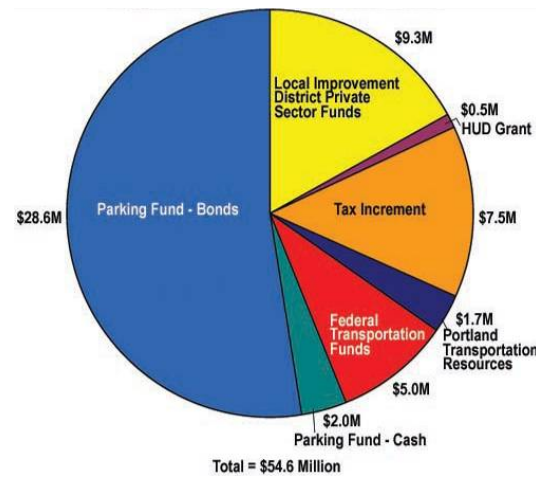


Figure 16: Portland Streetcar Phase I Capital Finance Sources

IV. IMPLEMENTATION

INTRODUCTION

If a streetcar is implemented in Jacksonville, it will join a growing number of American communities that has “added back” this critical component of urban livability and mobility. The size and circumstances of these other communities vary widely. Some of the cities involved are larger than Jacksonville and some are smaller.

This section deals with implementation ideas that may be applied to the Phase 1 project. Just as the Portland and Tampa streetcar projects demonstrated their powerful catalytic effects, this project could be an equivalent prototype or trend-setter. To come to fruition, however, a wide diversity of funding tools and techniques will be necessary.

ALL DIFFERENT, ALL COMPLEX

Up to now, no two projects use the same funding scheme. In fact, there is very little in common in how the funding packages align. The overriding theme of the funding plans for streetcar projects is not policy or programmatic consistency, but it is creative leverage of local and federal funds, private funds and opportunism. For example, **Figure 16** shows the original capital cost of the Portland Streetcar.

In addition to the sources “pioneered” by the Portland project, revenue sources for other projects are widely divergent. Such funding sources for projects completed or under development include:

- FTA “Livable Communities” and TCSP grants (Little Rock)
- State grants and appropriations (Seattle, Winston-Salem, Charlotte and Miami)
- Local option sales tax (Miami, Charlotte)
- Local General Fund appropriations (Little Rock, Galveston)
- Flexed STP funds (Little Rock)
- Congestion Mitigation Air Quality (CMAQ) grant funding (Tampa)

POTENTIAL CAPITAL AND OPERATING FUNDING SOURCES

Several assumptions frame the finance options described below for the potential Phase 1 Jacksonville streetcar.

- Federal funds maybe pursued, at least for the initial phase
- Given the potential development and redevelopment in the project area, real estate leverage will be used to help fund construction
- A wide variety of other local revenue measures will need to be considered.

FEDERAL REVENUE SOURCES

- **Federal Transit Administration New Starts and Small Starts**
Federal funds typically are used to start new rail system initiatives. The Federal Transit Administration (FTA) administers funding programs designed to assist local agencies in new rail start-ups. Competition for FTA “New Starts” funds is fierce nationally as many cities attempt to develop transit projects and seek federal participation. For example, FTA received over 60 applications for “New Starts” projects in 2005. The cost of new rail systems can be high, sometimes in the billions of dollars. As a result, the FTA process for qualifying a project for “New Starts” funding is very structured, comprehensive and time-consuming.

In the new SAFETEA-LU legislation, a Small Starts set aside was initiated within the overall New Starts program. These projects are those seeking less than \$75 million in federal funds, with a total estimated project cost of less than \$250 million. The FTA will provide federal funds only if FTA finds that the project is (a) based on planning and Alternative Analysis; (b) justified based on a review of its public transportation supportive land use policies, cost effectiveness, and effect on local economic development; and (c) supported by an acceptable degree of local financial commitment. Under SAFETEA-LU, funds are now available to potential applicants for preparation of the required Alternatives Analysis.

IV. IMPLEMENTATION

For both New Starts and Small Starts, a proposed project first must be authorized by Congress; and second an Alternatives Analysis must be done to FTA's satisfaction. To date, there are no approved streetcar projects under Small Starts – Portland was not approved, and only Tucson remains in the queue.

▪ **Congestion Mitigation Air Quality(CMAQ)/Transportation Enhancement Funds**

These program funds are designed to assist communities with transportation strategies that reduce auto emissions and enhance the multi-modal functioning of local and regional transportation systems. Both help reduce air pollution. The availability of these funding sources was continued under SAFETEA-LU. Allocated through MPOs, the virtue of these programs is the flexibility they allow in dedicating federal surface transportation funds to a wide spectrum of transportation-related investments.

▪ **Economic Development Administration (EDA) Grants**

Although not yet used for a streetcar project, the Public Works Grants provided by the U.S. Department of Commerce's Economic Development Administration is a potential source of capital grant funding. Given the program's stated purposes and the potential project's strong connection with strategic job-creating investments, a case can be made for these funds to be used.

LOCAL REVENUE SOURCES

- **Fares.** There are reasons to operate streetcar circulators as a free service, and several successful lines do just that. Project goals in these cases emphasize convenient access and automobile trip reduction. Passengers have, however, demonstrated a willingness to pay. In those cases, project goals emphasize cost recovery. Once the policy issue is resolved as to which approach Jacksonville wants to take regarding a free or fare-paying line, a portion of the line's operating costs may be recovered through fares. Usually fare recovery is in the 20-25% range of ongoing operational costs. Cash fare revenues can be reduced by the extent of pass programs (see next section), but depending on pass costs and utilization, the two sources can be complementary.
- **Passes.** Pass programs, supported by employers and educational institutions, can be a significant revenue source,

again typically for ongoing costs. For reasons of employee trip reduction, reduced parking demand, and mitigation of parking conflicts with adjacent areas, employers have multiple incentives for supporting employee transit pass programs.

- **Ancillary Revenues (Advertising and Sponsorships).** The potential ancillary revenue for this system has two components. First is the media value of the advertising on, within, and near the vehicles. The second is concession agreements and/or rental fees on vending machines or automatic teller machines at the proposed stops. There have been a wide variety of approaches to ancillary revenues in other streetcar projects. Some projects have been aggressive in exploiting these opportunities, others are more cautious. Tampa, Florida has an aggressive sponsorship program that emphasizes naming rights for the entire system, individual vehicles and the stations/stops. A summary of the three naming right approaches follows:

- System Sponsorship - \$1,000,000
 - System name on cars and maps
 - Special Events - 4 times/year
- Streetcar Sponsorship - \$250,000
 - Name - Exterior and interior of car and maps
 - Special Events - 2 times/Year
- Station Sponsorship - \$100,000
 - Name - Stations and maps
 - Special Events - 1 time/Year

The respective sponsor's name is announced at each sponsored stop via an automated announcement on board each vehicle.

In Portland, Oregon numerous stations and individual car sponsorships were sold at relatively modest amounts. A station sponsorship is priced at \$4,800 per station per year, and vehicle sponsorships are \$25,000 per vehicle per year. The respective sponsor's name is announced at each sponsored stop via an automated announcement on board each vehicle. Local restaurants are involved in sponsoring the system maps.

San Diego, California's trolley system has been under a 20-year advertising and sponsorship moratorium. The

moratorium was temporarily lifted during a Super Bowl. Trolley car wraps were then sold on 10 vehicles (less than 10 percent of the fleet). Local and national advertisers eagerly paid for this advertising. The system's board subsequently elected to reinstate the moratorium on all rail vehicles.

On the other hand, San Diego's bus fleet accepts all forms of advertising, including wraps. The system has an agreement with the Coca Cola Company to place vending machines at 43 of the trolley's 46 stations. A revenue-sharing agreement is in place. An outside vendor serves as a general contractor to provide cart-based amenities (coffee, newspapers, souvenirs etc.) to riders at selected stations.

New Orleans, Louisiana has traditional transit ads placed on the sides and back of their vehicles. This inventory is represented by Clear Channel Outdoor. Ad rates for traditional exterior transit ads on street cars range from \$300 to \$650 per month per car depending on the kind of streetcar selected. By comparison, full wraps of the city's buses are offered at \$2,000 to \$3,000 per month.

- **Tax Increment Financing.** Chapter 163, Part II, FS allows the creation of Community Redevelopment Agencies (CRA) and redevelopment areas as a means of addressing slum and blight within communities. Jacksonville currently utilizes the CRA provisions. One of the funding options, depending on current commitments, is Tax Increment Financing (TIF). The TIF allows for bonding on improvements over a specific period of time, as allowed by law. The streetcar is one such improvement, especially if there is transportation-generated blight. TIF funds are commonly used in streetcar projects across the nation.
- **Business Improvement Districts.** The Business Improvement District (BID) is a common means of generating real estate-related revenue for the streetcar project. The establishment of a BID is usually predicated on the approval of a majority of the property owners within the proposed district. The funds from the property assessment can be used to promote and market the area. Funds also can be used to enhance security, maintenance, beautification, and transportation. The property owners shall be specially benefited by the provision of the BID services and will be assessed upon each such property in reasonable proportion to

the benefits derived from the services. Numerous BIDs have been established throughout the country.

BIDs typically rely on an assessment applied to the properties within a defined area, based on an assessed property value, a per-square-foot basis, or a linear frontage basis. The property owners must agree to the assessment. The Miracle Mile BID in Coral Gables, Florida, formed in 1997, assesses property owners based on \$2.25 per \$1,000 of assessed property value. Today, the property assessment generates some \$420,000 per year. The revenues are used for marketing and advocacy on behalf of the area businesses.

- **Special Assessment Districts.** Municipalities and counties may choose to create a Special Assessment District to provide services or construct capital infrastructure for specified benefits to property owners. Creating the Special Assessment District, adopting an equitable formula, and documenting the benefits may be accomplished by resolution of the City or County. Much like the BID requirements, the properties being assessed must be specifically benefited by the services and/or capital improvements. The assessment must be reasonably proportionate to the benefits. Unlike the BID, the governing jurisdiction may create the resolution without any vote of the affected property owners. The special assessment allows greater flexibility than that allowed in BIDs.

The special assessments is a valid tool for generating revenues as the local share of capital and/or operating costs associated with the proposed streetcar system. There are as many variations of special assessments as there are projects that employ them. The viability of this approach is determined by the rationale for allocating the cost burdens to potential beneficiaries, as well as the impacts on property values that might result from both the benefit to be received and the costs to be allocated. The range of potential assessment rates also varies, and the experience of other communities was researched for similar assessment districts and rates used to fund local transportation related infrastructure. Based on the beneficial effect of streetcar or light rail projects on property values and development in other U.S. cities, it is reasonable to forecast that the streetcar system itself would benefit nearby properties by enhancing their development potential.

- **State Infrastructure Bank.** The State Infrastructure Bank (FS Chapter 339.55) was created within the Department of

Transportation for the purpose of providing loans and credit enhancements to government units and private entities for use in constructing and improving transportation facilities. The bank may lend capital costs or provide credit enhancements for a transportation facility project that is on the State Highway System or that provides for increased mobility on the state's transportation system or **provides inter-modal connectivity with airports, seaports, rail facilities, and other transportation terminals** (emphasis added), pursuant to s. 341.053, for the movement of people and goods. Among the criteria for approval that relate to the Jacksonville streetcar are:

- A demonstration that the project will encourage, enhance, or create economic benefits
 - The likelihood that assistance would enable the project to proceed at an earlier date than would otherwise be possible
 - The extent to which assistance would foster innovative public-private partnerships and attract private debt or equity investment
 - A demonstration that the project includes transportation benefits for improving inter-modalism, cargo and freight movement, and safety
 - The amount of the proposed assistance as a percentage of the overall project costs with emphasis on local and private participation.
- **State Inter-modal Assistance Funds.** The Inter-modal Development Program was created in s. 341.053, F.S. Its purpose is to provide for major capital investments in fixed-guideway transportation systems, access to seaports, airports and other transportation terminals, providing for the construction of inter-modal or multimodal terminals; and to otherwise facilitate the inter-modal or multimodal movement of people and goods. These projects, which include access improvements to seaports, airports and railroads, also contribute to economic prosperity in Florida through improving the movement of tourists and goods. Transit agencies are recipients of these funds.

- **State Commercial Development and Capital Projects Funds.** In accordance with Ch 288.063, FS, the Office of Tourism, Trade, and Economic Development is authorized to make, and based on a recommendation from Enterprise Florida, Inc., to approve expenditures and enter into contracts for direct costs of transportation projects with the appropriate governmental body. The transportation projects shall be approved only as a consideration to attract new employment opportunities to the state or expand or retain employment in existing companies operating within the state.
- **DRI Transportation Concurrency Exception Area (TCEA)** TCEAs are designated areas within the state where exceptions are allowed to traditional transportation concurrency requirements. This exception provides flexibility for concurrency management in order to encourage the application of a wide range of transportation planning strategies to meet concurrency – rather than simply increasing the capacity of roadways through widening.

A purpose of this approach is to reduce the unintended consequences that traditional transportation concurrency can have on downtown revitalization. Oftentimes, downtown roadways have reached the limit to which they can be widened because of constrained right-of-way. This can make suburban markets a more attractive option for developers, where constrained right-of-way is not an issue. To level this imbalance, development within a TCEA is freed of roadway concurrency management requirements.

Under these requirements, vehicle trips generated by a proposed development are counted against an available “bank” of roadway capacity. Where available capacity meets forecast vehicle trip demand of a proposed development, developers are only responsible for roadway improvements providing “safe and adequate” vehicle access to their site.

Where available capacity fails to meet the forecast vehicle trip demand of proposed development, developers must contribute towards the funding of roadway improvements that will make up the capacity shortfall – in addition to providing safe and adequate vehicle access to their site.

Within a TCEA, developers still must provide safe and adequate vehicle access to their site. However, the

concurrency management system holding developers accountable to provide concurrent roadway capacity is set aside.

In return for being freed of traditional roadway concurrency requirements, developers within a TCEA are asked to provide other means of meeting transportation concurrency as conditions of development approval.

Strategies to meet transportation concurrency within a TCEA include infrastructure improvements that maximize the efficiency of existing downtown roadways (rather than simply widening them – though at times widening of certain roadways may be necessary), as well as a wide variety of strategies that promote travel by modes (streetcar) other than the automobile.

Designation of Downtown Jacksonville as a TCEA for the Southbank has been completed, and currently the Northbank area is being studied for its own TCEA.

- **Other Funding Options for Exploration.** As the project moves into the feasibility stage, there a number of other funding options to be explored. Among them are:
 - Parking bonds and revenues
 - City general obligation bonds
 - Development agreements (allowed under CH 380, Florida statutes)
 - Joint development agreements (public/public and public/private)
 - Coordinated infrastructure and street improvement programs
 - Hotel/motel/tourist tax
 - Surcharge on auto registrations
 - Rental car tax