

**Des Moines, Iowa**

**Initial Feasibility Assessment  
Downtown Streetcar System**

**Prepared for the  
City of Des Moines**

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# **Des Moines, Iowa**

## **Initial Feasibility Assessment**

### **Downtown Streetcar System**

#### **I. Assessment is Clearly Positive**

Based upon an initial field survey, information provided by various potential stake holders and consideration of each criteria included in the consultants Streetcar Circulator Evaluation Matrix, I have concluded that sufficient necessary conditions are in place within the overall downtown area of Des Moines to successfully demonstrate the unique transit and economic development benefits of a well planned streetcar circulator system. An advantageous combination of circumstances provides the foundation for a downtown streetcar circulator to be rated with an approximate positive rating of twenty (in the evaluation matrix) within only a few years after initial operation of the system begins. This is an exceptionally high rating on a nationally comparable scale for medium sized cities. (The highest possible rating is twenty-one).

#### **II. Summary of Des Moines Assessment**

##### **A. Evaluation Summary and Approximate Initial Route**

All points within the central core area of Des Moines that could be served by a downtown streetcar circulator are well within the recommended physical limits for such circulators in medium sized cities. There are no apparent physical barriers to building the system. The street grid is such that a streetcar circulator can effectively serve a high percentage of the overall downtown area. Additionally, the high density of employment in the downtown area, the accessible locations of emerging and vital mixed use neighborhoods, and the location of areas that are targeted for major re-development all come together to create a nearly ideal set of conditions necessary to predict the success of a streetcar circulator. These conditions are such that downtown Des Moines could well become a nationally relevant demonstration city that would affirm the special advantages of streetcars in their new role as circulators over all other forms of transit that might be utilized for the same purpose.<sup>1</sup>

In downtown Des Moines, the pattern of primary streets, the scale of the urban core, the location of major business institutions and civic places, including the Iowa State Capitol, have all evolved in the context of a strong east-west alignment that was established in the earliest days of town development. Based upon this alignment and the most desirable destinations identified through the assessment process (including the evaluation matrix), and taking into account future community sanctioned development and land use objectives, an initial streetcar circulator would logically operate between the State Capitol area on the east and possibly as far west as Fifteenth Street. The high projected rating (Chart B of the Evaluation Matrix) is founded upon these assumptions.

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<sup>1</sup> Please see Attachment “A” Primary Function of the Streetcar in Today’s Medium-Sized Cities. Traditionally, streetcars operated primarily on linear routes as most buses do today. For the purposes of this report, the term “circulator” defines the transit function only and does not denote that a specific route has been recommended. However, the primary purpose of the assessment process and the evaluation matrix is to determine whether certain existing and/or future conditions within a given area will support a streetcar circulator and whether the streetcars themselves will foster the achievement and/or sustainment of these conditions. The areas to be served are known and therefore at least an approximate route is assumed based upon the findings in the matrix. Later extensions to an initial streetcar system could be linear or in the form of loops.

## B. Matrix Summary

### Introduction

The Streetcar Route Evaluation Matrix is an assessment of conditions. It is intended to serve as a general guide that will assist any medium sized city to determine if they are ready for streetcars. Although it can be utilized to evaluate linear routes (Columbus, Ohio, page 17), the matrix is more specifically oriented to help determine the likelihood for success of a streetcar circulator. Because the matrix is a guide, all of the planning categories (considerations number four through twenty-one) are intended to be fluid in nature, not definitive or decisive on their own. For example, a hospital may have fewer beds than recommended in the matrix or there may not be multiple performing arts venues within the proposed streetcar operating area – but the streetcar circulator may still be successful because of the sum of all positive conditions. The most important condition is that a large number of people live within the area to be served by the circulator. *If there is already a trend towards downtown living, the streetcar circulator will dramatically accelerate this process and thereby contribute to its own success in a manner that is not characteristic of other modes of transit.*

Streetcars function best where the intention is to enhance place and access. This means convenient, pedestrian oriented access to the heart of the city, as contrasted to other primary modes of transportation that are oriented towards speed and distance.

A streetcar circulator is a pedestrian oriented mode of transit with a unique ability to connect the many vital parts of a downtown community in such a way that new and sustainable community vigor is created. This is not unlike the new vigor experienced by the human body with improved circulation. The additional benefit of a streetcar circulator (where the conditions are right) is an *accelerated* rate of new investment in the urban core that, when integrated into a well-conceived transportation development strategy, ultimately results in a well balanced and permanently vital center city area. This new vitality is characterized by high densities of both people and buildings. While streetcars work best under such high-density conditions, they have the special ability to also foster such conditions. The end result is that a real choice in lifestyles is available to many more people.

It is important to remember that the finding in each category in the matrix would be supported by much more information and data as additional planning for the system is undertaken, but the conclusions remain the same. Also, the assessment should be viewed as a two-step process – an evaluation of conditions as they are now (assuming the circulator is in operation today), and a projection of conditions as they will be after the streetcar circulator system matures (five to ten years after operation begins). With respect to current conditions, a low rating would generally be considered to be any number under nine. A good rating is generally twelve or above. There is always both a positive and a negative rating. Assuming the physical considerations are all positive (first three matrix categories) the evaluation can be based solely upon the eighteen streetcar planning considerations (considerations four through twenty-one). For Des Moines, all twenty-one categories are summarized.

The charts on the following pages summarize current conditions in Des Moines (Chart A) and projected conditions five to ten years after a downtown streetcar circulator enters service (Chart B). With a rating of twenty for a mature system, Des Moines would be extremely well serviced by a downtown streetcar circulator. Please note that this evaluation does not include any consideration for later extensions of the circulator, which should be anticipated in any ongoing planning process. Where appropriate, considerations addressed in the matrix are combined sequentially to facilitate the preliminary assessment process.

**MEDIUM-SIZED CITIES**

**STREETCAR ROUTE EVALUATION MATRIX  
DES MOINES, IOWA**

**DRAFT**  
18-Feb-08

**CHART A – EXISTING CONDITIONS**

NOTE: Assumes a streetcar circulator system where the furthest stop is not more than three miles from any starting point. A perfect score is 21 positive answers.

		DES MOINES	
		POSITIVE	NEGATIVE
1	Existing grid and traffic patterns are conducive to streetcars and automobiles operating smoothly within a shared right-of-way.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Topography is friendly to streetcar operations within operational areas of the proposed streetcar system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	There is an absence of physical barriers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Operates directly on Central Business District's Principal street corridor(s). (at least one corridor with 5 - 10 minute headways)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Operates in center of Central Business District's highest employment concentrations (1000+ employees within 800 ft. at multiple locations and an overall employment concentration of at least 50,000 employees).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Connects directly to residential concentrations (at least 300 residents within 400 ft. at multiple locations totaling not less than 10,000 residents).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Connects directly to entertainment district(s) with venue(s) of at least 5,000 person capacity per event.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Connects directly to existing mixed-use areas outside of CBD (residential, commercial, recreational, including important restaurants seating 60+ people)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Connects directly to registered historic districts and significant historic sites.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	Connects directly to major city hospital(s) (at least one with a minimum of 300 beds).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Connects directly to main convention center (at least 500,000 attendees annually).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	Connects directly to principal hotels (at least 1,000 rooms within 400 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Connects directly to principal art museum(s) and/or arts districts.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14	Connects directly to major urban parks.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15	Connects directly to multiple performing arts theaters (800+ seats and/or at least one principal theater with no less than 1,600 seats).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	Connects directly to important centers of government (City, County, State, Federal- should have at least three).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	Connects directly to planned mixed-use development areas, including planned residential concentrations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	Connects directly to principal center city library or libraries	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19	Connects directly to significant urban educational institutions (1,000+ students within 800 ft. of streetcar line).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20	Connects directly to basic residentially oriented commercial activities (groceries, clothing, hardware, pharmacy). These should be selectively distributed within 300 ft. along overall streetcar line.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
21	Connects efficiently to other modes of transit/transportation throughout length of system (trains, buses, bicycles, etc).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RATING:		<input type="text" value="14"/>	<input type="text" value="7"/>

**MEDIUM-SIZED CITIES**

**STREETCAR ROUTE EVALUATION MATRIX  
DES MOINES, IOWA**

**DRAFT**  
18-Feb-08

**CHART B – PROJECTED CONDITIONS (5-10 YEARS)**

NOTE: Assumes a streetcar circulator system where the furthest stop is not more than three miles from any starting point. A perfect score is 21 positive answers.

		DES MOINES	
		POSITIVE	NEGATIVE
1	Existing grid and traffic patterns are conducive to streetcars and automobiles operating smoothly within a shared right-of-way.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Topography is friendly to streetcar operations within operational areas of the proposed streetcar system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	There is an absence of physical barriers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Operates directly on Central Business District's Principal street corridor(s). (at least one corridor with 5 - 10 minute headways)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Operates in center of Central Business District's highest employment concentrations (1000+ employees within 800 ft. at multiple locations and an overall employment concentration of at least 50,000 employees).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Connects directly to residential concentrations (at least 300 residents within 400 ft. at multiple locations totaling not less than 10,000 residents).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Connects directly to entertainment district(s) with venue(s) of at least 5,000 person capacity per event.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Connects directly to existing mixed-use areas outside of CBD (residential, commercial, recreational, including important restaurants seating 60+ people)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Connects directly to registered historic districts and significant historic sites.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	Connects directly to major city hospital(s) (at least one with a minimum of 300 beds).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Connects directly to main convention center (at least 500,000 attendees annually).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	Connects directly to principal hotels (at least 1,000 rooms within 400 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Connects directly to principal art museum(s) and/or arts districts.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	Connects directly to major urban parks.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	Connects directly to multiple performing arts theaters (800+ seats and/or at least one principal theater with no less than 1,600 seats).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	Connects directly to important centers of government (City, County, State, Federal- should have at least three).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	Connects directly to planned mixed-use development areas, including planned residential concentrations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	Connects directly to principal center city library or libraries.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19	Connects directly to significant urban educational institutions (1,000+ students within 800 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	Connects directly to basic residentially oriented commercial activities (groceries, clothing, hardware, pharmacy). These should be selectively distributed within 300 ft. along overall streetcar line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21	Connects efficiently to other modes of transit/transportation throughout length of system (trains, buses, bicycles, etc).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RATING:		<input type="checkbox"/> 20	<input type="checkbox"/> 1

## **Matrix Overview**

### **Physical Considerations, Items 1-3<sup>2</sup>**

There are no serious topographical issues (steep inclines). Street directional patterns, street width and traffic flow are all conducive to streetcars operating in mixed traffic conditions (together with automobiles and buses) and within shared rights-of-way. The clearance of skywalks is sufficient for the overhead power system to be constructed in a cost efficient manner. There are no additional prohibitive overhead obstructions. Based upon preliminary information, it seems likely that no unforeseen structural challenges would hamper a track design that would enable streetcars to cross two of the bridges carrying traffic over the Des Moines River.

### **Directly Services Central Business District (CBD), Items 4-5**

The principal street grid and location of major employers within the CBD offer an advantageous opportunity to provide streetcar circulator service to the approximately 70,000 full time employees who work downtown. This unusually high number of downtown employees (as compared to the population of greater Des Moines and other medium-sized cities) is a very important factor in the success of a streetcar circulator. Streetcars would enable downtown employees to easily access multiple destinations without using an automobile, including restaurants, parks, entertainment districts, and urban core residential concentrations (both existing and those that will be built because of a streetcar circulator). It should be noted that even Portland, Oregon, which currently boasts the most successful streetcar circulator system in the nation, could not design its initial route to operate on principal streets in the center of Portland's central business district without conflicting with Portland's Transit Mall and other transit modes (light rail and buses). In downtown Des Moines, a streetcar circulator could operate on multiple east/west streets in the center core, including, but not limited to, Grand Avenue, Walnut Street and/or Locust Street and in a manner that would be complimentary to existing transit service.

### **Connection to Residential Concentrations, Item 6**

As noted several times in this report, people need to live downtown in significant numbers for a streetcar circulator to be truly successful. It has also been well documented that streetcars will accelerate the rate of residential investment if there is already a demonstrated trend towards living downtown. Such is the case in Des Moines.

A streetcar circulator operating between the State Capitol area on the east and possibly as far west as Fifteenth Street, and including buildings within three blocks of Grand Avenue (north) and Walnut Street or Court Street (south) would initially service approximately three to five thousand residents. This includes all people living within approximately 700 ft. of any segment of the proposed initial streetcar route. However, it is this consultants opinion, based upon existing trends and the acceleration in residential development that would accompany a streetcar circulator, that a residential population of at least 15,000 could be expected in downtown Des Moines within ten years after streetcar service is initiated.<sup>3</sup> Additionally, future route extensions could (and should) connect the central core circulator to

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<sup>2</sup> At the earliest opportunity, the overhead skywalks should be evaluated for the purpose of integrating the walkway system into the planning process for future streetcar stops. Also, an evaluation for conceptual track designs for crossing two of the Des Moines River bridges, including preliminary cost estimates, should be completed as soon as possible after any decision to proceed with additional analysis.

<sup>3</sup> This projection can be substantiated by a market analysis supported by an aggressive TOD strategy.

nearby neighborhoods like the Sherman Hill Historic District with a population of approximately 1,800 people. Such connections would also accelerate investment in emerging neighborhoods (i.e. the South of Sherman Hill area).

### **Entertainment Districts, Mixed-Use Areas and Important Venues, Items 7-8**

A streetcar circulator operating in downtown Des Moines would connect directly to at least two entertainment/mixed-use districts – the Court Avenue District and the East Village District. The circulator would also provide direct service to numerous restaurants (several seating more than 60 people) and could connect to the Iowa Events Center, including the Wells Fargo Arena (17,000 seats), the new convention hall (Hy Vee Hall) and Veterans Memorial Auditorium with a seating capacity of approximately 15,000 people.

### **Historic Districts and Sites, Item 9**

The ability to connect to historic districts and sites and to foster the development of such destinations can greatly enhance the number of new visitors coming to an urban center while also contributing to the quality of life in the central city for the benefit of local residents. In Des Moines, the East Village District and the Court Avenue District are also historic districts and perceived as such, although they are also entertainment districts. This contributes to a synergy in these areas that can be expected to rapidly increase (because of the streetcar circulator) and result in even more investment in older properties, new infill developments, more visitors, and more reasons to live and work downtown.

As previously noted, future extensions may connect to additional historic districts that are also residential districts (Sherman Hill). New heritage tourism opportunities would thereby be created by the same streetcars that provide a transit mode of choice for everyone living in the greater downtown area.

The State Capitol, including the surrounding expanse of green space, is another major historic site that can expect significantly more visitation if a streetcar circulator is constructed. The prominent setting of this grand and great building, coupled with ease of access from multiple locations by streetcar, will most likely make the State Capitol one of several primary destinations for visiting families, convention delegates and tourists after streetcar based sight-seeing packages are developed. The Iowa Historical Center could expect to see a similar increase in visitation.

In addition to the above, there are many architecturally and historically significant buildings within the area that would be serviced by an initial streetcar system. All of these would provide visual interest to passengers and could be included in future streetcar “heritage tours”. The marvelous civic buildings in Des Moines, influenced by both the City Beautiful movement and beaux-arts design concepts would certainly become an important part of such tours (see Item 16, below).

### **Major City Hospitals, Item 10**

Iowa Methodist Hospital, with 373 beds, could be serviced directly by streetcars, provided a main entrance is established on the hospital’s south side. It is strongly recommended that this become a near term goal for both the hospital and the transportation oriented development plan that must accompany the initiation of streetcar service in the downtown area. It is also possible that future extensions to an initial streetcar system would connect to Mercy Medical Center (596 beds).

## **Convention Center and Hotels, Items 11-12**

A streetcar circulator would serve both the Iowa Events Center (convention center and arena complex) and major downtown hotels. During 2006 and 2007 the combined attendance of the Iowa Events Center exceeded 1,000,000 people. These attendance levels considerably exceeded several previous years and are a result of both expanded facilities and high quality marketing efforts. These large increases in attendance send a positive message.

Based upon 1) the planned enhancement of downtown Des Moines' considerable existing attributes (improved destination appeal), 2) the planned construction of larger convention facilities, 3) implementation of focused *transit based* redevelopment strategies and 4) the construction of a streetcar circulator, it is likely that Des Moines could eventually experience a sustained increase in convention attendance that would exceed 500,000 overnight visitors annually.<sup>4</sup>

A streetcar circulator would play a major role in increasing the level of competitiveness of all venues in the Iowa Events Center. With the many attractions that would be immediately and conveniently accessible via the streetcar circulator the recreational opportunities available to both the daily attendee and the overnight convention delegate would be greatly enhanced. Convention planners give such visitor opportunities a high rating in their venue selection process. The ultimate benefit would likely be a convention/exposition facility with greater capacity and more hotel rooms in close proximity to the Events Center. However, the current number of hotel rooms (over 1000) within the area that would most likely be served by the initial streetcar route is sufficient to support a well used streetcar system when combined with the other positive considerations summarized in this assessment.

## **Visual Arts and Urban Parks, Items 13-14**

During recent years, art shops and private galleries have been established in the entertainment/historic districts located in the downtown area. Several galleries are fortunately also located in the central business district. A streetcar circulator will definitely increase visitation to these attractions and foster the development of additional galleries. Some entertainment districts frequently also emerge as "arts districts" as the quantity and quality of leisure time activities increases. Existing entertainment districts in Des Moines are positioned to see this trend accelerated and then mature into an additional community asset.

Both the Des Moines Arts Festival and the Metro Arts Alliance Two Rivers Arts Expo provide excellent opportunities to expand the goal of increasing awareness and participation in the arts via streetcar. A streetcar circulator is a special mode of transit that can establish an immediate linkage from these events to multiple galleries and subordinate arts events organized throughout the downtown area.

Gateway Park is in the process of becoming a major urban sculpture garden and would be conveniently accessible by all people serviced by the streetcar circulator. This particular urban park will combine the attractions of the visual arts with open space recreational opportunities and could become an integral part of an expanded streetcar supported arts festival. Also, an enhanced Nollen Plaza (a smaller urban park in the CBD) could be quickly accessed by downtown workers, visitors and residents via the streetcar circulator. Ease of access to such urban parks provides an important stimulus to the idea of working, living, and relaxing in the downtown environment.

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<sup>4</sup> This projection can be substantiated by a market analysis supported by an aggressive TOD strategy.

As both sides of the Des Moines River waterfront are developed into an extensive and year-round parks and recreational attraction (the “Principal Riverwalk”), the multiple benefits of access by streetcar will become apparent. Large numbers of people will be able to park at removed locations and attend riverfront festivals and events. Both residents and downtown workers will also be able to access the newly developed riverfront for purely recreational purposes at all times of the day. Ultimately, a streetcar circulator would play a significant role in making the riverfront a more vital part of the center city’s attraction to visitors and residents alike. Conversely, a redeveloped riverfront will foster measurable increases in streetcar ridership. Parks and streetcars are mutually supporting, and every effort should be made to connect the streetcar circulator to parks of all sizes.

The opportunity to create new urban parks that can be accessed by streetcar should become one of the priorities in the transit supported land use planning process. In addition to Gateway Park on the west and the River Walk that is close to the downtown’s center, the expansive State Capitol grounds (100 acres) offer an outstanding recreational resource if considerably developed for this purpose. When developed as a true urban park, these grounds could play a major role in fostering streetcar supported downtown living on a large scale.

### **Connects to the Performing Arts, Item 15**

A streetcar circulator could connect directly to the Civic Center of Greater Des Moines (2,700+ seats), the Wells Fargo Arena (up to 15,000 seats) and to the Simon Estes Riverfront Amphitheater. As such, the streetcar circulator would provide considerably improved accessibility to important concerts and performances for the benefit of both residents (including downtown residents) and visitors. Also, the opportunity for convenient access to these venues from off site parking centers would be greatly enhanced. In addition to these major venues, several smaller downtown theater/performing arts destinations could be immediately serviced by a streetcar circulator – including, but not limited to, the Temple for Performing Arts, People’s Court, The House of Bricks, 4th Street Theater, and Vaudeville Mews. The circulator would enhance attendance at all of these facilities.

### **Connects to Centers of Government, Item 16 (and Comment on Civic Places)**

Des Moines is by far the largest center of government in Iowa. The State Capitol is located here with its attendant state office buildings. The largest city and county governments in Iowa are located here. The largest federal government presence in Iowa is located here.

Fortunately, all levels of government and all major government buildings in the downtown area (federal, state, city, and county) would be directly serviced by a streetcar circulator operating on the general route recommended in this report. Intensely utilized government buildings and streetcar circulators are mutually supporting.

It is worth noting here that civic places in downtown Des Moines, including those located along the River Walk, offer an additional (and unusual) opportunity to create destination appeal, thereby enhancing the livability of downtown Des Moines while increasing the attractiveness of the area for visitors. The assemblage of public buildings in the classical style, together with the arched bridges over the Des Moines River, all strongly reflect the impact of the City Beautiful movement of the late 19th century and early 20th century. By physically enhancing certain design elements from this era, possibly including the recapture of the original appearance of the bridges, the Riverwalk area could become one of the finest surviving representations of this important period in American city planning. The physical

character of the city would be much improved and the ability to “sell” the city to visitors, convention planners and new businesses would be significantly enhanced.

### **Connects Directly to Planned Development Areas, Item 17**

There are a number of open spaces and surface parking lots that have been identified by Des Moines planners and downtown stakeholders as primary sites for renewed development. A significant proportion of this space lies between and around the East Village District and the Central Business District – on both sides of the Des Moines River.

A well conceived streetcar based transportation oriented development (TOD) strategy would take full advantage of the streetcar circulator to accelerate residential and mixed use development within identified *priority development areas* between the State Capitol and the Des Moines CBD. Such a plan would capitalize upon existing positive development trends, recommendations included in the *Downtown Des Moines Planning Project*, and a considerate understanding of the ability of a streetcar circulator to foster and then sustain development under the particular set of circumstances that currently exist in the downtown area (see Recommendations and Commentary below).

### **Connection to Educational Institutions, Item 18**

Although there are no major college level institutions within the immediate area that would likely be served by an initial streetcar circulator system, Des Moines has made exemplary progress in bringing child care, grade school and high school classes downtown. This trend should continue and will be much enhanced by a streetcar circulator because more parents will decide that there are advantages to both living and working downtown. Additionally, more downtown workers would have easier access to their children during the weekdays. Des Moines may have a significant opportunity to demonstrate how urban core schools can benefit from streetcars and how streetcars can be instrumental in reestablishing a sustainable and significant family presence in the center city. Based upon existing trends and goals that would be established in a streetcar based TOD program, it seems reasonable to expect that a pre-college population (all ages) of more than 1,000 students could be realized within five to ten years.

It should also be noted that Mercy College, with approximately 900 students and now offering several degrees in the health sciences, would not be far removed from an initial streetcar circulator. Future route extensions could include a direct connection to the college, possibly in conjunction with a connection to Mercy Hospital.

### **Connects to Residentially Oriented Commercial Activities, Item 19**

Although some resident supporting commercial/retail facilities are currently doing business in the downtown area, it would be a function of the streetcar based TOD program to delineate where and how such new stores would best be established. The extent to which streetcars (as pedestrian accelerators) can foster investment in small businesses that cater to local residents as well as visitors cannot be overstated, but the incentives and benefits created by streetcars (i.e. easy access by customers) must be carefully orchestrated.

### **Connects Efficiently to other Modes of Transit/Transportation, Item 20**

Des Moines is fortunate to have leadership in the Des Moines Area Regional Transit Authority (DART) that clearly understands:

- 1) The unique advantages streetcar circulators have over other forms of transit under particular circumstances and
- 2) The necessity to considerately integrate streetcars with all other forms of transit and transportation in order to maximize both the efficiency of the overall transportation system and the quality of transportation choices available to the public. Together with other stakeholders, DART would play a critical role in developing a multiple mode and well integrated transportation plan that specifically includes a streetcar circulator as well as concepts for future extensions from the initial system. This plan must be an important part of any streetcar based transportation oriented development strategy for downtown Des Moines.

### **III. Recommendations and Commentary**

It has been determined that a well planned downtown streetcar circulator will work very well in Des Moines and that such a system will help the city to reach and then sustain important long range economic development and land use goals. Should the Des Moines community decide to move forward in planning an initial streetcar system, the following briefly described course of action is recommended over a period of nine to fifteen months.

#### **1. Address Physical Issues**

##### **A. Overhead Walkways**

The extensive downtown overhead walkway system should be analyzed for the purpose of determining how a streetcar circulator can best relate to this system for pedestrian movement. This investigation would include consideration of the best locations for possible streetcar stops as they relate to the walkways. It should also be noted that a streetcar circulator would greatly assist the re-establishment of storefront, street level retail activity. This subject would be addressed in the streetcar based transportation oriented development (TOD) strategy (see Number 5, below).

##### **B. Des Moines River Bridges**

Initial evaluations of the best design alternatives for installing streetcar rail and the overhead power delivery system should be completed, together with preliminary design concepts and cost estimates.

#### **2. Define Recommended Route(s)**

All of the elements summarized in the Streetcar Circulator Evaluation Matrix should be considered in selecting the best initial route. Additionally, information gathered from the field survey (below), combined with information from other sources, will provide a firm understanding of the most obvious and desirable development opportunities that should influence route determination. Development opportunities will include existing open space, including parking lots, as well as the renovation of

underutilized buildings. While the process of determining the best alternatives for an initial streetcar circulator route is underway, consideration should also be given to future extensions of the starter route. Such extensions might be in the form of loops or they might be essentially linear. Either way, they would feed from and to the initial circulator route. It is already clear that Des Moines can easily and productively extend an initial streetcar system in several directions, which bodes well for the overall metropolitan transportation network.

### **3. Field Survey**

A high quality survey will provide and/or confirm all of the necessary data and information necessary to determine the best downtown economic development and land use objectives that can be more quickly realized with the benefit of a streetcar circulator. This information will include, but not be limited to, demographic data, land area available for development, current rates and types of development, and the amount of existing building space available for reinvestment. Fortunately, much of this data and information is currently available as a result of previous studies and the just completed Downtown Des Moines Planning Project. Preliminary route determination can therefore be undertaken simultaneously with confirmation of such information through the field survey. The streetcar based transportation oriented development (TOD) strategy (below) would be significantly based upon information obtained and or confirmed in this survey.

### **4. Preliminary Costs and Methodology**

The process of developing realistic preliminary cost estimates should begin as soon as the initial route(s) is determined. Such estimates can include alternate routes or portions of alternate routes. While it is not within the scope of this report to detail the cost estimating methodology, it is strongly recommended to bring qualified contractors into the initial estimating process at the very beginning of this process. (See footnote #5 for approximate initial cost assumptions.)

### **5. The Transportation Oriented Development Strategy**

High quality community data and information are crucial to establishing the base for measuring the success of the TOD strategy. All development objectives contained in this strategy are contrasted to this base in accordance with a pre-determined timetable.

Streetcar based transportation-oriented development strategies differ from other approaches to TOD in several respects, including the fact that *development takes place and is sustained along the entire length of the streetcar line* (not just around station stops). Because streetcars are by far the most effective form of transit that actually induces economic development we sometimes refer to them as “development oriented transit”.

The streetcar based transportation oriented development strategy will be the foundation for both realistic economic development projections and ridership projections. These, in turn, are fundamental to obtaining funding to build and operate the initial streetcar system. While it is not within the scope of this report to detail the elements of a sound, streetcar based TOD strategy, such a strategy will include very clear goals, priority projects that include the adaptive use of existing buildings as well as new construction, firm timetables, realistic measuring standards and confirmation of a public/private partnership that will administer and implement the strategy with determination.

## 6. Economic Development and Ridership Projections

After the preliminary route (or routes) are determined and the outline for the TOD strategy is completed, projections regarding the amount of economic development (in dollars) and the number of riders can be realistically estimated by qualified professionals. Economic development projections are forecast based upon the rate of accelerated development induced by the streetcar circulator as compared to the current rate of development without the streetcar circulator. Ridership projections are based upon several considerations not currently utilized in the Federal Transit Administration's (FTA's) recommended ridership forecasting methodologies for buses.

One of the most reliable methodologies for forecasting streetcar ridership utilizes community comparisons for medium-sized cities with similar circumstances and characteristics. Although it is not within the scope of this report to outline the details of this methodology, a significant element in the ridership forecasting process would be the success of DART's Unlimited Access Program, which brings many workers downtown who would otherwise travel by car. The more people who are downtown without their automobiles, the more successful the streetcar system will be. Interestingly, after the streetcar circulator becomes operational, the Unlimited Access Program (and DART's Pass Program) will be even more intensely utilized as workers learn how easily they can move about in downtown Des Moines. The many other positive circumstances existing within the proposed operational area for an initial streetcar circulator lend themselves to projecting a high level of ridership.

## 7. Funding

It is not within the scope of this report to detail all of the many funding options available for building and operating a streetcar circulator. As costs, development opportunities and ridership levels are confirmed, the best options available for funding become clearer. However, based upon the approximate route suggested in this report it seems reasonable to assume that one third of the cost for building a Des Moines streetcar circulator<sup>5</sup> might come from local sources, one third from the Transportation Infrastructure Finance and Innovation Act (TIFIA)<sup>6</sup> and one third from other sources, which might include an FTA "Small Starts" grant. Tax Increment Financing (TIF) could be utilized to pay down a federal loan originating from the TIFIA program. The Small Starts program is a new, still emerging funding program that is intended to benefit transportation projects that cost no more than \$250,000,000 with a simpler review process than larger projects are required to undertake. As an integral part of the overall recommended course of action, an initial funding plan should be included in the next phase of analysis for a proposed downtown streetcar circulator.

### Commentary

Significant amounts of public funding are required to build and operate a streetcar system that will serve transit needs while also accelerating the realization of a community's economic development and land use objectives. However, private sector funding is by far the most efficient way to complete the recommended next course of action summarized above. Because the rate of economic development is greatly accelerated by streetcar circulators—under the right circumstances (as in Des Moines)—the private sector has stepped forward in other cities to pay for most of the costs associated with preliminary planning, design and estimating. The costs are minimal compared to the benefits derived.

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<sup>5</sup> If we assume an approximate initial streetcar circulator route of 4.5 miles, the approximate estimated cost (in today's dollars) should not exceed \$80,000,000, including streetcars and a maintenance facility.

<sup>6</sup> TIFIA provides for three forms of credit for qualified projects, including a long-term low interest loan.

There are considerable cost savings to be realized, as well as timesavings, in developing initial project concepts and realistic cost estimates when financed primarily through private funding. Private sector contributions can provide for central control of the initial planning and estimating process at the earliest stages of project development, which results in cost efficiencies throughout the long term planning and project financing process. Also, the nexus for a durable private/public partnership can be created that will greatly benefit the ability to secure public funding for the actual project.

Contingent upon the approval of estimated costs for completing the proposed course of action (provided upon request), together with any other items proposed by others, it is highly recommended that private sector contributions be solicited to support any next level of investigation and planning for a proposed streetcar circulator.

#### **IV. Comparable Assessments**

- 1. Portland, Oregon: Evaluation of Initial Operating Streetcar Circulator (2001)**
- 2. Columbus, Ohio:**
  - a. Projected Conditions for proposed High Street Linear Route (downtown to The Ohio State University)**
  - b. Projected Conditions (5-10 years) for Proposed Short North/German Village and Arena District/Discovery District Downtown Circulator**
- 3. Nashville, Tennessee: Projected Conditions for Downtown Circulator (5-10 years)**

#### **Introduction**

For the purpose of assessing the viability of proposed streetcar circulators, a medium sized city is generally considered to have a population anywhere from 150,000 to 800,000 people. The metropolitan area population may range anywhere from 300,000 people to approximately 2,000,000.

Notwithstanding this wide range in population, medium sized cities tend to share several characteristics. These include 1) a clearly identifiable old urban core that has a long tradition of being viewed as the economic center of the region and 2) a relatively compact center city area (as compared to much larger urban core areas in major cities like New York, Washington, DC and Chicago). Nearly all (if not all) medium sized cities that flourished before 1950 have identifiable center city areas that can be encompassed in approximately 2 to 4 square miles.

Although both the city and metropolitan populations of Des Moines are smaller than the other three medium sized cities evaluated on the following charts, the size of the center city areas that are already being serviced or that would be serviced by streetcar circulators are comparable. All four cities also enjoy high levels of downtown employment (between 48,000 and 80,000 people) regardless of the variation in city population. The fact that the city and metro populations of Des Moines are considerably lower than the other comparison cities would not negatively impact ridership levels on a well-planned streetcar system. This is because Des Moines has so many of the positive conditions necessary to predict the success of the system (outlined herein) and a high percentage of the overall population lives within a comparatively compact area.

With respect to year round weather conditions, Columbus, Ohio would be the most comparable to Des Moines among the cities included in this evaluation.

The assessment for Portland, Oregon is for the initial streetcar circulator that became operational in 2001. The Portland circulator has since become the benchmark for all later planned systems nationwide. The Portland assessment does not include the positive impact of new extensions, either operational or being planned.

The importance of the Portland streetcar experiment is that it has been very successful regardless of a lower matrix rating than the forecasted rating for other cities. Portland's initial route could not connect to either the convention center or to the center of downtown employment and could not operate on the central business district's principal streets. However, from its beginning, Portland's downtown streetcar circulator operated through areas where many people lived and quickly fostered investment in thousands of additional residential units. This confirms the synergy between streetcars and residents and demonstrates how one overriding condition can influence the success of a circulator. Nevertheless, because a streetcar circulator in Des Moines can make several more connections than Portland could initially make, the projected rating for Des Moines is noticeably higher.

As mentioned, Portland, Oregon is currently *the* benchmark for measuring the success of streetcars in medium sized cities. But more examples of the streetcar's unique ability to significantly improve the quality of life in the center city (under representative conditions)<sup>7</sup> are needed. The success of any newly built streetcar circulator system during the next several years will likely have a profound effect on causing the adoption of innovative and simplified federal funding programs for both light rail projects and streetcar systems. The demonstration value of successful new streetcar systems would include a truthful public perception that the center city can function quite well and become an attractive place to live, work and play without an ongoing total dependence on the automobile. Without a doubt, Des Moines, Iowa, Columbus, Ohio, and Nashville, Tennessee are among the select few cities that possess the highest levels of existing "streetcar ready" conditions that can most readily demonstrate the very special transit and economic development attributes of streetcar circulators.

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<sup>7</sup> "Representative" conditions refers to the actual transit, economic development and land use benefits that can be realized in multiple urban environments as contrasted to primarily tourist oriented streetcar systems (i.e. Tampa, Florida and Little Rock, Arkansas).

**MEDIUM-SIZED CITIES**

**STREETCAR ROUTE EVALUATION MATRIX  
PORTLAND, OREGON**

**DRAFT**

**Evaluation of Initial Operating Streetcar Circulator**

NOTE: Assumes a streetcar system where the furthest stop is not more than three miles from any starting point. A perfect score is 21 positive answers.

		PORTLAND, OREGON	
		POSITIVE	NEGATIVE
1	Existing grid and traffic patterns are conducive to streetcars and automobiles operating smoothly within a shared right-of-way.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Topography is friendly to streetcar operations within operational areas of the proposed streetcar system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	There is an absence of physical barriers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Operates directly on Central Business District's Principal street corridor(s). (at least one corridor with 5 - 10 minute headways)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Operates in center of Central Business District's highest employment concentrations (1000+ employees within 800 ft. at multiple locations and an overall employment concentration of at least 50,000 employees).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Connects directly to residential concentrations (at least 300 residents within 400 ft. at multiple locations totaling not less than 10,000 residents).*	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Connects directly to entertainment district(s) with venue(s) of at least 5,000 person capacity per event.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Connects directly to existing mixed-use areas outside of CBD (residential, commercial, recreational, including important restaurants seating 60+ people)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Connects directly to registered historic districts and significant historic sites.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	Connects directly to major city hospital(s) (at least one with a minimum of 300 beds).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Connects directly to main convention center (at least 500,000 attendees annually).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12	Connects directly to principal hotels (at least 1,000 rooms within 400 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Connects directly to principal art museum(s) and/or arts districts.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	Connects directly to major urban parks.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	Connects directly to multiple performing arts theaters (800+ seats and/or at least one principal theater with no less than 1,600 seats).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16	Connects directly to important centers of government (City, County, State, Federal- should have at least three).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17	Connects directly to planned mixed-use development areas, including planned residential concentrations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	Connects directly to principal center city library or libraries.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19	Connects directly to significant urban educational institutions (1,000+ students within 800 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	Connects directly to basic residentially oriented commercial activities (groceries, clothing, hardware, pharmacy). These should be selectively distributed within 300 ft. along overall streetcar line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21	Connects efficiently to other modes of transit/transportation throughout length of system (trains, buses, bicycles, etc).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RATING:		<input type="text" value="15"/>	<input type="text" value="6"/>

\* The large number of streetcar supported residents in downtown Portland is the foundation for the circulator's success.

**MEDIUM-SIZED CITIES**

**STREETCAR ROUTE EVALUATION MATRIX  
COLUMBUS, OHIO**

**DRAFT**

**Projected Conditions (5-10 years) for Proposed High Street Line Only  
(Downtown to The Ohio State University)**

NOTE: Assumes a streetcar system where the furthest stop is not more than three miles from any starting point. A perfect score is 21 positive answers.

		COLUMBUS, OHIO	
		POSITIVE	NEGATIVE
1	Existing grid and traffic patterns are conducive to streetcars and automobiles operating smoothly within a shared right-of-way.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Topography is friendly to streetcar operations within operational areas of the proposed streetcar system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	There is an absence of physical barriers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Operates directly on Central Business District's Principal street corridor(s). (at least one corridor with 5 - 10 minute headways)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Operates in center of Central Business District's highest employment concentrations (1000+ employees within 800 ft. at multiple locations and an overall employment concentration of at least 50,000 employees).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Connects directly to residential concentrations (at least 300 residents within 400 ft. at multiple locations totaling not less than 10,000 residents).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Connects directly to entertainment district(s) with venue(s) of at least 5,000 person capacity per event.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	Connects directly to existing mixed-use areas outside of CBD (residential, commercial, recreational, including important restaurants seating 60+ people)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Connects directly to registered historic districts and significant historic sites.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	Connects directly to major city hospital(s) (at least one with a minimum of 300 beds).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Connects directly to main convention center (at least 500,000 attendees annually).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	Connects directly to principal hotels (at least 1,000 rooms within 400 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Connects directly to principal art museum(s) and/or arts districts.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14	Connects directly to major urban parks.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15	Connects directly to multiple performing arts theaters (800+ seats and/or at least one principal theater with no less than 1,600 seats).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	Connects directly to important centers of government (City, County, State, Federal- should have at least three).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	Connects directly to planned mixed-use development areas, including planned residential concentrations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	Connects directly to principal center city library or libraries.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19	Connects directly to significant urban educational institutions (1,000+ students within 800 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	Connects directly to basic residentially oriented commercial activities (groceries, clothing, hardware, pharmacy). These should be selectively distributed within 300 ft. along overall streetcar line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21	Connects efficiently to other modes of transit/transportation throughout length of system (trains, buses, bicycles, etc).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RATING:		<input type="text" value="16"/>	<input type="text" value="5"/>

**MEDIUM-SIZED CITIES**

**STREETCAR ROUTE EVALUATION MATRIX  
COLUMBUS, OHIO**

DRAFT

**Projected Conditions (5-10 years) for Proposed Short North/German Village  
and Arena District/Discovery District Downtown Circulator**

NOTE: Assumes a streetcar circulator system where the furthest stop is not more than three miles from any starting point. A perfect score is 21 positive answers.

		COLUMBUS, OHIO	
		POSITIVE	NEGATIVE
1	Existing grid and traffic patterns are conducive to streetcars and automobiles operating smoothly within a shared right-of-way.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Topography is friendly to streetcar operations within operational areas of the proposed streetcar system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	There is an absence of physical barriers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Operates directly on Central Business District's Principal street corridor(s). (at least one corridor with 5 - 10 minute headways)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Operates in center of Central Business District's highest employment concentrations (1000+ employees within 800 ft. at multiple locations and an overall employment concentration of at least 50,000 employees).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Connects directly to residential concentrations (at least 300 residents within 400 ft. at multiple locations totaling not less than 10,000 residents).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Connects directly to entertainment district(s) with venue(s) of at least 5,000 person capacity per event.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	Connects directly to existing mixed-use areas outside of CBD (residential, commercial, recreational, including important restaurants seating 60+ people)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Connects directly to registered historic districts and significant historic sites.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	Connects directly to major city hospital(s) (at least one with a minimum of 300 beds).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Connects directly to main convention center (at least 500,000 attendees annually).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	Connects directly to principal hotels (at least 1,000 rooms within 400 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Connects directly to principal art museum(s) and/or arts districts.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	Connects directly to major urban parks.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	Connects directly to multiple performing arts theaters (800+ seats and/or at least one principal theater with no less than 1,600 seats).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	Connects directly to important centers of government (City, County, State, Federal- should have at least three).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	Connects directly to planned mixed-use development areas, including planned residential concentrations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	Connects directly to principal center city library or libraries.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19	Connects directly to significant urban educational institutions (1,000+ students within 800 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	Connects directly to basic residentially oriented commercial activities (groceries, clothing, hardware, pharmacy). These should be selectively distributed within 300 ft. along overall streetcar line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21	Connects efficiently to other modes of transit/transportation throughout length of system (trains, buses, bicycles, etc).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RATING:		<input type="text" value="21"/>	<input type="text" value="0"/>

**MEDIUM-SIZED CITIES**

**STREETCAR ROUTE EVALUATION MATRIX  
NASHVILLE, TENNESSEE**

**DRAFT**

**Projected Conditions (5-10 years)**

NOTE: Assumes a streetcar circulator system where the furthest stop is not more than three miles from any starting point. A perfect score is 21 positive answers.

		NASHVILLE, TENNESSEE	
		POSITIVE	NEGATIVE
1	Existing grid and traffic patterns are conducive to streetcars and automobiles operating smoothly within a shared right-of-way.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Topography is friendly to streetcar operations within operational areas of the proposed streetcar system.*	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	There is an absence of physical barriers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Operates directly on Central Business District's Principal street corridor(s). (at least one corridor with 5 - 10 minute headways)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Operates in center of Central Business District's highest employment concentrations (1000+ employees within 800 ft. at multiple locations and an overall employment concentration of at least 50,000 employees).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Connects directly to residential concentrations (at least 300 residents within 400 ft. at multiple locations totaling not less than 10,000 residents).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Connects directly to entertainment district(s) with venue(s) of at least 5,000 person capacity per event.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	Connects directly to existing mixed-use areas outside of CBD (residential, commercial, recreational, including important restaurants seating 60+ people)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Connects directly to registered historic districts and significant historic sites.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	Connects directly to major city hospital(s) (at least one with a minimum of 300 beds).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Connects directly to main convention center (at least 500,000 attendees annually).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	Connects directly to principal hotels (at least 1,000 rooms within 400 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Connects directly to principal art museum(s) and/or arts districts.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	Connects directly to major urban parks.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	Connects directly to multiple performing arts theaters (800+ seats and/or at least one principal theater with no less than 1,600 seats).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	Connects directly to important centers of government (City, County, State, Federal- should have at least three).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	Connects directly to planned mixed-use development areas, including planned residential concentrations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	Connects directly to principal center city library or libraries.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19	Connects directly to significant urban educational institutions (1,000+ students within 800 ft. of streetcar line).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	Connects directly to basic residentially oriented commercial activities (groceries, clothing, hardware, pharmacy). These should be selectively distributed within 300 ft. along overall streetcar line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21	Connects efficiently to other modes of transit/transportation throughout length of system (trains, buses, bicycles, etc).	<input checked="" type="checkbox"/>	<input type="checkbox"/>

\* Inclines in CBD street grid pose design challenges.

RATING:

## Attachment A

### Primary Function of the Streetcar in Today's Medium-Sized Cities

The primary function of today's streetcar is not the same as its traditional primary function. During the first 50 years of intense streetcar use (1890's-1940's), the principal use of streetcars was to service *linear* routes, connecting the city center to nearby neighborhoods and then to the ever expanding surrounding environs. The initial rapid expansion of urban areas nationally was significantly fostered almost entirely by streetcars servicing both existing and newly established linear corridors. By the mid 1950's automobiles had almost entirely overtaken this traditional streetcar role, with buses assuming any gap in the passenger capacity of the linear route.

The streetcar is now quickly coming back to life because its distinct advantages as a center city circulator are being newly discovered. The need for efficient downtown circulators is greater than ever as more and more people return to the center city to visit, work and live. The automobile, now in frequent gridlock status in many cities, is far too inefficient to effectively perform this role. Now that streetcars have again proven their passenger attracting capabilities – greater than any other form of transportation for circulator purposes – they are destined to become the preferred transit alternative in dozens of American cities during the coming decades. *Streetcars are becoming the proven way to significantly reduce dependence on the automobile in the urban core areas of many medium-sized cities.*

## Attachment B

### Basic Statistics - Comparison Cities

#### Des Moines, Iowa

City Population	198,000
Metro Population	534,230
City Land Area	77.2 sq. miles
Metro Land Area	2,912 sq. miles
Downtown Workers	70,000 +

#### Portland, Oregon

City Population	537,081
Metro Population	1,900,000
City Land Area	145.4 miles
Metro Land Area	463 sq. miles (county only) (5,000+ sq. miles in surrounding six county area)
Downtown Workers	80,000+

#### Columbus, Ohio

City Population	733,203
Metro Population	1,725,570
City Land Area	210 sq. miles
Metro Land Area	3,169.2 sq. miles
Daily Downtown Workers	80,000 +

#### Nashville, Tennessee

City Population	552,120
Metro Population	1,533,406
City Land Area	497 sq. miles
Metro Land Area	4,135 sq. miles
Downtown Workers	48,000 +