

FINANCING OPTIONS FOR AN EXPANDED SEATTLE STREETCAR SYSTEM AND NETWORK

A report to the Urban League and the Seattle Streetcar Alliance
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SUMMARY

This two-part study for the Seattle Urban League and the Seattle Streetcar Alliance sought to guide decisions regarding the financing of a network of streetcar lines in and near Downtown Seattle. The first part of the study addressed the potential revenue and funding sources for the operations, maintenance, and capital costs of developing streetcar lines. It drew from experiences around the country and abroad, particularly from the Portland, Oregon, and South Lake Union streetcar systems. The second part explored the social and economic characteristics of neighborhoods and districts that would affect the existing and planned network of streetcar lines and that might affect future extensions to this existing network.

During the many interviews conducted over the course of the work, we encountered strong interest in and support for expanding Seattle's streetcar network among a wide range of Seattle employers and public agency staff. As in other cities, a streetcar system seems to have broad public appeal in Seattle.

Part I: Potential revenue and funding sources for the operation, maintenance, and capital costs of streetcars

This project's scope of work was to explore means to finance operations and maintenance costs, but not capital costs, for expanding the streetcar network. However, we found that information about funding for both types of costs often came hand in hand. As a result, we report on both types of sources of funding and revenues.

A review of other streetcar systems revealed that sources of revenue and funding are numerous and diverse in both their provenance and the amount of support available. Funds come from a combination of public and private sources, and they come from various types of private-sector entities and different levels of government agencies: local district, city, region, state, and federal. All of the sources are directly related and tuned to the specifics of the local area. The main lesson from this part of the study is that streetcar systems typically draw from many different entities and sources to meet their financial requirements. Revenues from ridership meet only a fraction of the financial needs of the

systems. As a result, it is clear that in order for a streetcar system to run effectively, the operators need to be creative and vigilant in finding varied sources of support.

In some areas, funds have been generated from "new" money that became available as a result of denser development that took place, in part, because of the construction of the streetcar. The city building the streetcar acted to guarantee that these growing resources would be sufficient to cover the costs of the streetcar system. In Seattle, the type of funding that can be generated as a result of growth facilitated by the streetcar network will likely be different for different lines or extensions. For example, increased development density along some extensions would make it possible to charge for on-street parking. That new parking revenue could be used to fund streetcar operating costs. The city would pledge the use of parking revenues to pay a portion of the streetcar operating expenses. It would then impose on-street parking prices in the target area. If more revenue were generated than allocated to the streetcar, the city could use the extra funds for projects other than that of the streetcar. If less were collected than expected, then the city would need to use parking revenues from other areas of the city to pay the required operating expenses.

Other proposed streetcar extensions may be better and more effectively financed through local improvement district (LID) or tax increment financing (TIF) mechanisms. Any approach to gain private sector support and approval will require the city to obtain cooperation from the land owners and possibly major employers in the subject areas. Only as detailed discussions take place will it be possible to determine the actual amount of funding that can be obtained from any specific group of land owners. Therefore, this report provides only general and comparative figures of the potential amounts of funds that might be available through these mechanisms.

Part II: Spatial analysis of neighborhoods and districts along the streetcar system

Analyses were performed on seven street car lines in and around Downtown Seattle. The one existing line (the George Benson Waterfront line) and the one under construction (South Lake Union) provided baseline information for evaluating the feasibility of extending the system to additional locations. Five extensions were reviewed on the basis of discussions with the Urban League and the Streetcar Alliance: Westlake to Broadway, Seattle waterfront to Interbay, Yale to the University District and University of

Washington, International District Jackson Street, and Harrison Street to Seattle Center. These five extensions were intended to be examples of possible extensions. Their location and alignment were defined for exploration and comparative purposes only.

Spatial analysis of the areas along the seven lines examined the existing social and economic profiles of these areas and their potential for contributing to increased ridership and sustained future economic development. The analyses were run for several key indicators. Indicators of socio-economic strength included Local Improvement District location, assessed property values, vacant and redevelopable lands, residential density, employment density, location of properties with more than 500 employees, and Commute Trip Reduction work sites. Bus ridership and bus routes indicated the location and intensity of use of existing bus transit service. Three indicators of existing parking were probed. First, parcels whose land use included structured parking would benefit from the streetcar extension. Second, commercial properties with parking at grade were examined because they indicated possible underutilization of land and because they might be the first properties to be redeveloped as a result of the streetcar extension. Third, potential new parking meter zones were examined. Recent conversion of traditional coin operated parking meters to kiosk style meters has increased the city's revenues from on-street parking. This study therefore identified LIDs that did not have paid on-street parking or still used the old parking meters, as introduction of the new parking meter kiosks in these locations would likely generate new revenue for the city..

The spatial analysis showed that all of the extensions have a strong basis for being developed. However, just as with the best financing options, the reasons for building each streetcar line extension will tend to differ from line to line. In some cases, the extension will be a good way to provide the transportation system needed to support greater density of development, which can be expected to help pay for the streetcar. In other cases, a proposed streetcar extension will provide access to areas that are already heavily populated or have substantial employment. These extensions may not generate as much "new" money but may serve as core destinations/generators of trips that will use the streetcar to get to/from the new developments.

Tax base, existing ridership and future ridership potential, support from employers, and redevelopment potential all provide good arguments for implementing all the

extensions. However, not all opportunities will translate into the same dollar amounts for capital or operation and maintenance funds needed for the streetcar. For example, a strong ridership would contribute to the long-term viability of the system but might not be as enticing as a strong tax base to initiate the system. The different strengths presented by the different extensions, and the need to consolidate already apparent public and private sector support for the streetcar extensions, point to the need to conceive of the extensions as one transportation system. This single streetcar system will provide a linked, seamless network for the mobility of riders and, ultimately, for serving all employees, residents, and visitors of the various Seattle areas.

Further Investigation

The analyses suggested areas in which further investigations would be useful.

- It would be useful to estimate the possible economies of scale that may be gained from considering several or all the new extensions together rather than separately.
- Publicly owned lands might be sold or leased to provide capital funding. An inventory of these lands and their market values would help assess the potential contribution of this source of funding to the streetcar network.
- Parking can be an important source of revenue and capital. Further analyses of parking revenues are needed to assess their possible contribution to the streetcar system. Overall, an inventory of public and private parking, as well as a projection of future parking demand and supply, would help shape policies that both support the streetcar system and insure an efficient use of land.
- Further analyses are needed of possible increases in transit ridership created by the streetcar; increases in transit ridership have been noted by cities that have built such systems.
- Tax Increment Financing approaches have been instrumental in Portland and other cities in supporting new public infrastructure that attracts private development. The streetcar may be an opportunity to introduce this powerful public finance tool to the City of Seattle.

EXECUTIVE BRIEF

This two-part study seeks to guide decisions regarding the financing of a network of streetcar lines in and near Downtown Seattle. The first part of the study addresses the potential revenue and funding sources for the operations, maintenance, and capital costs of developing streetcar lines. It draws from experiences around the country and abroad, and specifically from the Portland and the South Lake Union (SLU) streetcar systems. The second part explores the social and economic characteristics of neighborhoods and districts, which are or will be affecting the existing and planned network of streetcar lines, and which may affect future extensions to this existing network.

This project's scope of work was to explore means to finance operations and maintenance, but not capital costs for expanding the network. However, we found that information about funding for both types of costs often came hand in hand. As a result, we are reporting on both types of sources of funding and revenues.

During the many interviews conducted over the course of the work, we encountered strong interest in and support to expand Seattle's streetcar network among a wide range of Seattle employers and staff in the various public agencies. As in other cities, a streetcar system seems to have broad public appeal in Seattle.

Part I: Potential revenue and funding sources for the operation, maintenance, and capital costs of streetcars

Sources of revenue and funding are numerous and diverse in both their provenance and the amount of support available. Funding comes from a mixture of public and private sources, and they come from the different levels of private-sector entities and government agencies: local district, city, region, state, and federal. The main lesson from this part of the study is that streetcar systems typically have drawn from many different entities and sources in order to meet their financial requirements. Revenues from ridership are only a fraction of the financial needs of the systems. As a result, it is clear that in order for a streetcar system to run effectively, the operators need to be creative and vigilant about varied sources of support.

For capital costs, the South Lake Union line relied heavily on private sector funding (more than 50 percent of capital costs) and state and federal support (almost 40 percent of capital costs), while Portland's major sources of capital funds were city parking bonds, Tax Increment Financing (TIF), and regional and city funds (more than 30 percent, more than 20 percent, and 20 percent, respectively). Portland's experience suggested that Seattle's streetcar system may present an opportunity to test the viability of TIFs, which are legal in the State of Washington, but yet untested.

For operation and maintenance costs, the major source of funding for both systems was the transit operator (covering approximately 50 to 60 percent of these costs for SLU and in Portland). Because fares typically provide less than 20 percent of the operation and maintenance costs, operators must exercise particular creativity in generating funds for the remaining 80 percent of these costs. The most likely sources for covering them are, in order of magnitude, parking revenues, employer support, sponsorships, and advertising. Portland has been able to tap relatively large sums in city parking revenues based on the argument that increases in streetcar riders correspond to increases in the parking supply, which in turn increases parking revenues. Streetcar districts also experience new development that further increases the demand for parking. On-street parking, and publicly owned parking facilities should be considered as part of the revenue equation. Though we have not found a precedent for this concept, it may be possible to seek the support of private parking owners to complement operation and maintenance costs. Also, large employers are a promising source of support since the streetcar system may help reduce some of their own parking costs. Some of the largest employers contract private transportation services, the costs of which could be substantially reduced with a functioning, expanded streetcar network. Biotech firms, health and education institutions, and the Port of Seattle all are likely to gain from an expanded streetcar network. Other partners worth considering are the tourism industry, the hotels, restaurants, cruise ship operators, etc.

Part II: Spatial analysis of neighborhoods and districts along the streetcar system

Analyses were performed on seven street car lines in and around Downtown Seattle. The two lines that are existing (the George Benson Waterfront line) or under construction (the SLU) provided baseline information to evaluate the feasibility of

extending the system to additional locations. Five extensions were reviewed, based on discussions with the Urban League and the Streetcar Alliance. These five extensions are meant as examples of possible extensions. Their location and alignment are defined for exploration and comparative purposes only.

Spatial analysis of the areas along the seven lines examined the existing social and economic profiles of these areas and their potential for contributing to increase ridership and to sustain future economic development. The analyses were run for several key indicators. Illustrative maps and comparative tables were provided to include the following.

Indicators of Socio-Economic Strength

A Local Improvement District (LID) was defined by the geographic extent of the area whose property owners, residents, employees, and employers would be most affected by the streetcar. Property owners, residents, and employers in a LID may be willing to contribute financially to the system. The largest LID in the streetcar system reviewed is that of the University of Washington extension.

The topography of the terrain was mapped to insure the appropriate functioning of the streetcar. All extensions examined avoid steep slopes.

Assessed property values in the LID were an indicator of the private wealth that existed along the streetcar lines. The WestLake to Broadway and the Harrison Street extensions have the highest assessed property values per linear foot of line.

Vacant and redevelopable lands indicated properties that may be developed or redeveloped in the future because public and private investment in a streetcar system would warrant seeking highest and best use for these lands. All extensions examined have a high potential for development or redevelopment. Not considered in the analyses were non-taxable properties, including lands that were publicly owned or owned by public and other institutions.

Residential density provided a measure of potential streetcar riders on a 7-day per week basis. The WestLake extension has the highest residential density per foot of line, following by the Interbay extension.

Employment density provided a measure of potential riders on a 5-plus-day per week basis. WestLake to Broadway extension has the highest employment density per foot of line, followed by the Harrison Street extension.

Location of Properties with more than 500 employees captured large employers located near the streetcar extensions who might benefit from providing incentives to their employees to be transportation efficient. The University of Washington main campus in the University District stands out with the entity with the largest number of employees.

Commute Trip Reduction (CTR) work sites captured employers with more than 100 employees who were already active in promoting efficient commutes. The WestLake to Broadway extensions has the highest number of employees in the CTR program per foot of line, followed by the University of Washington with the largest total number of employees.

Bus ridership and bus routes indicated the location and intensity of use of existing bus transit service. The WestLake extension has the highest number of transit riders, followed by the Yale to University of Washington extension.

Three indicators of existing parking were probed. First, parcels whose land use was structured parking located properties that would benefit from the streetcar extension. The use of these different properties could be coordinated to improve their utilization and to take advantage of time-sharing schemes for a variety of users. The Harrison Street extension has the highest amount of structured parking followed by the WestLake extension.

Second, commercial properties with parking at grade were examined because they indicated possible underutilization of land, and because they might be the first properties to be redeveloped as a result of the streetcar extension. All LID areas have substantial amounts of commercial land with significant parking at grade.

Third, the new parking meter zones have increased the city's revenues from on-street parking. LIDs that do not have paid on-street parking or still have the old parking meters should benefit directly from having new parking meter zones. A streetcar in these areas would reduce parking congestion and induce higher and more profitable turn-over in street parking. New parking meters are currently concentrated only in the Downtown and University District areas, and along Broadway. All other LIDs provide opportunities to improve the collection of parking fees through the new parking meter zones.

Proximity to Downtown

Close proximity to Downtown, which applies to the Westlake to Broadway, SLU, and the existing George Benson Waterfront line, yields the highest potential for ridership, for support by large and CTR active employers, and for a strong property tax base. It is no surprise, therefore, that these three streetcar lines are either functioning, about to function, or slated for future development (as in the case of the Westlake to Broadway extension).

Being farther from Downtown, the waterfront to Interbay, the Yale to UW, and the International District extensions do not show strength in all the social and economic indicators examined. However, they all have existing characteristics that offer strong reasons for being served by the streetcar system. And above all, their surrounding areas all show that being served by the streetcar would bring tangible benefits in the near future. These extensions have the densities of residential and employment development that can support the ridership.

Specific Strengths of Extensions Away from Downtown

The Interbay extension offers the potential for strong economic development in the form of added jobs and a stronger tax base. Its role in supporting the Port of Seattle consolidation of activities in the area also seems essential.

The UW extension would consolidate current public and private transportation systems supported and patronized by the University community—Metro's and the UW Health Sciences transportation support in particular.

The International District extension would serve a population that is more dependent on transit than any other in the city. It would also provide a timely opportunity to extend some of the benefits of downtown proximity to a socially and economically lively part of the city.

Finally, the Harrison Street extension has a strong economic base for being developed. However, this extension is different from the ones above in that it is clearly linked to the SLU extension and would not make sense without the SLU streetcar.

Working Closely with Metro

With respect to existing transit and transit ridership, all LID areas are well served and well used by existing bus transit, which suggests two things: first, it confirms the fact that areas considered for streetcar development already have a solid demand for transit; and second, it suggests the need to program streetcar extensions closely with Metro in order to insure the most effective transit service to all areas.

Two Principal Alignments

The analyses showed that the streetcar network envisioned so far has two distinct transportation alignments. One continuous alignment runs along the waterfront, with extensions planned to the northwest (Interbay) and to the east (International District). This linear route of about 4.5 miles serves the length of the western part of Downtown. The other part of the network centers on Westlake, with a southeasterly “spike” to First Hill, and a northern extension to the University District. This part of the network is well connected to the regional transit system and Sound Transit Light Rail system. The very short Harrison Street extension would connect to Seattle Center and lower Queen Anne to WestLake. The total length of the part of the network centered on Westlake is approximately 6 miles. If connections were to be considered between the two alignments, they would need to address topographical barriers in the Downtown area, and potentially long extensions to link the International District and First Hill, and to link the Seattle Center/Lower Queen Anne area and the Downtown waterfront.

One Transportation System

The spatial analysis showed that all of the extensions have a strong basis for being developed. However, the specific reasons behind the need for developing individual extensions vary from one to the other. Tax base, existing ridership, existing ridership and future ridership potential, support from employers, redevelopment potential, all provide good arguments for implementing all the extensions. However, not all opportunities translate into the same dollar amounts for capital or operation and maintenance funds needed for the streetcar. For example, a strong ridership contributes to the long-term

viability of the system, but may not be as enticing as a strong tax base to initiate the system.

The different strengths presented by the different extensions point to the need to conceive of the extensions as one transportation system, which provides a linked, seamless network for the mobility of riders, and, ultimately, for serving all employees, residents, and visitors of the different areas.

We come to the conclusion that the LIDs simulated in our analyses will need to pool at least part of their diverse resources into one fund. The proceeds from this pooled fund will then be allocated evenly to each extension. While private sector support to capital costs may not find the pooled fund attractive, it may agree to allocate a portion of their contributions to the fund. A pooled fund should work well for operations and maintenance costs.

Defining the LIDs

Careful definition of the boundaries of the LIDs would also help distribute the costs and benefits of the extensions more evenly. Working with the western boundary of the International District extension, for example, would help consider the benefits of the streetcar to Sounder, the Washington State ferry system, as well as the two stadiums. Careful definition of the Interbay and University District extensions LID boundaries can also help gain support for the streetcar.

Further Investigations

The analyses suggested areas where further investigations would be useful.

- Together with the incremental development of the streetcar network is being explored, it would be useful to estimate the possible economies of scale that may be gained from considering several or all the new extensions together rather than separately.
- Publicly owned or transportation lands might be sold or leased to provide capital funding. An inventory of these lands and their market values would help assess the potential contribution of this source of funding to the streetcar network.

- Parking can be an important source of revenue and capital. Further analyses of on-street parking revenues are needed to assess their possible contribution to the streetcar system. Also, the analysis carried out in this study do not include parking which is provided privately in residential and employment parcels. An assessment of potential savings that the private sector could make by reducing their own parking requirement would be useful. Overall, an inventory of public and private parking as well as a projection of future parking demand and supply would help shape policies that both support the streetcar system and insures an efficient use of land for cars.
- Further analyses are needed of possible increases in transit ridership as the result of the streetcar—increases that have been noted by cities that have built such systems.
- Finally, TIFs have been instrumental in Portland and other cities for supporting new public infrastructure that attracts privet development. The streetcar may be an opportunity to introduce this public finance tool to the City of Seattle.

PART I: POTENTIAL REVENUE SOURCES FOR OPERATIONS, MAINTENANCE, AND CAPITAL COSTS

INTRODUCTION TO PART I

Considerable interest exists among Seattle policy makers and the public in expanding the new South Lake Union Streetcar and the existing Waterfront streetcar to other inner Seattle neighborhoods. This part of the report explores a range of funding sources that could be available to meet operations, maintenance, and capital costs for an extended Seattle Streetcar network.

Part I of the report is in two sections: 1) potential revenue sources for operations and maintenance costs and 2) potential revenue sources for capital costs.

This project's scope of work stipulated that the work focus on operations and maintenance costs. Over the course of the research, however, we found that information about funding for both types of costs often come hand on hand. As a result, we report on sources of funding for operations, maintenance, and capital costs.

People contacted during the course of the project are listed in Appendix 1, and references to the information discussed with them are made in the text.

Appendix 2 provides tabular data comparing the capital and operations costs of the Portland Streetcar and South Lake Union (SLU) Streetcar systems. The capital costs of Portland's streetcar were approximately \$13.4 million per mile, and operation and maintenance costs are \$600,000 per year. The SLU streetcar is estimated to cost \$18.3 million per mile and \$660,000 per year to operate and maintain. These figures reflect the facts that the Portland Streetcar was built earlier than the SLU Streetcar and that the former line is almost twice as long as the latter.

SECTION 1:

POTENTIAL REVENUE SOURCES FOR OPERATIONS AND MAINTENANCE COSTS

Operations costs are linked to a streetcar's travel speeds, revenue hours, service frequency, number of operators, and vehicle requirements. These system characteristics help determine an operating plan, from which operations costs are derived. Maintenance costs, on the other hand, include some of the following: daily maintenance (cleaning), daily and periodic inspections, running repairs (defined as less than 4 person hours to do the repair) and heavy repairs, removal and replacement of parts, mileage-based maintenance, and operating a maintenance facility in which to perform maintenance work.

According to King County Metro, the George Benson Streetcar line, also known as Seattle's Waterfront Streetcar, cost approximately \$150 per hour to operate. This estimate is slightly higher than Portland's streetcar, which operates at \$130¹ or \$140² per hour. It is expectedly higher than Metro's countywide bus service, which operates at \$98 per hour.

Listed below are categories of approaches available to generate revenues to support the operations and maintenance costs of an expanded streetcar system and network. These approaches and related techniques have been derived from a review of the literature and from case studies from around the United States, Spain, and Japan.³

- 1.1. Fare Revenues
- 1.2. Sponsorship, Advertising and Promotions
- 1.3. Owner/Operator Contributions
- 1.4. Federal Transit Administration (FTA) Funds
- 1.5. City Transportation Funds
- 1.6. Parking Meter Revenues

¹ P. 75 <http://www.seattle.gov/transportation/docs/Seattle%20Streetcar%20Report%20063004.pdf>

² [http://www.seattle.gov/transportation/docs/282,33,Streetcar Costs](http://www.seattle.gov/transportation/docs/282,33,Streetcar%20Costs)

³ This draft contains research on the following streetcar systems: South Lake Union Streetcar, Seattle, WA; George Benson Waterfront Streetcar, Seattle, WA; Portland Streetcar, Portland, OR; TECO Line Streetcar, Tampa, FL; River Rail, Little Rock, Arkansas; Barcelona, Spain; and Osaka, Japan.

1.7. Operations Fund

1.8. Rentals and Group Tours

1.9. Commute Trip Reduction

We have focused on the sources that might generate the most revenue to support the operational and maintenance costs for an extended streetcar system in Seattle.

However, it is important to understand that not all of these approaches may be realistic for Seattle or for all specific extensions to the streetcar network.

1.1. Fare Revenues

Most if not all streetcar systems charge a ridership fare, which goes to support the operations and maintenance of systems and facilities.

A detailed ridership analysis of the South Lake Union extension is available in the *South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan*.⁴ Initial ridership on the SLU Streetcar is projected to be between 330,000 and 380,000 riders annually and is expected to increase to 1.1 to 1.2 million riders once South Lake Union is fully developed.⁵

The *Seattle Streetcar Network and Feasibility Analysis report*⁶, dated June 2004, shows estimated ridership revenues for three streetcar routes within Central Seattle. These lines include South Lake Union/Denny Triangle, Chinatown/International District on Jackson Street to 12th Avenue South, and the waterfront extension north to West Thomas Street (the “AMGEN” extension). According to the same report, the south end of the existing Waterfront Streetcar line to Chinatown/International District could see over 1.2 million annual boardings, and the line from the existing Waterfront Streetcar heading north to Amgen would have approximately 1.1 million annual boardings.

Actual dollar estimates of what ridership could generate on the Chinatown/International District and Amgen extensions were not calculated because they will depend upon the hours and frequency of service. Revenue estimates have been

⁴ Page 11, *South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan*, April 13, 2005
<http://www.seattle.gov/transportation/docs/slu18FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

⁵ Page 11, *South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan*, April 13, 2005
<http://www.seattle.gov/transportation/docs/slu18FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

calculated for the SLU Streetcar. The Streetcar will be fully integrated with the Metro fare system, which is currently \$1.50 for a one-way peak fare and \$1.25 for a one-way off-peak fare. The SLU project is divided into two phases, which are reflected in the ridership numbers given above. The first phase will begin in mid-2007 with the initial SLU Streetcar service. Phase two will begin approximately two years later in the summer of 2009, when Sound Transit's LINK Light Rail begins to provide transit service in Seattle. The SLU Streetcar will provide a feeder service to both of these transportation systems at the Westlake hub in downtown Seattle.⁷ The farebox recovery during phase one is projected to equal 18 percent (\$ 573,120) of the total operations and maintenance revenues . Phase two farebox recovery revenues are projected to increase to 23 percent (\$366,888) of the revenue sources for operations and maintenance in 2010, and to 34 percent (\$633,910) in 2016.

Higher transit ridership is not necessarily directly associated with higher revenues. For example, streetcars serving as tourist attractions will have a high proportion of actual cash fares relative to transit users (Mark Hallenbeck, private communication). In contrast, any routes that are common "commuter routes" will likely have higher monthly pass usage, and lower cash payment, because routine riders will prefer the convenience and savings of the monthly/annual pass, as well as the bulk sale of passes. Bulk sale of passes is offered to area businesses at a reduced rate. The SLU Streetcar revenue generated from bulk passes is discussed in section 1.7, Operations Fund.

The convenience of monthly/annual passes and bulk sale of passes typically works to increase ridership and, therefore, may contribute to increased revenues in the medium and long terms. Integrated fare systems are another method for increasing ridership (integrated fares are planned between the SLU Streetcar and Metro buses). Most cities that have more than one type of public surface transportation (including rail and bus systems) have implemented integrated fare systems to facilitate transfers between system types. Osaka, Japan, and Barcelona, Spain, have increased their revenues by providing more convenient fare options. Osaka offers a Rainbow Card that automatically deducts fares from a pre-paid card. It also has a Not-My-Car-Day Pass that offers an unlimited all

⁷ <http://www.seattle.gov/transportation/docs/Seattle%20Streetcar%20Report%20063004.pdf>

day pass on all buses, heavy rail (Metro), light rail (trams) and commuter rail for a flat fee. It is also introducing an “IC” Card, an integrated electronic card allowing fare integration among all transportation modes on one card.⁸

Barcelona implemented a one-ticket system in 2001, which transit users can use on the rail, bus, and tram systems. The systems cover 202 municipalities in a region that has 4.5 million people. The region is divided into six “crowns” and 33 sectors, which define different fare zones. The number of zones a user crosses during a trip determines the price of the trip. The ATM ticket (ATM stands for Autoritat del Transport METROpolita) offers eight different fare options (e.g., unlimited trips per month, 10 days, 50 trips in 30 days, etc.). The new integrated fare system has unified a regional transportation network and has increased the revenue share of ridership to 21 percent, up from 8 percent before the new fare system went into effect. More than 30 percent of the journeys transfer between modes.⁹

1.2. Sponsorships/Advertising/Promotions

Seeking revenues from sponsorship/advertising in transit systems has become an increasingly common approach to compensate for a lack of federal and local public funding. Advertising space can be sold on the interior and exterior of vehicles or cars, and at stations targeting area visitors, employees, students, and shoppers. This approach can be found in several streetcar systems around the United States, including Tampa, Florida, Little Rock, Arkansas, and Portland, Oregon.

TECOline, Tampa, Florida’s streetcar, has created a sponsorship program and sold the naming rights to its entire streetcar line system (purchased by TECO Energy for \$1 million), individual vehicles (\$250,000 each), and station stops (\$100,000 each). The sponsor’s name is prominently displayed on the cars and stations for a period of ten years. Contracts with sponsors are structured so the full payment is received within the first three years of the ten-year contract. The revenues generated from sponsorships,

7 Page 10, South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005; <http://www.seattle.gov/transportation/docs/slu18FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

8 Transit Cooperative Research Program, Research Results Digest 77, Innovative Techniques in the Planning and Financing of Public Transportation Projects.

9 Transit Cooperative Research Program, Research Results Digest 77, Innovative Techniques in the Planning and Financing of Public Transportation Projects.

spread out through a series of payments, are invested into an endowment.¹⁰ TECOline also sells space for advertising on the interiors of streetcars, toe steps, and at the top of fare cards. The interior advertising and the toe step advertising each sell for \$300 per month for one ad, and advertisements placed at the top of farecards sells for \$20,000 per year for 150,000 farecards.

Seattle's South Lake Union Streetcar is modeling its sponsorship program on Tampa's TECOline Streetcar and is expected to generate up to \$3 million on a three-year payment plan for ten-year terms. These funds will be sufficient to operate and maintain phase one (mid-2007 to mid-2009) of the SLU line.¹¹ The funds raised from sponsorships and advertising will be deposited into the Operations Fund (discussed later) and drawn out over a ten-year period to support operations costs.

Central Arkansas Transit Authority's (CAT) River Rail also gives corporate sponsors the opportunity to purchase naming rights for its overall system, for individual cars, and for stations.¹² It currently receives \$10,000 annually in ten-year contracts for naming rights for two streetcar stops.

1.3. Owner/Operator Contributions

In many cases, the cost of streetcar operations is born partly by the general revenue stream that supports the agency operating the streetcar. In the case of the SLU Streetcar, the City of Seattle Office of Policy and Management reports that "it is the intent of the City and King County Metro that Metro will contribute 75 percent of the total operation costs, minus the farebox recovery, during the phase two operations." This equates to approximately \$900,000 annually¹³ from 2010 to 2016. The 75 percent operational cost corresponds to the parallel reduction or even elimination of existing bus service along the new Light Rail route that will service existing bus commuters (Bill Bryant, private communication).

¹⁰ Page 12, South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005; <http://www.seattle.gov/transportation/docs/slul8FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

¹¹ Page 12, South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005; <http://www.seattle.gov/transportation/docs/slul8FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

¹² http://www.cat.org/news/archive/20010131_streetcar_intro.html

¹³ Page 15, South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005; <http://www.seattle.gov/transportation/docs/slul8FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

Portland Streetcar is operated by Tri-County Metropolitan Transportation District of Oregon (TriMet). TriMet provides public transportation within the tri-county area around the City of Portland. It also operates the Portland Streetcar and contributes \$2.4 million, or 62 percent, of the total streetcar operating budget.¹⁴

1.4. Federal Transit Administration 5307/5309

The Federal Transit Administration (FTA) formula does not have funds available to solely cover operating costs. However, formula 5307 (FTA Section 5307 Urbanized Area Formula Program) and 5309 (FTA Section 5309 Capital Program) funds are available for systems maintenance. Because operations and maintenance go hand in hand, these funds can contribute to paying the ongoing costs of transit systems.

The eligibility guidelines for these funding sources and the local allocation process used vary and need to be coordinated with the Puget Sound Regional Council (PSRC) as the metropolitan planning organization (MPO).

South Lake Union Streetcar was eligible for and secured FTA 5307 and 5309 formula funds that will generate \$131,040 in 2008, gradually increasing to \$179,337 in 2016. "FTA funds are calculated by the Puget Sound Regional Council (PSRC) as a percentage of overall transit trips. The South Lake Union Streetcar is estimated to serve 0.15 percent of the regional transit trips, a sizable share, given the short extent of the route."¹⁵

1.5. City Transportation Funds

Of all of the case studies researched, River Rail in Little Rock, Arkansas, has the highest percentage of local government funding. Appropriations from local government total almost 70 percent of the total operating income sources. A local match is shared equally by three funding entities, including Little Rock, North Little Rock, and Pulaski County.

¹⁴ Portland Streetcar Capital and Operations Funding <http://www.portlandstreetcar.org/pdf/capitol.doc>

¹⁵ Page 11, South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005; <http://www.seattle.gov/transportation/docs/slu18FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

1.6. Parking Meter Revenues

Parking fees imposed on city streets can generate varying amounts of revenue, depending on location. In some neighborhoods, conversion of free on-street parking to paid parking tends to generate concerns among residents and/or business owners (Mark Hallenbeck, private communication). However, recent research has shown that neighborhood businesses and residents welcome new or increased on-street parking fees if the revenues benefit the neighborhood directly.¹⁶ It is also difficult to convert free parking to paid parking in areas that have minimum demand for on-street parking, as the cost of installation, maintenance, and labor for new parking kiosks could outweigh the revenue generated.

Seattle is currently undergoing a conversion from the old style parking meters to new solar-powered kiosks. According to *Seattle Weekly*¹⁷, parking meter revenues collected in 2005 totaled \$16 million, up \$6 million from 2003, implying that the new meter system collects parking revenues more effectively than the old one. The Seattle Department of Transportation (SDOT) controls the conversion of street parking spaces to this new pay-coverage system. On-street parking revenues are put into the city's General Fund.

It may be possible to argue that additional revenues from future meter conversions should be allocated to the streetcar system; because these would be new revenues to the city, they would not be assigned to specific items in the General Fund. This would require a significant change from current policy. Seattle's Department of Transportation is planning to provide additional on-street paid parking spaces. Official figures are not available, but some estimates are that 2,700 spaces are available for conversion to the new system.

Portland has been successful in using parking meter revenues to support its streetcar operating expenses, generating approximately \$1.1 million per year, or 28 percent of the system's total operating costs.⁸ It draws upon parking meter revenue coming from the River District neighborhood adjacent to the north end of the streetcar line. Furthermore, the Board of Portland Streetcar, Inc., adopted Resolution 04-9 in June

¹⁶ Shoupe, Donald. *The High Cost of Free Parking*. Chicago: APA Planners Press, 2005

¹⁷ *Seattle Weekly*, *Free Parking Eliminated in Seattle*, April 2006

2004, which “recommended that an additional \$300,000 annually in new parking meter revenue be allocated for enhanced streetcar operations.” This resolution is contingent on increasing ridership by 9 percent within 24 months. If ridership numbers are not met, then the City Council will determine how the \$300,000 will be spent.¹⁸

1.7. Operations Fund

The South Lake Union streetcar has created an operations fund to receive the proceeds from the sale of sponsorships and the bulk purchase of streetcar passes. This fund will be used to support operations costs. The anticipated revenue from these funding sources during Phase One (2007 to 2009) are as follows: streetcar line sponsorship is expected to generate \$1,500,000, station sponsors (13 in total) \$1,300,000, and bulk passes \$117,500.¹⁹ Phase Two revenues from the bulk sale of passes to new employers are expected to amount to approximately \$562,000 between 2010 to 2016. The concept of this fund is for the proceeds to be deposited and drawn down over a time to fund the city’s share of costs during the first ten years of operation. The fund is expected to be fully expended at the end of ten years (Ethan Melone, private communication).

1.8. Rentals and Group Tours

In Tampa, streetcars can be rented by private entities for special occasions or events. Rental income is modest: Tampa charges \$225 per vehicle per hour, with a one-hour minimum during regular service hours, and \$325 outside of regular service hours. It also offers guided group tours of city neighborhoods and districts along the streetcar route at a cost of \$2.00/\$1.00 one way per person. Rental programs may serve to advertise the system and increase ridership in the long run.

¹⁸http://66.102.7.104/search?q=cache:z6j_Oob_OzEJ:www.portlandonline.com/auditor/index.cfm%3Fa%3Djefib%26c%3Ddigdd+portland+streetcar+parking+meter&hl=en&gl=us&ct=clnk&cd=6

¹⁹ Page 13, South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005; <http://www.seattle.gov/transportation/docs/slu18FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

1.9. Commute Trip Reduction

The Commute Trip Reduction (CTR) Law (RCW 70.94.524-551) was adopted in 1991 as a part of Washington's Clean Air Act to reduce air pollution, traffic congestion, and energy consumption.²⁰ All employers that have over 100 full-time employees are required to develop and implement a commute reduction program. These employers must offer incentives to their employees encouraging them to not drive alone to work. One incentive includes the subsidizing of transit fares. Currently, the City of Seattle has over 200 employers that participate in this program (Elizabeth Goss, private communication).

CTR employers contribute indirectly to transit by supporting increases in ridership (Bill Bryant, private communication). A critical mass of CTR employers along a streetcar route can therefore help justify the investment. It can also be influential in convincing property owners to approve the creation of a Local Improvement District along the route (see section 2.1). Finally, large employers may operate their own transportation system, which a new streetcar line could replace. Therefore, such employers may be willing to share with the streetcar operator some of the savings incurred by the elimination of their private transportation system.

²⁰ <http://www.seattle.gov/transportation/commute.htm#links>

SECTION 2

POTENTIAL REVENUE SOURCES FOR CAPITAL COSTS

Capital costs consist of the following: construction of tracks, platforms, substations, and maintenance facility(ies); construction soft costs, including architectural design, engineering, permits and environmental studies; new or modified traffic signals; utility modifications; purchase of streetcar vehicles; and state or local sales tax. The list of capital costs will vary depending on the streetcar system, urban design (installation of tracks and streetscape improvements), and city.

Below are some of the approaches used around the nation to cover capital costs related to the development of a streetcar system²¹:

- 2.1. Local Improvement District (LID)
- 2.2. Joint Development of Maintenance Facilities
- 2.3. Sale of Land
- 2.4. Federal Transportation Funds
- 2.5. State Transportation Funds
- 2.6. Regional Transportation Funds
- 2.7. City Transportation Funds
- 2.8. Motor Vehicle Excise Tax (MVET)
- 2.9. Sales Tax
- 2.10. Owner/Operator Contributions
- 2.11. Parking Meter Revenue
- 2.12. Tax Increment Financing
- 2.13. Housing and Urban Development (HUD) Grant
- 2.14. Mitigation

Again, not all of these approaches may be applicable to an extended streetcar system in Seattle. Local Improvement District, Joint Development of Maintenance Facilities, and Federal Transportation Funds are identified as the most promising revenue sources for capital costs.

21 This draft contains research on the following streetcar systems; South Lake Union Streetcar, Seattle, Wash.; George Benson Waterfront Streetcar, Seattle, Wash.; Portland Streetcar, Portland, Ore.; TECO Line Streetcar, Tampa, Florida; River Rail, Little Rock, Arkansas.

2.1. Local Improvement District (LID)

A Local Improvement District (LID) is a special assessment district allowed under Washington State law. The district is defined as an area where transportation or other improvements directly benefit property owners. City governments commonly use LIDs to finance capital improvements in infrastructure. Property owners within a LID are assigned a special tax related to the benefits that the improvements will yield to the value of their property. The assessment can be paid as a lump sum or over a specified period of time. This money is then applied to the costs associated with the creation, formation, and construction of an infrastructure improvement. By law, however, LID funds CANNOT be used toward operations and maintenance costs of the system being built or improved (Refer to the Washington State Local Improvement District Manual, Fifth Edition for further information on LIDs²²).

The SLU Streetcar created a LID that will bring in an estimated \$25 million dollars, or approximately half of the total capital costs of the streetcar. To estimate the value of a LID, an assessment for each parcel must be agreed upon, based on 1) the special benefits that the parcel receives as a result of the improvement relative to the total special benefits accrued to the LID area; and 2) the amount of the project that the LID will pay for.

The special benefits are determined through an appraisal process called a “Special Benefits Study.”²³ A Special Benefits Study is an analysis that measures directly the special benefits, or the increase in value, experienced by specified parcels as a result of a public improvement project. The market values of properties are determined “before” and “after” the LID project is completed, and the difference constitutes the special benefits.²⁴ The LID can then be paid by each property owner as a one time payment, or as a simple interest payment once per year over a specified period until the assessment has been paid off.

When the financing scheme for the SLU Streetcar was created, it was decided that a LID would be the primary revenue source to cover capital costs (Ethan Melone, private

²²<http://www.mrsc.org/Publications/walidmanual03.pdf#search=%22Refer%20to%20the%20Washington%20State%20Local%20Improvement%20District%20Manual%2C%20Fifth%20Edition%22>

²³ <http://clerk.ci.seattle.wa.us/~cfdpfs/307911.pdf>

²⁴ http://www.seattle.gov/transportation/stcar_sluidfaq.htm, viewed on 15Aug06.

communication). The methodology used to determine how much a parcel would be assessed after completion of the streetcar line was agreed upon by both the property owners and the city. The Special Benefits were approved by 98 percent of SLU property owners, far exceeding the 60 percent approval rate required by law.

Seattle also created a LID to aid in assembling capital costs for the original George Benson Waterfront Streetcar (running from Main Street to Broad Street, along Alaskan Way). In 1990 when the route was opened, the LID generated approximately \$1.1 million, which covered approximately one third of the total capital cost.

Portland, Oregon, also created a LID to help in covering the capital costs of its streetcar. The LID generated approximately \$14.6 million, which covered 16 percent of the total capital costs.

2.2. Joint Public/Private Development

Some of the streetcar infrastructure, including maintenance facilities and stops, can be provided through joint public/private development. The SLU Streetcar is using “joint public/private development” as a means to generate revenue to cover a portion of the capital cost. The lot where the maintenance facility is proposed is approximately 32,000 square feet. The proposed maintenance facility footprint is 7,000 square feet, with a second level containing 2,000 square feet. According to the South Lake Union Capital Financing and Operating and Maintenance Plan document, a consultant (Heartland) analyzed the market value of the unused development capacity within the zoning envelope of the maintenance facility site. The consultant concluded that a residential development would be the highest and best use and that “a residential developer could likely pay from \$2.7 to \$3.4 million for these development rights.” The proposed capital finance plan includes \$2.5 million from the sale of these development rights (5 percent of the total capital cost).²⁵ This development capacity will be made available for private development, the proceeds of which will go to the SLU streetcar.

²⁵ Page 7, South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005; <http://www.seattle.gov/transportation/docs/slu18FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

Extending the Seattle Streetcar System may require additional maintenance facilities. Therefore, selling development rights from other publicly owned properties along the extension could be considered to cover capital costs.

2.3. Sale of Land

Publicly owned lands near streetcar lines may be considered as opportunities to raise funds for the system. The surplus lands can be sold, or, alternatively, unused development capacity of publicly owned property can be negotiated for development by the private sector.

In 2001, the City of Seattle sold eight city-owned surplus properties in South Lake Union that totaled some \$20.2 million. Resolution 30334²⁶ provides guidance for the use of these proceeds, which are broken down as follows: transaction costs \$751,000; Fairview-Valley Corridor realignment project, approximately \$4.69 million with an additional \$50,000 to determine the geometric alignment of the Fairview-Valley Corridor Realignment Project; legal reserves, approximately \$5 million; provision of affordable housing, approximately \$2.25 million; and other South Lake Union transportation projects, at least \$9 million.²⁷

Resolution 30334 also identified candidate transportation improvement projects in the South Lake Union area and stated that authority to expend revenues for transportation projects was contingent on “ultimate Council approval of individual projects.” The projects identified are as follows: 1) Fairview / Valley Corridor improvements, 2) Roy St. crossing at Aurora, 3) Streetscape improvements (Westlake/ 9th Ave. couplet from Valley to Denny, Mercer: Fairview to Westlake.), 4) Channelization, signage and mobility improvements (enhancements to Republican and Harrison streets, bike lane on Fairview, etc.) and 5) signal improvements (on various corridors).

²⁶ <http://clerk.ci.seattle.wa.us/~scripts/nph-brs.exe?s1=&s2=&s3=30334&s4=&Sect4=AND&l=20&Sect1=IMAGE&Sect2=THESON&Sect3=PLURON&Sect5=RESN1&Sect6=HITOFF&d=RESN&p=1&u=%2F%7Epublic%2Fresn1.htm&r=1&f=G>

²⁷ SDOT identified a list of candidate projects at the time this resolution was passed. However, expenditure of the revenues from the sales is contingent upon Council approval of individual projects. The projects identified are as follows: 1) Fairview / Valley Corridor improvements, 2) Roy St. Crossing at Aurora, 3) Streetscape Improvements (Westlake/ 9th Ave. couplet from Valley to Denny, Mercer: Fairview to Westlake.), 4) Channelization, Signage and Mobility Improvements (enhancements to Republican and Harrison streets, bike lane on Fairview, etc.) and 5) Signal Improvements (on various corridors).

To date, the city has NOT allocated any of the proceeds from the sale of city-owned surplus properties to the SLU Streetcar. However, Ordinance 12185, approved by the City Council in June of 2005, provides that the “City Council expects to appropriate in a future budget \$1.5 million for SLU Streetcar construction costs from the SLU Property Proceeds Subaccount established by Ordinance 120411. The Seattle City Council may also appropriate in a future budget up to an additional \$3.9 million from the SLU property sale proceeds for potential SLU Streetcar capital cost increases, project cost overruns, and to pay for any additional capital costs that are not ultimately covered by grant funding.”

A similar funding strategy, involving additional land sales, could be used for other streetcar projects. Parking around the Seattle Center could, for example, be consolidated to optimize parking space utilization, given the different markets and the different times these markets use parking—e.g., employees vs. performing arts public vs. tourists). An operating streetcar could transport people from consolidated parking facilities to their eventual destinations and back. As a result, some of the parking facilities could be eliminated, sold for development, and the proceeds applied toward new streetcar line capital expenses.

Portland had a similar transportation land sale that generated \$3.1 million. This represented approximately 3 percent of the total capital cost of its streetcar.²⁸

2.4. Federal Transportation Funds

As mentioned, the eligibility guidelines and local allocation process for potentially available federal transportation funds vary. The use of these funds needs to be coordinated with the MPO (PSRC).

The SLU streetcar was able to secure \$9.3 million (18 percent of the total capital cost) in federal funding to support capital costs of the streetcar. The \$9.3 million is broken down as follows²⁹:

- PSRC (FTA Formula Funds 5307 2003-2004) \$1,274,490

²⁸ Portland Streetcar Capital and Operations Funding <http://www.portlandstreetcar.org/pdf/capitol.doc>

• Federal Appropriation (FHWA FY2004)	\$3,000,000
• PSRC (FTA Formula Funds 5307 2004-2005)	\$1,219,048
• PSRC (FTA Competitive 5307 2006)	\$2,850,000
• Federal Appropriation Request FY 2005	\$1,000,000

The Federal Transit Authority (FTA) funds are calculated by the Puget Sound Regional Council as a percentage of overall transit trips. The South Lake Union Streetcar has been estimated to serve 0.15 percent of the regional transit trips.³⁰

The Portland Streetcar obtained \$5.6 million (6 percent of total capital cost) in federal funds.³¹

Seattle's Waterfront Streetcar obtained \$1.0 million (28 percent of the total capital cost) in federal funding from the Urban Mass Transportation Administration (UMTA) (Bill Bryant, private communication).

2.5. State Transportation Funds

There are currently no formal, established Washington *state* level programs that can fund streetcars. However, the SLU Streetcar was able to secure \$3 million in state budget appropriation with the assistance of Representative Ed Murray. The Washington State Department of Transportation (WSDOT) was only involved after the fact, as it administered the grant. The Portland Streetcar did not use state funds.

2.6. Regional Transportation Funds

*Chapter 36.73 RCW – Transportation Benefit District (County)*³²

A transportation benefit district is a quasi-municipal corporation and an independent taxing "authority." A district is authorized to impose the following taxes, fees, charges, and tolls: sales and use tax, vehicle fee, fee or charge in accordance with RCW 36.73.120, vehicle tolls on state routes or federal highways, city streets, or county

29 Page 8, South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005; <http://www.seattle.gov/transportation/docs/slul8FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

30 Page 11, South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005; <http://www.seattle.gov/transportation/docs/slul8FINAL%20SLU%20Streetcar%20Financing%20Report.pdf>

31 Portland Streetcar Capital and Operations Funding <http://www.portlandstreetcar.org/pdf/capitol.doc>

32 <http://apps.leg.wa.gov/rcw/default.aspx?cite=36.73>

roads, within the boundaries of the district, unless otherwise prohibited by law. However, this law was passed in 2005 and has yet to be applied.

Regional Transportation Improvement District (RTID)

A Puget Sound Regional Transportation Investment District (RTID), consisting of King, Pierce, and Snohomish counties, was created in March 2002, when the state legislature approved a measure allowing local jurisdictions to work together to solve their transportation problems through local funding.³³ The Puget Sound RTID identified a list of proposed projects. A simple majority on a single ballot measure is required to approve the plan, to establish the district, and to approve the taxes and fees. The King County's website indicates that the RTID board originally hoped to adopt a draft of proposed projects and place it on the ballot in late 2004.³⁴

The Portland Streetcar was able to obtain \$10 million (11 percent of total capital cost) in regional transportation funds. It has not been identified how the funds received in Portland would relate to Seattle's Chapter 36.73 RCW and RTID.

It appears that the key would be to convince regional interests that the streetcar can contribute to regional transportation by reducing traffic congestion. This could be done by showing that effective coordination between the streetcar and other regional transit systems could help many people switch to transit for both commute and recreation trips.

2.7. City Transportation Funds

Portland's Streetcar obtained 1.7 million (2 percent of the total capital cost) in city transportation funds. It also generated \$2 million (2 percent of the total capital cost) from its city parking fund and \$1.8 million (2 percent of the total capital cost) from its city general fund.

No city general funds have been allocated to the Seattle streetcar improvements. However, planning for future extensions could revisit the possibility of using funds from the Seattle Department of Transportation, given how streetcar ridership in effect reduces

³³ <http://www.metrokc.gov/kcdot/solutions/faq.cfm>

³⁴ <http://www.metrokc.gov/kcdot/solutions/overview.cfm>

vehicular use of the city's street facilities and possibly lowers the maintenance of those facilities.

2.8. Motor Vehicle Excise Tax (MVET)

The Seattle Streetcar may be able to learn from the Seattle Monorail Project. (SMP) Seattle voters approved an increase in the Motor Vehicle Excise Tax (MVET) to help fund the now defunct SMP. The added MVET rate was limited to 1.4 percent of a vehicle's estimated value. The tax was paid yearly as city residents registered their cars. The MVET was finally eliminated in June 2006 as a result of Proposition 1 (to construct a monorail by modifying the Seattle Popular Monorail Plan), which did not pass.

Dr. Kristina Hill (private communication) suggested that if an MVET was collected in the Seattle area, it would generate a large sum of money, but it would not generate it fast enough to pay for capital costs up front. If an extended streetcar system were to be constructed, it would have to borrow the money up front and then pay it off using the money generated by the MVET.

Because the money generated by an MVET is dependent on the buying and driving habits of consumers, it is important to study past and future trends to determine the rate at which the MVET would grow. Dr. Hill mentioned that there was debate over this growth rate, given differences between what Sound Transit had estimated and what the SMP had estimated.

2.9. Sales Tax

Sound Transit is an example of a transit and transportation provider financed by sales tax. The agency built the Tacoma Link Light Rail, a 1.6-mile light rail line that connects downtown Tacoma to the Tacoma Dome. The line is owned and operated by Sound Transit and provides free service to all passengers. Sound Transit (ST) also operates high-occupancy vehicle (HOV) lane access improvements, ST Express bus routes, Sounder commuter rail, Link light rail, and new park-and-ride lots and transit centers. All of the services offered by Sound Transit are funded through the Motor Vehicle Excise Tax and the sales tax. Sound Transit was created in 1996 after voters

from King, Pierce, and Snohomish counties approved local taxes to support the agency. It plans, builds, and operates regional transit systems.³⁵

Sound Transit may be a potential player in planning extensions to the SLU (Sound Transit is not a major player in the SLU streetcar extension, but it is a strong potential source of funding for the streetcar system.)

2.10. Owner/Operator Contributions

The extension of Seattle's George Benson Waterfront Streetcar from Alaskan Way to 5th Avenue was built in the street right-of-way at a cost of \$6.5 million.

King County Metro is a major player in extending streetcar lines, as those could replace existing bus routes. Metro has clear financial and strategic interest in the success of a streetcar system.

2.11. Parking Meter Revenue

As mentioned under operations and maintenance costs, a portion of parking revenues generated from the new solar powered parking kiosks in Seattle could be used to help cover the capital costs of a streetcar system.

Beyond revenues from meters, parking may contribute substantially to capital funds for a streetcar. Portland raised more than 30 percent of its streetcar capital costs by using city parking bonds.

2.12. Tax Increment Financing (TIF)

Tax increment financing approaches (TIFs) are similar to LIDs in that they define areas within which private property owners will benefit from future infrastructure improvements. In the case of LIDs, the private sector is assessed a direct tax to support the development of the new infrastructure. In the case of TIFs, the public sector is able to increase its borrowing powers on the basis of the added tax revenues that can be anticipated as a result of the improvements.

Tax increment financing (TIF) has been used primarily as a redevelopment tool, allowing local governments to target private investment in areas with properties that are

³⁵ <http://www.soundtransit.org/x1227.xml>

vacant, underdeveloped, or in disrepair. A TIF typically works by making initial public investments, such as streetscape improvements and land assembly, that will attract private investors. New private-sector investment that typically follows the public improvements eventually increases tax revenues. The tax revenue garnered before improvements are made to an area is known as the base revenue. The base revenue (the amount of tax collected for the general fund) is frozen when the TIF is formed. The increase in tax revenue generated by new investments is the tax increment. Monies borrowed on the tax increment are used to cover the costs of the initial public improvements and, in some instances, to make additional improvements after private development has taken place.”³⁶

Although legal in the State of Washington, TIFs are constrained by the Washington State constitution. “Because significant increases in assessed value of property must occur in the increment area before tax allocation revenues will be sufficient to finance meaningful improvements, community revitalization financing (or TIF) favors projects involving undeveloped and under-developed property.”³⁷ In other words, areas that have the greatest potential in growth in terms of assessed value are the most favorable TIF projects.

2.13. U.S. Housing Urban Development (HUD) Grant

In 1992 Portland secured \$900,000 in a federal Housing Urban Development (HUD) Grant and matching local funds.³⁸

HUD funds are unlikely to be available in the near future but should be kept in mind as a possible source of support in the long term.

2.14. Sound Transit 2 Funding

Sound Transit is currently proposing “to enhance transit service connections between First Hill, the Central Link light rail line, and downtown Seattle’s transit hubs with new transit service (streetcar or bus) along the Jackson Street / Broadway Avenue

36 P. 122, Strategies and Tools to Implement Transportation-Efficient Development: A Reference Manual.

37 <http://www.muniresearch.net/subjects/econ/taxinc2003.pdf>

38 <http://66.102.7.104/search?q=cache:6s2V24otkD4J:www.portlandstreetcar.org/history.php+portland+hud+streetcar&hl=en&gl=us&ct=clnk&cd=1>

corridor.” The corridor would connect Downtown and Capitol Hill via First Hill up to John Street. Sound Transit estimates that providing this service as a new streetcar extension will cost approximately \$117 to \$135 million, versus \$12 to \$15 million as a bus line.³⁹ Sound Transit has also considered an alternative alignment that would extend the streetcar from John Street to Aloha Street along the Jackson Street / Broadway corridor, costing approximately an additional \$24 - \$27 million.⁴⁰

At this point, however, the proposed Sound Transit 2 project list covers only the First Hill Streetcar to John St. The package will go before the voters in November 2007 and includes funding for both capital, maintenance, and operations.

WORKS CITED

Allen Bracket Shield, Written by Foreman, Deborah and Sloan, Matthew. Final Benefits Study for South Lake Union Streetcar Project, City of Seattle LID No. 6750, March 29, 2006, <http://clerk.ci.seattle.wa.us/~cfpdfs/307911.pdf>. Accessed on 15 September, 2006.

Anderson, Rick. “Parking Sticker Shock,” *Seattle Weekly*, 12 April 2006. <http://www.seattleweekly.com/news/0615/parking.php>. Accessed on August 15, 2006.

Central Arkansas Transit Authority (CAT) River Rail System homepage, http://www.cat.org/news/archive/20010131_streetcar_intro.html. Accessed on September 15, 2006.

Chapter 36.73 RCW - Transportation Benefit Districts, <http://apps.leg.wa.gov/rcw/default.aspx?cite=36.73>. Accessed on August 15, 2006.

City of Portland - Auditor’s Office, TRN-3.108 – Parking Meter Rates, http://66.102.7.104/search?q=cache:z6j_Oob_OzEJ:www.portlandonline.com/auditor/index.cfm%3Fa%3Djefib%26c%3Ddigdd+portland+streetcar+parking+meter&hl=en&gl=us&ct=clnk&cd=6. Accessed on October 3, 2006.

King County Website, RTID - Frequently asked questions, <http://www.metrokc.gov/kcdot/solutions/faq.cfm>. Accessed on August 15, 2006.

³⁹http://www.soundtransit.org/documents/pdf/st2/potential_projects_05_06/N07a_North_King_LRT_First_Hill_Connector_IDS-CapHill_v2.pdf

⁴⁰http://www.soundtransit.org/documents/pdf/st2/potential_projects_05_06/N07c_North_King_LRT_First_Hill_Connector_IDS-CapHill-AlohaExt_v2.pdf

- Nave, Jeffrey C. "Tax Increment Financing (again), 2010 "Sunet" Provision is Repealed." <http://www.muniresearch.net/subjects/econ/taxinc2003.pdf>. Accessed on October 3, 2006.
- Parsons Brinckerhoff in association with Nelson Nygaard Consulting Associates and URS Corporation. "Seattle Streetcar Network and Feasibility Analysis," June 2004
<http://www.seattle.gov/transportation/docs/Seattle%20Streetcar%20Report%2006%2004.pdf>. Accessed on August 15, 2006.
- Portland Streetcar website, "Portland Streetcar Capital and Operations Funding," <http://www.portlandstreetcar.org/pdf/capitol.doc>. Accessed August 15, 2006.
- Resolution Number: 30334, A RESOLUTION providing guidance for use of the proceeds from the disposition of certain surplus City land in the South Lake Union neighborhood. Adopted June 25, 2001.
<http://clerk.ci.seattle.wa.us/~scripts/nph-brs.exe?s1=&s2=&s3=30334&s4=&Sect4=AND&l=20&Sect1=IMAGE&Sect2=THESON&Sect3=PLURON&Sect5=RESN1&Sect6=HITOFF&d=RESN&p=1&u=%2F%7Epublic%2Fresn1.htm&r=1&f=G>. Accessed on September 15, 2006.
- Seattle Department of Transportation, Commute Trip Reduction, <http://www.seattle.gov/transportation/commute.htm#links>. Accessed on October 3, 2006.
- Shoupe, Donald. The High Cost of Free Parking. Chicago: APA Planners Press, 2005
- Sound Transit – Mission, <http://www.soundtransit.org/x1227.xml>. Accessed October 3, 2006.
- Sound Transit - Potential Projects,
http://www.soundtransit.org/documents/pdf/st2/potential_projects_05_06/N07a_North_King_LRT_First_Hill_Connector_IDS-CapHill_v2.pdf. Accessed on September 15, 2006.
- Sound Transit - Potential Projects,
http://www.soundtransit.org/documents/pdf/st2/potential_projects_05_06/N07c_North_King_LRT_First_Hill_Connector_IDS-CapHill-AlohaExt_v2.pdf. Accessed on September 15, 2006.
- South Lake Union Streetcar, Capital Financing and Operating and Maintenance Plan, April 13, 2005,
<http://www.seattle.gov/transportation/docs/slu18FINAL%20SLU%20Streetcar%200Financing%20Report.pdf>. Accessed on August 15, 2006
- South Lake Union Streetcar, LID FAQ'S,
http://www.seattle.gov/transportation/stcar_slu_lidfaq.htm. Accessed August 15, 2006.
- Transit Cooperative Research Program, sponsored by the Federal Transit Administration, Research Results Digest 77, "Innovative Techniques in the Planning and Financing of Public Transportation Projects." May 2006.
http://trb.org/news/blurbs_detail.asp?id=6318
- Verez-Moudon, Anne, Cail, Matthew, Pergakes, Nicolas, Forsyth, Colin and Lillard, Lora. *Strategies and Tools to Implement Transportation-Efficient Development: A Reference Manual*, September 2003.

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PART I

<http://depts.washington.edu/trac/bulkdisk/pdf/574.1.pdf>. Accessed August 15, 2006.

Washington State Local Improvement District Manual, Fifth Edition, October 2003, viewed at

<http://www.mrsc.org/Publications/walidmanual03.pdf#search=%22Refer%20to%20the%20Washington%20State%20Local%20Improvement%20District%20Manual%2C%20Fifth%20Edition%22>. Accessed on August 15, 2006.

APPENDIX 1: LIST OF PERSONS CONTACTED

Person	Title	Company	Method of Contact	Date	Phone	E-mail Address
Betty Wineland	CAT Contact	Central Arkansas Transit Authority	E-mail		501 375 6717	bwineland@cat.org
Bill Bryant	Service Planning & Service Development	King County Metro	Personal Interview, Telephone, E-mail	July 19, 2006	206 684 2106	Bill.bryant@metrokc.gov
Jonathon Bez	Project/Program Manager III	King County Metro	E-mail		206 263 4525	Jonathon.Bez@metrokc.gov
Colette Flanagan	GIS Specialist	King County Metro	E-mail		206 684 1648	Colette.Flanagan@metrokc.gov
Marisa Espinosa	Manager, Strategic Policy Initiatives	Municipal Transportation Agency	E-mail		415 701 4508	Marisa.Espinosa@sfmta.com
Ivan Miller	Principal Planner	Puget Sound Regional Council	E-mail			imiller@psrc.org
Jan Drago	Chair Transportation Committee	Seattle City Council	E-mail			Jan.Drago@Seattle.gov
Ethan Melone	Project Manager, South Lake Union Streetcar	Seattle Department of Transportation	Personal Interview, Telephone, E-mail	July 19, 2006	206 684 8066	Ethan.melone@seattle.gov
Susan Sanchez	Director of Transportation Policy and Planning	Seattle Department of Transportation	E-mail			Susan.sanchez@Seattle.gov
Mary Catherine Snyder	Senior Transportation Planner	Seattle Department of Transportation	E-mail		206 684 8110	Marycatherine.snyder@Seattle.gov
Kathy Mulady	Reporter	Seattle PI	E-mail			KathyMulady@seattlepi.com
Kay Dannen	Portland Streetcar Contact	Shiels Obletz Johnsen, Inc.	E-mail		503 478 6404	dannen@portlandstreetcar.org
Mark Hallenbeck	TRAC Director	University of Washington	Personal Interview, Telephone, E-mail		206 543 6261	tracmark@u.washington.edu
Keith Ganey	First Year Law Student	University of Washington	Personal Interview, E-mail	July 3, 2006		keith@keithganey.com
Peter Dewey	UW Director of Transportation Services	University of Washington	Personal Interview, E-mail	July 31, 2006	206 616 2050	pdewey@u.washington.edu
Paul Roybal	UW Manager of Transportation Office	University of Washington	Personal Interview, E-mail	July 6, 2006	206 616 2049	proybal@u.washington.edu
Anne Eskridge	Manager Property and Transport Services	University of Washington	Personal Interview, E-mail	July 18, 2006	206 685 1888	
George Rolfe	Professor, Department of Urban Design and Planning	University of Washington	E-mail			rolfe@u.washington.edu
Kristina Hill	Professor, Department of Landscape Architecture	University of Washington	E-mail		206 616 3582	kzhill@u.washington.edu
Alan Hart	Principal Architect	VIA Suzuki Architecture	E-mail		206 284 5624	ahart@via-architecture.com
Matt Roewe	Architect	VIA Suzuki Architecture	E-mail		206 284 5624	mroewe@via-architecture.com
Elizabeth Goss	GIS Analyst/Planner	WSDOT Public Transportation & Rail	E-mail		360 705 7906	GossE@wsdot.wa.gov
Sue Comis	Tacoma LINK Contact		E-mail			comiss@soundtransit.org
John Rahaim	Urban designer and planner	City of Seattle	E-mail			John.Rahaim@ci.seattle.wa.us
Jean Mabry	Landscape architect and planner	WSDOT	E-mail			MabryJ@wsdot.wa.gov
Richard Johnson			E-mail, Telephone			Richard.johnson@vancouver.ca

APPENDIX 2: SUMMARY SOURCES OF FUNDING FOR CAPITAL AND OPERATIONS COSTS FOR PORTLAND STREETCAR, SEATTLE SOUTH LAKE

Appendix 2, Table 1: PORTLAND STREETCAR						
	Legacy Good Samaritan Hospital to Portland State University	Portland State University to RiverPlace	RiverPlace to SW Gibbs Street	Total	% of Total	Per Mile
Track	2.4 mi of double track	0.6 mi of double track	0.6 mi of single track			
Total Track Length	4.8 mi	1.2 mi	0.6 mi	6.6		
Service Start Date	20-Jul-01	11-Mar-05	8-Sep-06			
Capital Budget	\$ 56,900,000	\$ 16,000,000	\$ 15,800,000*	\$ 88,700,000	100.0%	\$ 13,439,394
City Parking Bonds	\$ 28,600,000	n/a	n/a	\$ 28,600,000	32.2%	\$ 4,333,333
Local Improvement District	\$ 9,600,000	\$ 3,000,000	\$ 2,000,000	\$ 14,600,000	16.5%	\$ 2,212,121
Tax Increment	\$ 7,500,000	\$ 8,400,000	\$ 3,800,000	\$ 19,700,000	22.2%	\$ 2,984,848
Federal Transportation Funds	\$ 5,000,000	n/a	n/a	\$ 5,000,000	5.6%	\$ 757,576
Regional Transportation Funds	n/a	n/a	\$ 10,000,000	\$ 10,000,000	11.3%	\$ 1,515,152
City Parking Fund	\$ 2,000,000	n/a	n/a	\$ 2,000,000	2.3%	\$ 303,030
City General Fund	\$ 1,800,000	n/a	n/a	\$ 1,800,000	2.0%	\$ 272,727
City Transportation Fund	\$ 1,700,000	\$ 600,000	n/a	\$ 2,300,000	2.6%	\$ 348,485
U.S. HUD Grant	\$ 500,000	\$ 800,000	n/a	\$ 1,300,000	1.5%	\$ 196,970
Misc.	\$ 200,000	\$ 100,000	n/a	\$ 300,000	0.3%	\$ 45,455
Transportation Land Sale	n/a	\$ 3,100,000	n/a	\$ 3,100,000	3.5%	\$ 469,697
Sale of Developmental Rights	n/a	n/a	n/a	n/a	n/a	n/a
Operations Budget	\$ 2,700,000	\$ 600,000	\$ 600,000	\$ 3,900,000	100.0%	\$ 590,909
TriMet / King County Metro	\$ 1,600,000	\$ 400,000	\$ 400,000	\$ 2,400,000	61.5%	\$ 363,636
Parking Meter Revenues	\$ 800,000	\$ 150,000	\$ 150,000	\$ 1,100,000	28.2%	\$ 166,667
Sponsorships/Fares/Promotions	\$ 300,000	\$ 50,000	\$ 50,000	\$ 400,000	10.3%	\$ 60,606
Fares	n/a	n/a	n/a	n/a	n/a	n/a
Operations Fund	n/a	n/a	n/a	n/a	n/a	n/a
FTA 5307 & 5309 Funds	n/a	n/a	n/a	n/a	n/a	n/a

* Estimated

Source: Portland Streetcar Capital and Operations Funding (www.portlandstreetcar.org)

FINANCING OPTIONS FOR AN EXPANDED SEATTLE STREETCAR SYSTEM AND NETWORK
PART I

Appendix 2, Table 2: SEATTLE SOUTH LAKE UNION STREETCAR					
	Westlake Center to Fred Hutchinson	Total	% of Total	Per Mile	
Track	1.3 mi of double track	2.6			
Total Track Length	2.6 mi				
Service Start Date					
Capital Budget	47,500,000*	\$ 47,500,000	107.4%	\$ 18,269,231	
City Parking Bonds	n/a	n/a	n/a	n/a	n/a
Local Improvement District	25,000,000*	\$ 25,000,000	52.6%	\$ 9,615,385	
Tax Increment	n/a	n/a	n/a	n/a	n/a
Federal Transportation Funds	18,100,000**	\$ 18,100,000	38.1%	\$ 6,961,538	
Regional Transportation Funds	n/a	n/a	n/a	n/a	n/a
City Parking Fund	n/a	n/a	n/a	n/a	n/a
City General Fund	n/a	n/a	n/a	n/a	n/a
City Transportation Fund	n/a	n/a	n/a	n/a	n/a
U.S. HUD Grant	n/a	n/a	n/a	n/a	n/a
Misc.	n/a	n/a	n/a	n/a	n/a
Transportation Land Sale	5,400,000*	\$ 5,400,000	11.4%	\$ 2,076,923	
Sale of Developmental Rights	2,500,000*	\$ 2,500,000	5.3%	\$ 961,538	
Operations Budget	5 Year Avg (2008-2012)	\$ 1,722,367	100%	\$ 662,449	
TriMet / King County Metro	\$ 917,339	\$ 917,339	53.3%	\$ 352,823	
Parking Meter Revenues	n/a	n/a	n/a	n/a	n/a
Sponsorships/Fares/Promotions	n/a	n/a	n/a	n/a	n/a
Fares	\$ 306,590	\$ 306,590	17.8%	\$ 117,919	
Operations Fund	\$ 380,145	\$ 380,145	22.1%	\$ 146,210	
FTA 5307 & 5309 Funds	\$ 118,293	\$ 118,293	6.9%	\$ 45,497	

* Estimated

**Includes \$12M in secured State & Federal Grants and up to \$6.1M in pending State & Federal Grants

Note: Operations and Maintenance Budget is expected to be \$1.51M and \$1.37M subsequent years

Source: South Lake Union Streetcar Capital Financing and Operating and Maintenance Plan, April 13, 2005, The Office of Policy and Planning

PART II: A SPATIAL ANALYSIS

INTRODUCTION TO PART II

This second part consists of a spatial analysis of five possible extensions to the South Lake Union Streetcar and to the George Benson Waterfront Streetcar. The analysis presents data on the characteristics of land use and development along the extensions. These characteristics provide information on the conditions that will affect streetcar ridership and on potential sources of local support for financing the expanded system.

The following routes and possible extensions were considered in this analysis:

Two baseline routes:

- South Lake Union (baseline)
- George Benson existing Waterfront Line (baseline)

Five possible extensions:

- International District Jackson Street
- Waterfront Extension to Interbay
- Yale to the University District and the University of Washington
- Westlake to Broadway Street
- Harrison Street to Seattle Center

Seven different indicators were considered in analyzing the areas surrounding the possible streetcar extensions. Thirteen different measures were taken in the geographic information system. These measures are listed from 1 to 13 below and are reported on separately on the following pages.

- Size of Local Improvement Districts (LID) along streetcar lines and length of possible streetcar extensions in feet (1)
- Slope of terrain to ensure feasibility of streetcar technology (2)

- Land economics, land development and taxation potential: Assessed Property Values in each LID (3), Vacant and Redevelopable Lands (4).
- Ridership potential: Residential Density (5), Employment Density (6).
- Further potential financial support for operations: Properties with more than 500 Employees (7), Employees at Commute Trip Reduction Program working sites (8).
- Interface with existing transit service: Bus Ridership (9), Selected Existing Bus Routes (10).
- Interface with local automobile-supportive facilities and related parking revenues: Structured Parking (11), Parking at Grade (12), Parking Meter Zones (13).

Each one of the 13 measures is illustrated by a map and summary figures of the values obtained in the analysis. Each measure is also discussed to explain the following:

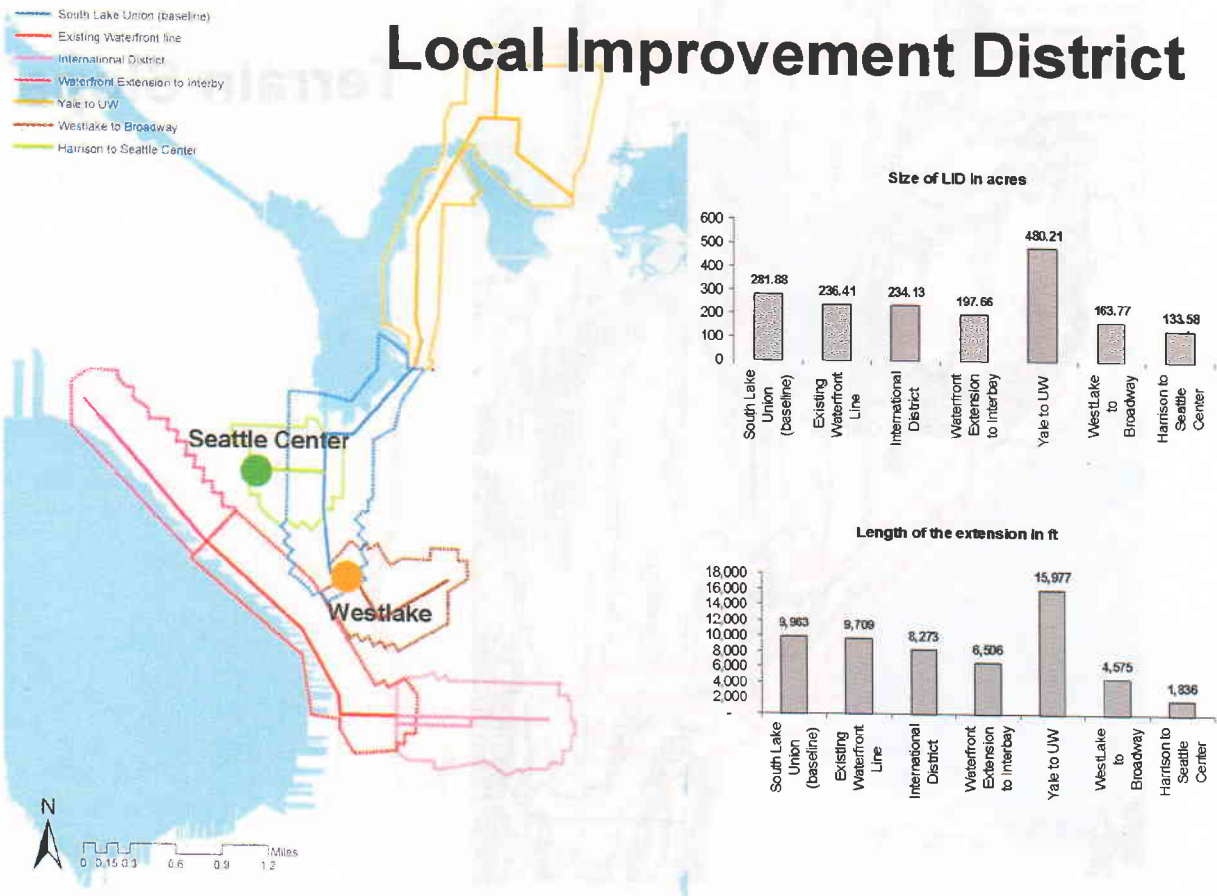
- What the measure is intended to represent (Proxy)
- Why the measure should be a consideration in the analysis of potential streetcar extensions (Rationale)
- How the measure was calculated in the GIS
- The sources of the data
- Comments and comparisons between the different potential extensions

Study Limitations

The five extensions (International District Jackson Street, Waterfront Extension to Interbay, Yale to the University District and the University of Washington, Westlake to Broadway Street, Harrison Street to Seattle Center) were selected by committee in summer 2006 to serve as examples of possible streetcar lines. The particular alignment selected for each possible extension is hypothetical and specified for the purpose of the comparative analyses only.

The George Benson existing waterfront streetcar line and the South Lake Union line are used as baseline extensions to study in a comparative way the five possible extensions.

The maps that follow are available in a PowerPoint format.



(1) POSSIBLE LOCAL IMPROVEMENT DISTRICTS (LID)

Proxy measure for: The area near the streetcar extension and the property owners within it who are most directly affected by the extension.

Rationale: The LID area encompasses all people and activities that can potentially support the streetcar financially, as well through increased ridership.

Measurement in GIS: Four blocks on either side of the streetcar line, corresponding to an acceptable walking distance to the streetcar. The total area of the LID is provided as well as the area per foot of streetcar extension.

Data source: King County tax assessor's office.

Comments: The LID areas included in the four block-deep zones on either side of the streetcar lines are relatively small. The SLU area is less than one half of a square mile, and the Yale to UW extension LID is smaller than one square mile.

The LID area assumed for the George Benson existing Waterfront streetcar line is larger than the actual area from which this streetcar ridership is drawn. The four blocks shown to be in the LID extend up to Third Avenue. However, because of the substantial change in grade between Third Avenue and Alaskan Way, few people who are "up hill" on First, Second, and Third avenues actually use the streetcar. The generous delineation of this LID was meant for comparison purposes with the other possible extensions.

The SLU and existing waterfront lines have the same length at almost 10,000 feet, or not quite 2 miles, the equivalent of a 40-minute walk. Harrison Street would be the shortest at about one third of a mile, and Yale to the UW is the longest at almost 3 miles.



Terrain Slope

(2) SLOPES

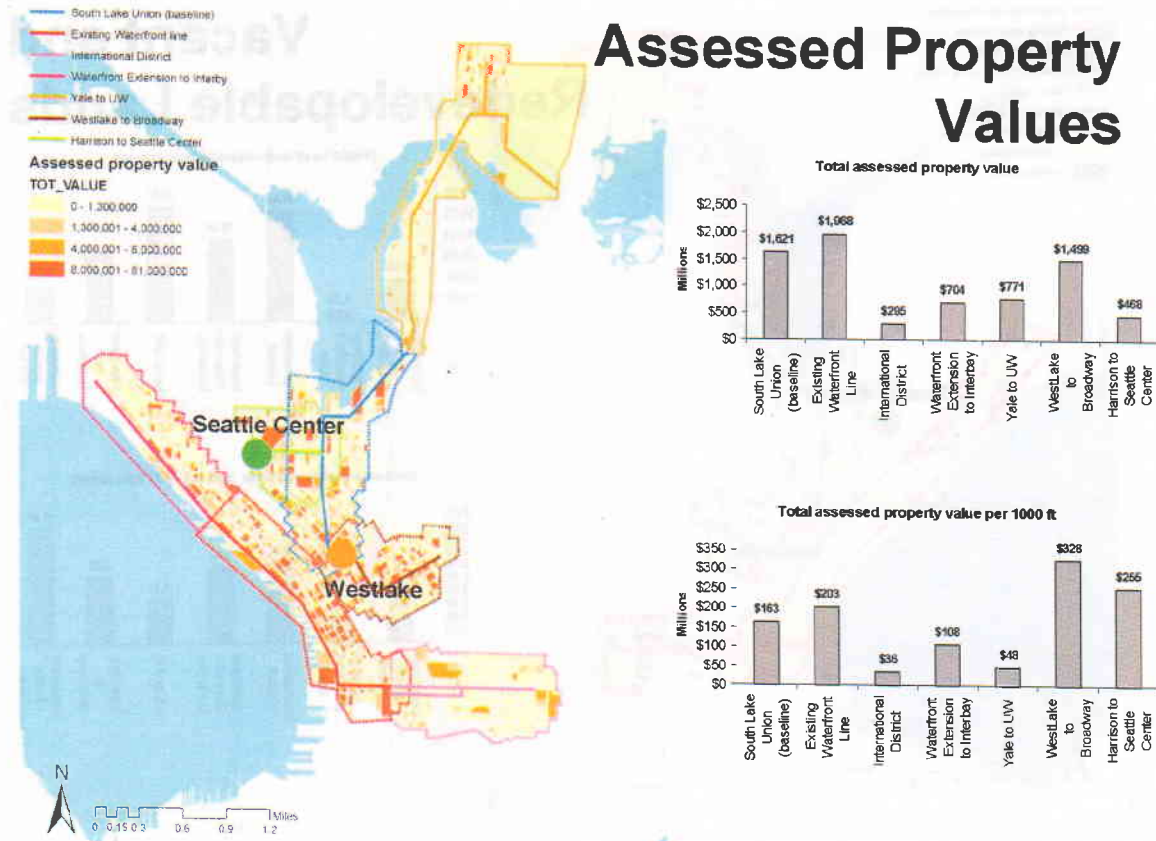
Proxy measure for: Street right-of-ways that can accommodate streetcars.

Rationale: Current streetcar technology requires slopes that are lower than 6 percent.

Measurement in GIS: Contours of terrain.

Data source: The Urban Form Lab, based on USGS data.

Comment: All the extensions shown are located in areas and right-of-ways where topography makes it feasible to have streetcar service.



(3) ASSESSED PROPERTY VALUES

Proxy measure for: Estimated private wealth in real properties within the LID area.

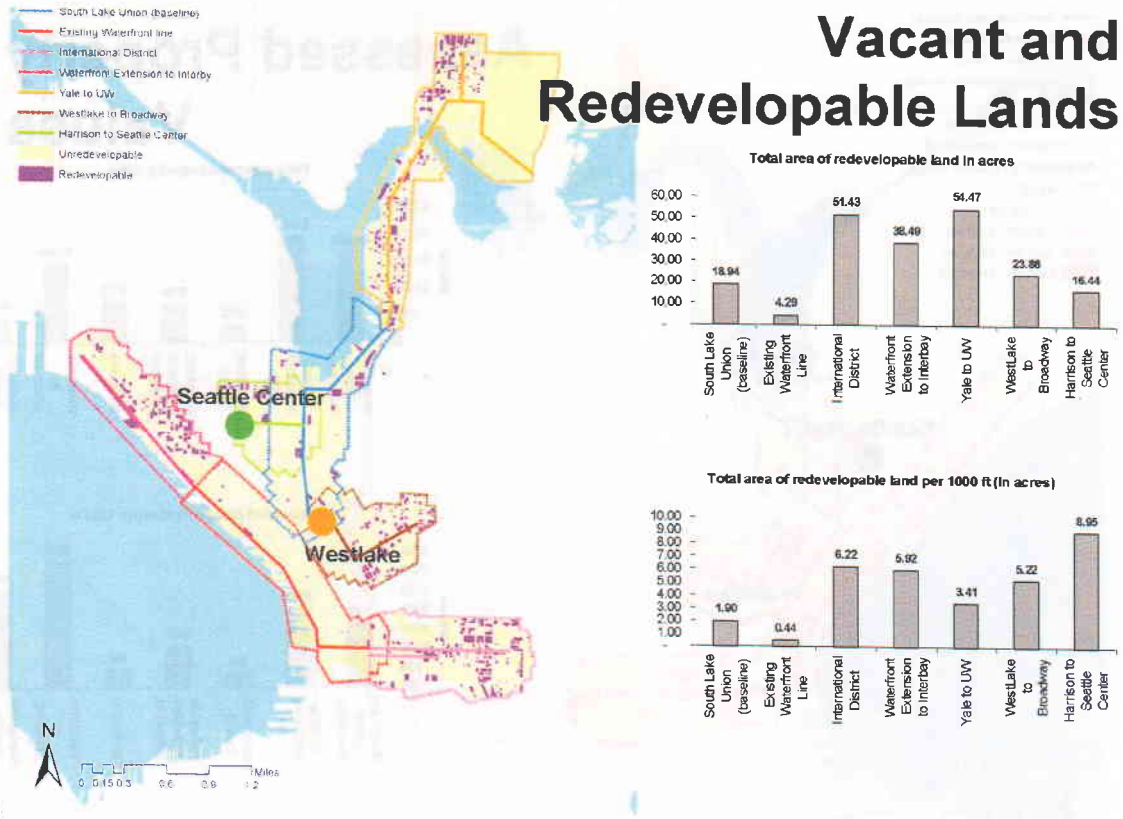
Rationale: Abutting property owners may be willing to support the streetcar financially because it will increase the quality of their neighborhood; increase access to residences, businesses, and employers; reduce traffic congestion; improve air quality; and decrease the relative demand for parking.

Measurement in GIS: Total of combined assessed values (land and improvements) for all land uses in the LID area (Single-family, Multi-family—Condominiums and Apartments, and Commercial uses).

Data source: King County tax assessor's office

Comments: The SLU and the existing Waterfront line have the highest total property assessment values. The Westlake to Broadway extension comes next, and the International District has the lowest total property values in its LID.

Pro-rated by linear foot of streetcar, the Westlake to Broadway extension yields assessed property values that are twice as high as those of the SLU. The Yale to UW and the International District extensions have relatively low assessed property values. For the University District extension, the UW, as the largest property owner, is not taxed on property. For the International District, land values remain low in spite of the extension's proximity to Downtown.



(4) VACANT AND REDEVELOPABLE LANDS WITHIN THE LID

Proxy measure for: Land that might become economically feasible to develop or redevelop as a result of the streetcar extension.

Rationale: A streetcar system is a long-term investment in transportation infrastructure that supports long-term investment in real estate and may encourage timely development or redevelopment.

Measurement in GIS: Several criteria have been used for these measures, which are based on the method used by the City of Seattle to compute land supply and capacity. These are the criteria:

All vacant land is assumed to be available for development

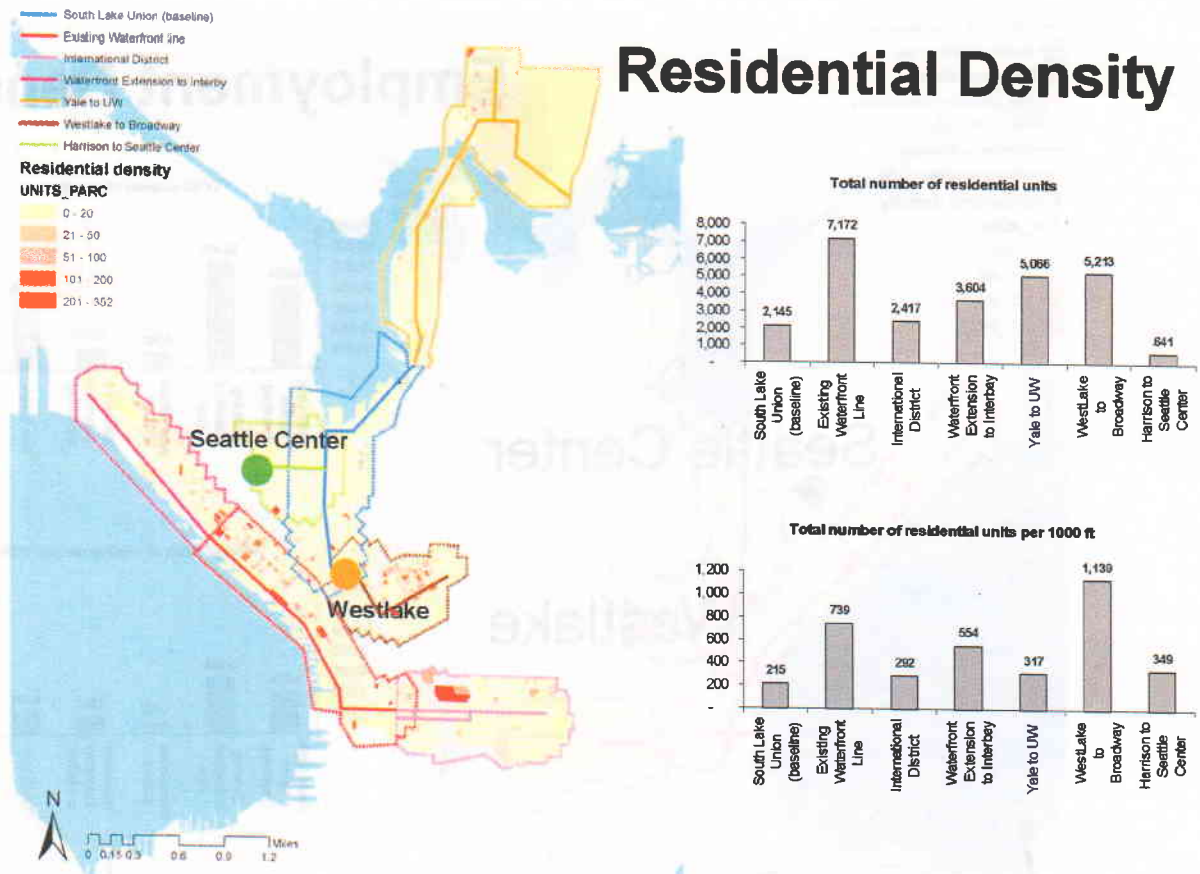
In lowrise multifamily zones (LDT, L-1, L-2, L-3, and L-4), the existing number of units on a lot is compared to the number that could be permitted under the current Land Use Code's density limits. It is assumed that a parcel is available for redevelopment if the current number of residential units represents less than 40 percent of that potentially allowed by zoning.

In the midrise and highrise multifamily zones (MR and HR) and commercial zones (C1, C2, NC1, NC2, and NC3), a parcel is assumed to be redevelopable if the ratio of its assessed improvement value to its assessed land value is less than 0.5.

Data source: King County tax assessor's office

Comments: The International District, the Waterfront extension to Interbay, and Yale to UW extension have the largest amounts of redevelopable land.

On a per foot of extension basis, the Westlake to Broadway, the Harrison Street, and the Interbay extensions have large amounts of land with potential for redevelopment because of zoning that anticipates and supports high development capacities. The International District extension, on the other hand, has large amounts of redevelopable lands because of a relatively low demand for redevelopment.



(5) RESIDENTIAL DENSITY

Proxy measure for: Number of potential streetcar riders.

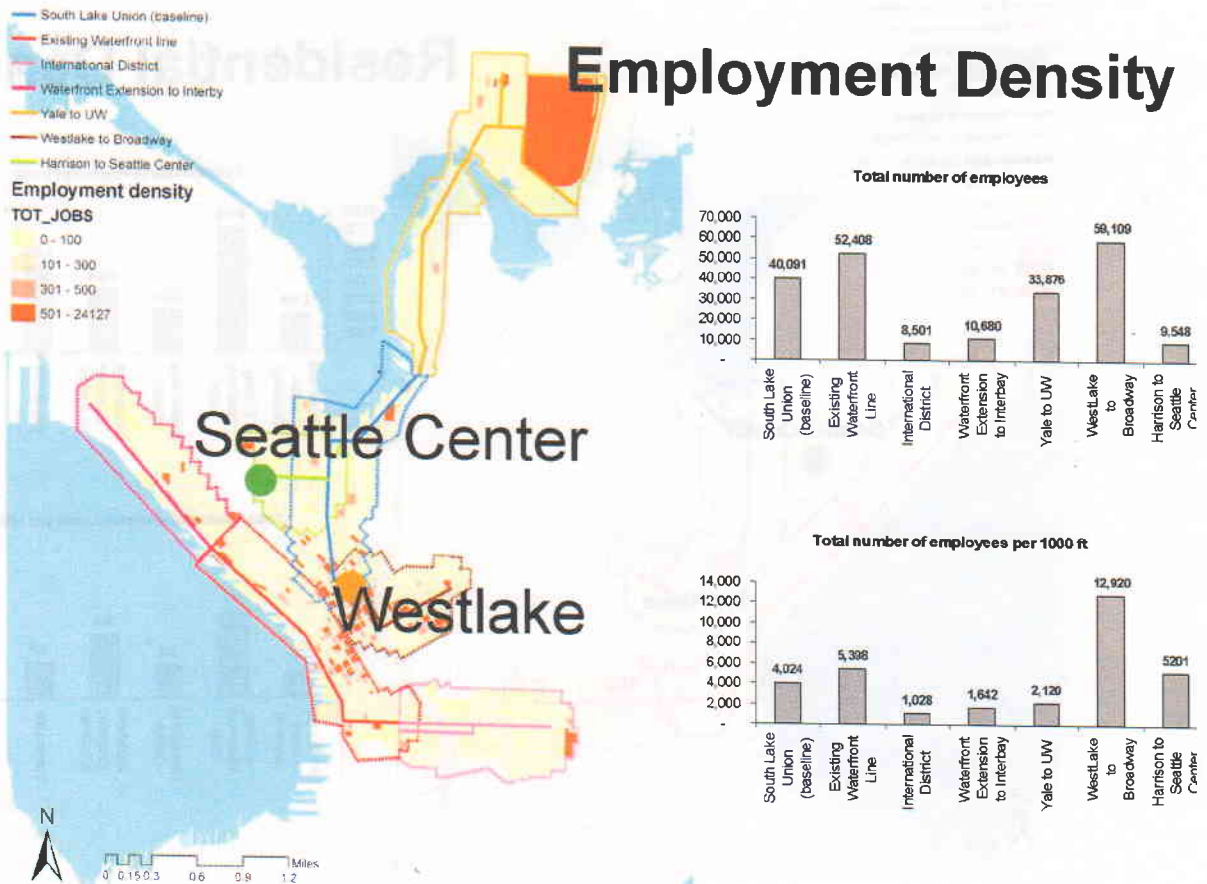
Rationale: People living near a streetcar line are likely to use the streetcar to attend to their activities.

Measurement in GIS: Total number of residential units per acre of residential parcels.

Data source: King County tax assessor's office

Comments: The existing Waterfront line, the Westlake to Broadway, and the Yale to UW extensions have a large number of residents in their LIDs.

On a per-foot of line, the Westlake to Broadway, the existing Waterfront line, and its extension to Interbay have the highest numbers of residents in their vicinities. The latter extension serves an area that is witnessing the latest influx of new residents.



(6) EMPLOYMENT DENSITY

Proxy measure for: Number of potential streetcar riders.

Rationale: People working near a streetcar line are likely to use the streetcar to attend to their activities.

Measurement in GIS: Total number of employees per acre of employment parcels.

Data source: The UW Urban Form Lab; several methods were combined that relate building utilization to number of employees (WSDOT 2005; <http://depts.washington.edu/trac/bulkdisk/pdf/620.1.pdf>)

Comments: The SLU, Westlake to Broadway, and the existing Waterfront lines have the largest numbers of employees in their LIDs.

The Westlake to Broadway stands out as the extension with three times as many employees per foot of line than the SLU. Not surprisingly, all extensions nearest to Downtown, including the Harrison Street extension, have the highest densities of employees per linear foot of extension.

South Lake Union (baseline)
 Existing Waterfront line
 International District
 Waterfront Extension to Interbay
 Yale to UW
 Westlake to Broadway
 Harrison to Seattle Center



Properties with More than 500 Employees

UNIVERSITY OF WASHINGTON	25,000
TWO UNION	3,652
US BANK	3,071
ONE UNION SQ OFFICE	2,124
CENTURY SQ 1 OFFICE	1,993
CONVENTION CENTER	1,821
SMC WEST WING	1,333
SMC SOUTHWEST WING	1,193
HEALTH RESOURCE BLDG.	904
MARSH & MCLENNAN	871
ARNOLD MEDICAL PAVILION	865
VIRGINIA MASON HOSPITAL	794
MAIN/WEST WING	656
SMC SOUTH WING	635
WASH ATHLETIC CLUB	600
QFC & EXCG	533
WEST TOWER	524
MASON CLINIC	508

(7) LOCATIONS OF PROPERTIES WITH MORE THAN 500 EMPLOYEES

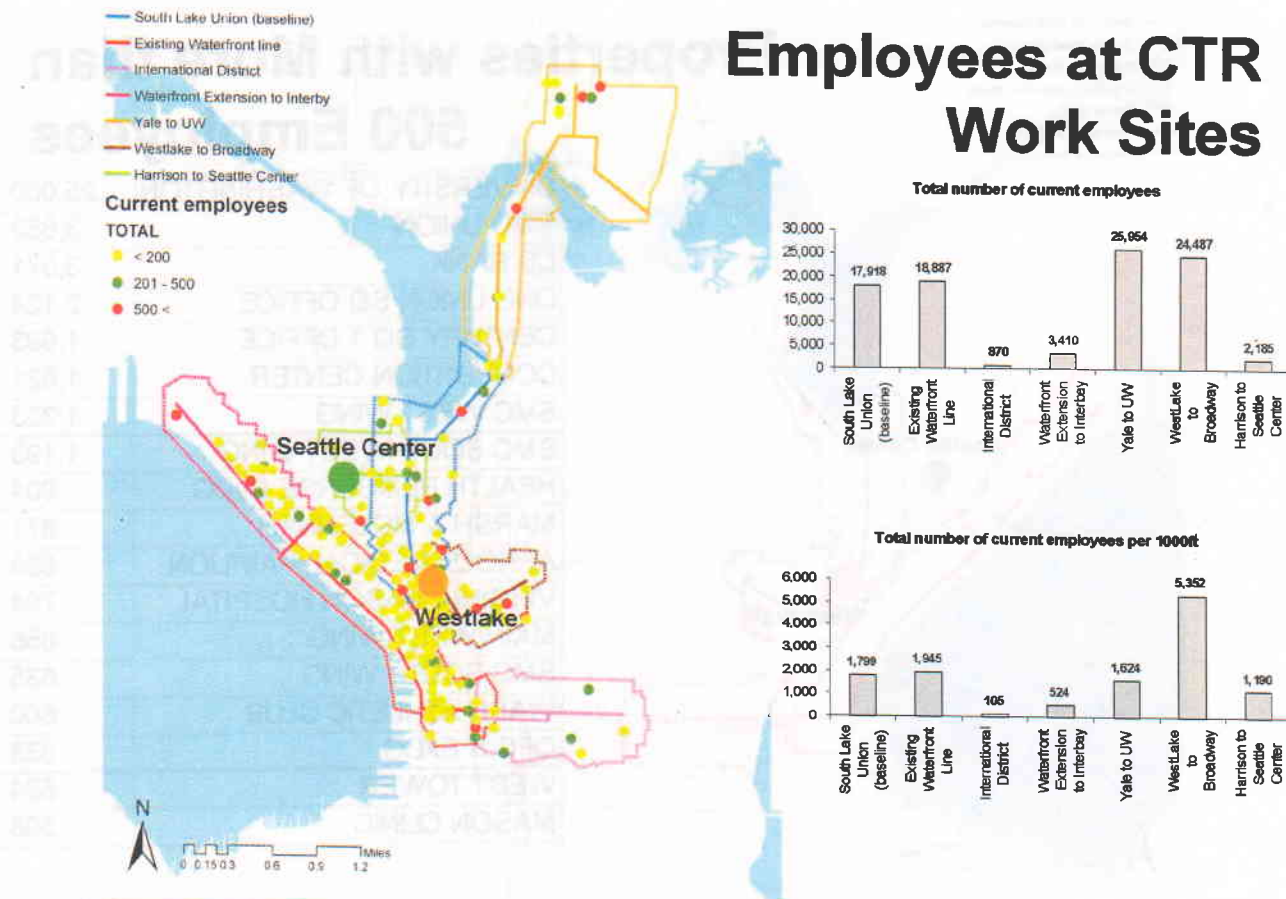
Proxy measure for: Potential sponsors and supporters of the streetcar extension.

Rationale: Large employers benefit from having employees who are as "transportation-efficient" as possible. They also have the organizational and financial resources to help their employees select the most appropriate and cost-effective mode of transportation.

Measurement in GIS: Employers in the LID that have more than 500 employees.

Data source: The Urban Form Lab, based on data from the King County tax assessor's office.

Comments: The largest employers are in or close to the Downtown area. The UW and International District extensions have large employers located at the line terminus, which may well justify the need for these extensions.



(8) EMPLOYEES AT COMMUTE TRIP REDUCTION PROGRAM WORKING SITES (CTR)

Proxy measure for: Potential sponsors and supporters of the streetcar extension.

Rationale: Employers with more than 100 employees are already required to participate in the state's Commute Trip Reduction Program (CTR). They have the organizational structure to provide incentives and to help their employees select the most appropriate and cost-effective mode of transportation.

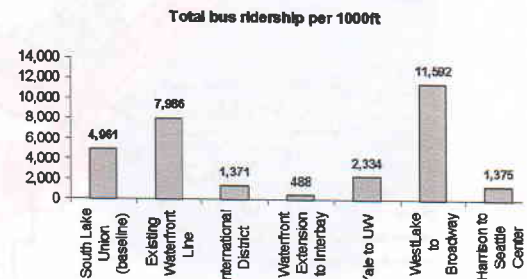
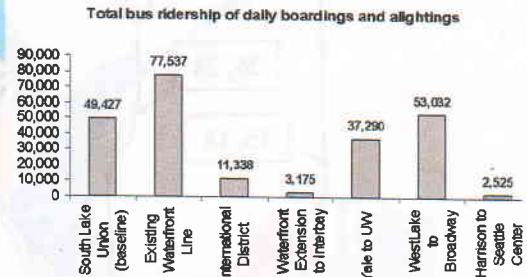
Measurement in GIS: Employers in the LID that are active in the CTR program.

Data source: Washington State Department of Transportation CTR program data

Comments: Patterns are discerned that are similar to those shown by the previous analyses of the large employers.



Bus Ridership



(9) BUS RIDERSHIP

Proxy measure for: Number of people using bus transit in the LID.

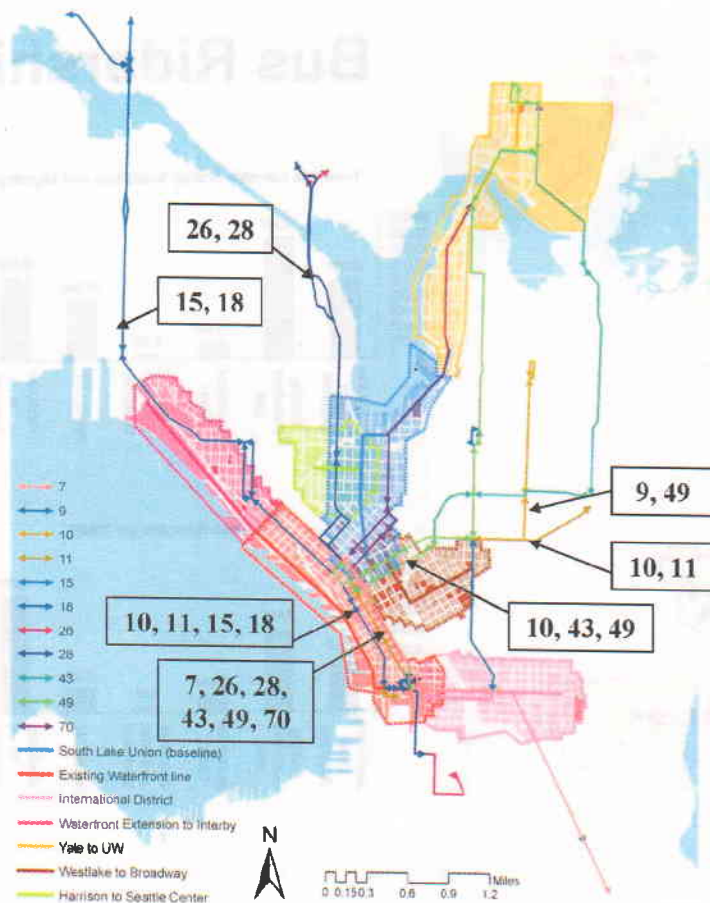
Rationale: King County Metro will assess current bus routes and modify or eliminate some of the routes on the basis of anticipated streetcar ridership. Savings related to these changes may be allocated to the streetcar system.

Measurement in GIS: The total number of daily boardings and alightings per bus stop within the LID.

Data source: King County Metro.

Comments: The SLU line, Westlake to Broadway extension, and the existing George Benson Waterfront line have the highest numbers of daily boardings and alightings per foot of line. Note that the ridership figures for the existing Waterfront line include the Downtown area, which is somewhat misleading because the connections between the Downtown and the Waterfront remain difficult because of topography.

Selected Bus Routes



(10) SELECTED EXISTING BUS ROUTES

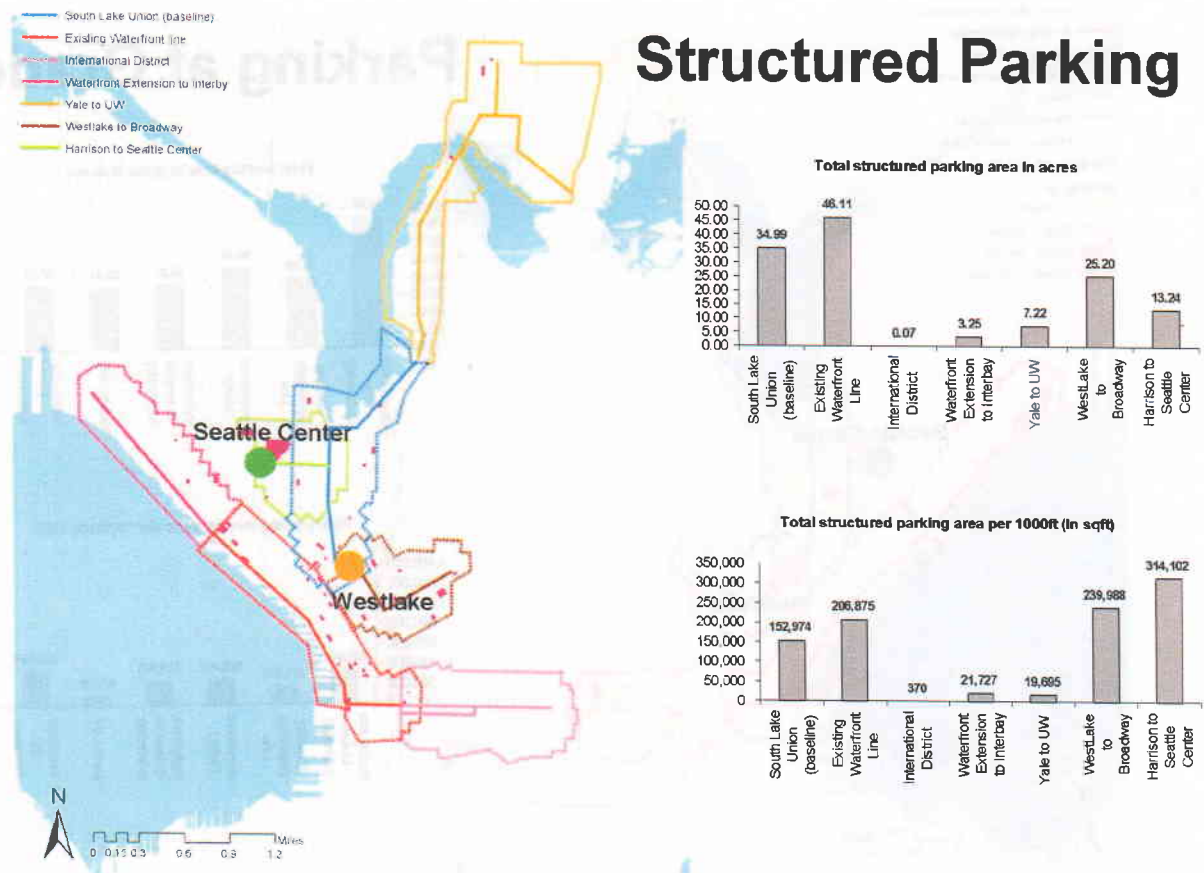
Proxy measure for: King County Metro's current investment and activity in the LID.

Rationale: King County Metro will assess current bus routes and modify or eliminate some of the routes on the basis of anticipated streetcar ridership. Savings related to these changes may be allocated to the streetcar system.

Measurement in GIS: Transit network for selected routes

Data source: King County Metro

Comments: All LID areas are well served by existing bus transit, which suggests two things. First, it confirms the fact that areas considered for the streetcar extensions already have an established demand for transit. Second, there is a need to coordinate the extensions in close collaboration with Metro in order to ensure the most effective transit service to all areas.



(11) STRUCTURED PARKING

Proxy measure for: Parking available in single-use, high-capacity structures.

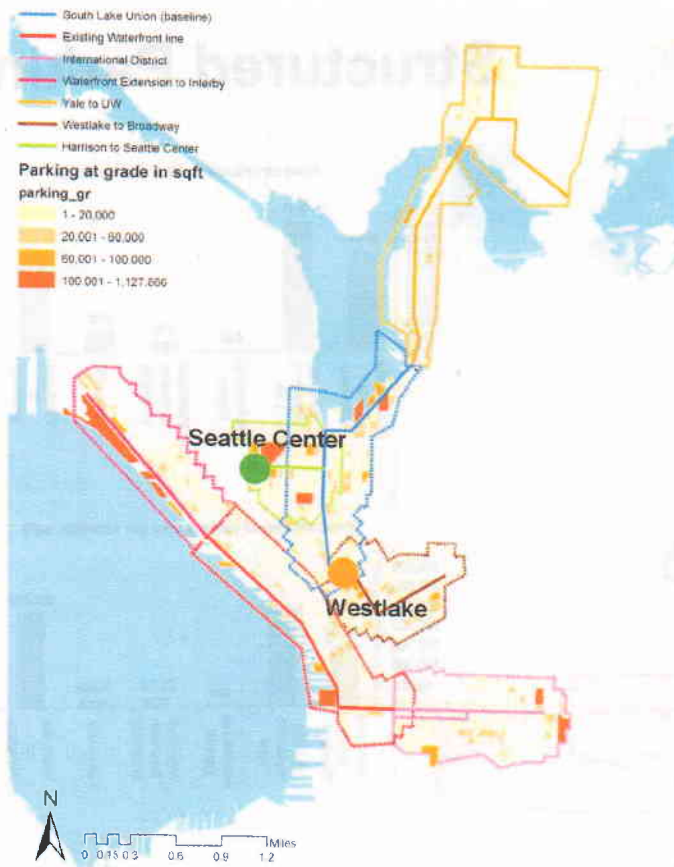
Rationale: If properly managed and accessible 24 hours a day and 7 days a week, structured parking can be shared by different users by time of day/night or by week day vs. weekend. Structured parking geared to serve the entertainment sector can, for example, be used by employees during the work week. Similarly, area residents and employees may be able to share some of the same parking.

Measurement in GIS: The total building floor area for parcels in parking land uses (including parking, associated parking, commercial lot, garage) and with buildings taller than 1 story. At-grade parking lots are not included in this analysis, as they already are accounted for as redevelopable lands. The data for all LIDs show 446 parcels in these uses, with 56 parcels housing structures with more than one story. This means that 390 parcels have at-grade parking lots, totaling 100 acres, or space for approximately 10,000 cars. This is a relatively low number, since all seven LIDs are included. Note that this measure of structured parking excludes parking that is associated with residential, institutional, and commercial development.

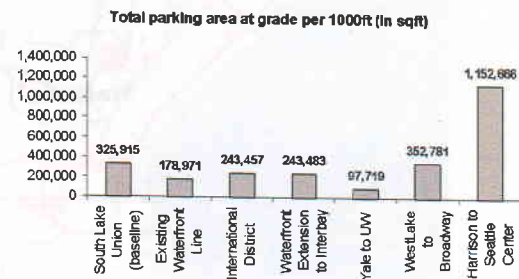
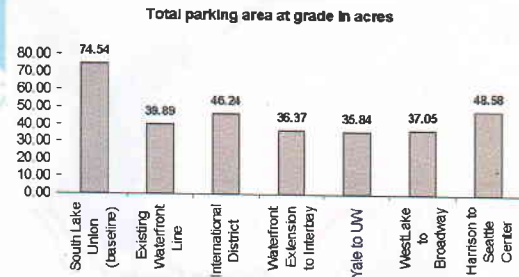
Data source: The Urban Form Lab, based on data from the King County tax assessor's office.

Comments: The extensions that are near the Downtown core and the Seattle Center have the largest areas in structured parking.

Harrison Street is an outlier with large amounts of structured parking per foot of line. This suggests that the line could serve to connect the parking structures to the rest of the SLU area and to Downtown



Parking at Grade



(12) PARKING AT GRADE

Proxy measure for: Lands associated with commercial uses that are used for at-grade parking and are likely to be redeveloped at higher densities.

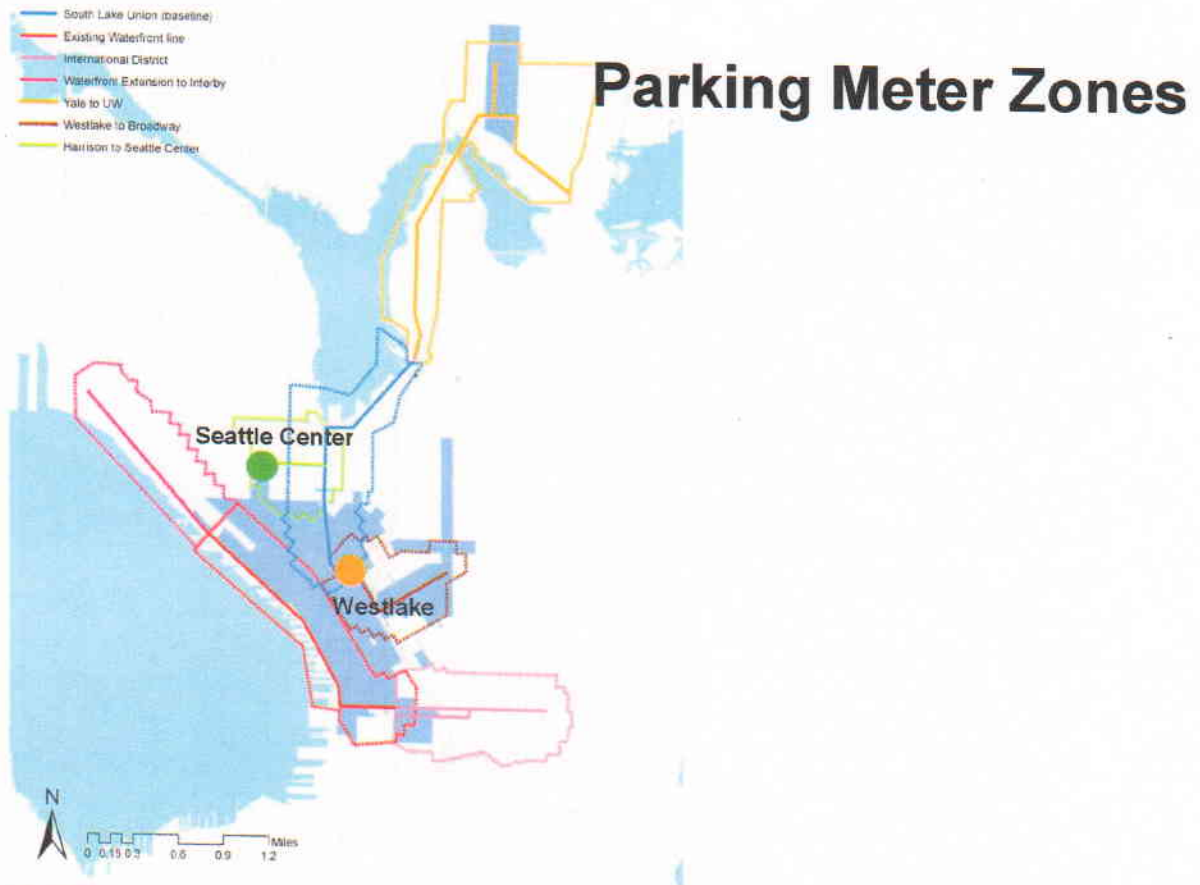
Rationale: Commercial properties with parking at grade are not optimizing the use of land that is proximate to the Downtown core. These properties are likely to be redeveloped more quickly after the introduction of a new streetcar line than other commercial parcels. This is a measure of short-term redevelopability.

Measurement in GIS: Area of commercial parcels (office and retail/service) minus the building footprint (calculated as the total building square feet divided by the number of stories) in acres. Some of these results may overlap with redevelopable lands.

Data source: The Urban Form Lab, based on data from the King County tax assessor's office.

Comments: With the exception of the Waterfront and the Yale to UW extensions, all LIDs have a substantial amount of parking at grade in commercial lands.

The SLU streetcar, the Westlake to Broadway, and the Harrison Street extensions have the largest amounts of parking at grade per foot of line.



(13) PARKING METER ZONES

Proxy measure for: Potential revenues generated by on-street parking in the LID.

Rationale: Because streetcar riders do not use parking, some of the local parking revenues may go to operating the streetcar.

Measurement in GIS: Areas where new solar-powered parking meters are in effect.

Data source: Seattle Department of Transportation

Comments: Parts of the SLU and the International District LIDs can be converted to the new parking meters. All of the UW and the Waterfront to Interbay extensions could benefit from the new parking meters, which have proved to be more profitable than the old ones.