

STREETCAR POLICY DEVELOPMENT

CASE STUDY REPORT



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National Streetcar Project Case Studies

Project	Opening Year	
Atlanta Streetcar Atlanta, Georgia	2014	City of Atlanta/ City of Atlanta with oversight by the Metropolitan Atlanta Rapid Transit Authority (MARTA)
Cincinnati Streetcar Cincinnati, Ohio	2016 (est)	City of Cincinnati/ Southwest Ohio Regional Transit Authority (SORTA)
Columbia Pike Streetcar Arlington County, Virginia	Cancelled	Arlington County
Delmar Loop Trolley St. Louis, Missouri	2016 (est)	Loop Trolley Transportation Development District (TDD)
Downtown Dallas – Oak Cliff Streetcar Dallas, Texas	2015 (est)	City of Dallas/ Dallas Area Rapid Transit (DART)
M-1 Rail Detroit, Michigan	2016 (est)	M-1 Rail, Inc.
Portland Streetcar Portland, Oregon	2001	City of Portland
South Lake Union Streetcar Seattle, Washington	2007	City of Seattle/ King County Metro
Sugar House Streetcar Salt Lake City, Utah	2013	Utah Transit Authority (UTA)

Introduction and Summary Findings

Over the last 15 years, the “modern streetcar” has emerged as an increasingly popular urban development strategy to simultaneously enhance mobility, promote economic development, and create more livable and desirable places. Since the City of Portland opened its first streetcar line in 2001, five more modern streetcar systems have opened in the US (in order, Tacoma, Seattle, Salt Lake City, Tucson, and Atlanta); three more are expected to begin operation in 2015 (Washington DC, Dallas, and Seattle’s First Hill streetcar extension); nearly a dozen others are in design or construction; and perhaps twice as many other urbanized areas in the United States are considering a potential streetcar investment.

In the Twin Cities, both Minneapolis and St. Paul are in the early planning phase for just such an investment. Similarly, the Metropolitan Council is in the early stage of developing a regional streetcar policy intended to guide the region’s involvement in the future planning, development, and funding of local streetcar projects. Streetcar service is typically differentiated from light rail transit (LRT) in that it is intended to provide circulation within a compact urban setting, rather than longer-distance travel across a city or from the suburbs to a center city. From a transportation perspective, streetcar service is more oriented to facilitating local access rather than regional mobility. Stations are spaced similarly to local bus routes, and streetcar vehicles typically share traffic lanes with automobiles.

As part of its policy development, Metropolitan Council is asking the following questions:

- What is the role of modern streetcars in local and regional transit systems as a transportation investment and an economic development investment?
- How do these roles affect the viability of potential funding sources for capital and operating costs of modern streetcars?
- Should there be typical funding sources for modern streetcar? What would be appropriate sources and shares?
- Should modern streetcars be a transitway in the 2040 Transportation Policy Plan?
- How might modern streetcar projects or a system be prioritized within the region and with other transit needs? How might streetcar projects be prioritized within a community such as Minneapolis or St. Paul?

To help the Council answer these questions, the experiences of other US regions which have either implemented – or are in the process of implementing - streetcar systems were sought. These experiences are captured and presented in this report. For each of the nine projects profiled, information is provided on the project itself (actual or estimated scope, schedule, budget, ridership); its goals and objectives; its planning history; its link to the regional planning process and transportation system; and the key issues and challenges that project stakeholders faced in the implementation of the project, as well as any other of its unique features. On their own, each of the nine case studies tells a unique story about the planning and development of streetcar projects in revitalizing urban areas. Taken together, however, certain themes and “lessons learned” emerge which may benefit the Council and its partner agencies as they consider the development and adoption of a regional streetcar policy:

- **Most streetcar projects are “owned” by cities – not transit agencies.** Of the case study projects, six are sponsored by cities. Two are owned by entities created for the purpose of their implementation and operation (M-1 Rail, Inc. in Detroit and the Loop Trolley Transportation Development District in St. Louis). Only one is owned by the region’s transit authority – the Sugar House Streetcar by the Utah Transit Authority in Salt Lake City. In fact, the vast majority of streetcar projects currently under development across the US are not being led by transit agencies.
- **However, streetcar projects benefit from the involvement of a regional transit authority.** Although they aren’t owners, regional transit agencies serve, or will serve, as the operators of the

Cincinnati, Dallas, and Seattle streetcars. The Metropolitan Atlanta Rapid Transit Authority (MARTA) is providing oversight of the City of Atlanta's operation of its new streetcar line. These regional transit agencies, plus TriMet in Portland and Metro in St. Louis, have also provided technical assistance and/or loaned or contracted staff to assist in the development of streetcar projects in those cities. Transit agency experience - in terms of capital project development, system operations, and Federal Transit Administration (FTA) grant compliance - have helped cities avoid - or at least mitigate - many of the implementation and funding issues encountered by projects which have not benefitted from such involvement. Dallas Area Rapid Transit (DART) is playing an important role in the delivery of the City's Oak Cliff Streetcar line, including managing the design, construction, and procurement of off-catenary-capable streetcar vehicles. The Southwest Ohio Regional Transit Authority (SORTA) is serving as the FTA grantee for the Cincinnati Streetcar, thus relieving the City of Federal grant compliance responsibilities. Indeed, for Federally-funded streetcar projects, FTA has been strongly encouraging the active involvement, if not leadership, of regional transit agencies in their development and operation.

- **Streetcar projects are expected to promote economic development.** The City of Portland's streetcar system and its impact on economic development has caught the attention of many urban planners, city officials, and local politicians throughout the United States. Consequently, cities are increasingly looking to streetcar investments as a strategy and tool to help revitalize communities, to support new development, and to provide more transportation options to serve the mix of residential, commercial, and retail markets such development encourages. This is certainly true of the nine case study projects. Sponsors of most projects have estimated the actual (for those in operation) or anticipated economic impacts of their investment in streetcar. A 2008 study prepared by the City of Portland which estimated \$3.5 billion in new investment within two blocks of the City's starter line is a widely referenced analysis used to build streetcar support in other areas. "Return on Investment" analyses have been performed in Arlington County, Cincinnati, and elsewhere that demonstrates the anticipated positive economic benefits of implementing streetcars.

But measuring the actual impacts of streetcar investments on the local economy versus other City policies and development incentives is elusive, and debatable. There is no universally accepted methodology for estimating the economic benefits of streetcars in isolation from other public and private initiatives aimed at creating vibrant and sustainable urban areas. Streetcar critics question the merits of an investment in rail transit that does not typically provide appreciable time savings as compared to local bus service, yet costs significantly more. Supporters, on the other hand, point to the catalytic effect that a "permanent" and modern rail transit investment has made in Portland and Seattle, which they believe can be replicated in similar built environments.

Most streetcar projects were planned "outside" of the Federal metropolitan transportation planning process, with little early involvement from the region's metropolitan planning organization. This is for two reasons. First, as just noted, the anticipated economic and community development benefits of streetcars are typically the primary driver for their implementation. Sponsors of the streetcar case study projects typically saw little value or need for advancing their streetcar plans within the broader regional transportation planning process. Secondly, the use of Federal funding was not originally contemplated by sponsors to implement most of the profiled streetcar investments. As projects advanced in Cincinnati, Detroit, St. Louis, and elsewhere, however, it was found that local and private revenue sources were not sufficient to construct them. Beginning in 2009, new discretionary Federal funding sources such as USDOT's Transportation Investment Generating Economic Recovery (TIGER) program and FTA's Urban Circulator program emerged whose criteria were more aligned with the benefits of streetcar projects than traditional Federal funding sources (such as FTA's New Starts and Small Starts programs). These new opportunities and the funding awarded by them resulted in the eventual programming of streetcar projects into long range transportation plans and improvement programs, but often without the benefit of a deliberative regional transportation planning framework.

- **On the other hand, Metropolitan Planning Organizations (MPO) have played somewhat unique roles in the development of several streetcar projects.** Although sponsored by the City of Dallas with technical support by DART, the North Central Texas Council of Governments is the Federal grantee of the TIGER grant for the Downtown Dallas to Oak Cliff Streetcar. The East West Gateway Coordinating Council managed the design of the Delmar Loop Trolley in St. Louis, which hopes to break ground in 2015, while the Southeast Michigan Council of Governments, while not involved in its early planning, has been an active partner in the public-private partnership M-1 Rail streetcar in Detroit. In the case of the latter two, local transit agencies were not engaged in the projects and the MPO provided the sponsors with much-needed technical capacity to help them advance. A more typical MPO role in streetcar development was exhibited by Portland Metro, which served as the lead local agency for the environmental review of the Eastside extension of the City's existing streetcar system.
- **MPOs view the regional benefits of streetcar projects in a variety of ways.** Each of the case study projects' MPO long range plans acknowledge economic development/competitiveness as one of several goals, and most view streetcar investments as contributing to that goal. Other regional goals supported by streetcars include preserving and enhancing established communities, providing more transportation choices, and improving regional connectivity. On this latter goal, many regions appear to view projects which serve the "last-mile" of multimodal trips as a key component of the regional transportation network.

Most streetcar investments are being integrated in some fashion with existing and planned transit and transportation services. As noted, most streetcar projects were not planned by transit agencies. However, most are being implemented to be well-integrated with existing transit services. In some cases, streetcars are being planned in strong existing transit corridors; for example, M-1 Rail will operate on Woodward Avenue, Detroit's second highest transit ridership route, while Arlington County's recently cancelled streetcar on Columbia Pike would have served the highest bus ridership corridor in northern Virginia. In most others, streetcars connect to major regional transit services, providing last-mile transit access to existing – or in more cases, planned - destinations. The Downtown Dallas – Oak Cliff and Salt Lake City Sugar House streetcars are intended to be fully interoperable with their region's LRT systems, sharing maintenance facilities, power systems, and potentially vehicles.

Similarly, while most streetcar systems charge a different fare than that required to board regional bus and rail services, they may be paid for with regional passes or will accept free inter-system transfers. The exception to this is in Detroit and St. Louis, where fare integration agreements have yet to be reached.

- **The costs to construct, operate, and maintain new streetcar systems vary greatly among profiled projects.** The capital cost per mile of the modern streetcar case study projects range from \$20 to \$68 million per mile. Some of these costs are estimated, and most represent significant increases over their planning-level estimates. Major streetcar cost drivers include utility relocation, systems, and maintenance facilities; in fact, the relatively lower Dallas and Salt Lake City streetcar starter line costs are attributable largely to their ability to use existing rail maintenance facilities, rather than building their own. In comparison, a review of recent North American LRT starter line costs-per mile range from \$40 to \$100 million.

Operations and maintenance (O&M) cost estimates exhibit even greater variety, from a low of \$1.5 million annually (Salt Lake City) to over \$6 million – exclusive of fares – for the Columbia Pike Streetcar in Arlington County. Variances are due largely to differences in labor markets, although levels of service also contribute to costs. Streetcar service currently in Salt Lake City and planned for Dallas and St. Louis provides only 20 minute frequencies in the peak (although the Sugar House streetcar operates at that frequency all day). M-1 Rail's much higher annual operating costs – approximately \$5.1 million annually - assume 7.5 minute frequencies, a high level of service which

could be reduced if the system encounters an operating revenue shortfall. Most current and planned systems feature 12-15 minute peak period service frequencies.

FTA's 2012 National Transit Database (NTD) presents the following operating costs for streetcar, LRT, BRT, and bus modes:

Transit Mode	Vehicle Revenue Mile	Vehicle Revenue Hour
Streetcar	\$24.30	\$188.50
LRT	\$16.30	\$255.50
BRT	\$12.80	\$156.70
Bus	\$10.30	\$126.60

- Streetcar projects are being implemented through a variety of capital sources.** Most of the case study streetcar projects rely on a diverse mix of capital funding sources. This is somewhat a reflection of the fiscal realities facing many transit capital projects. Tax increment financing (TIF) and benefit assessment district revenues are two of the more common sources which help streetcars capture increases in property values that are expected to occur along the corridors they serve. But these sources do not cover all necessary costs. The City of Seattle utilized nine capital revenue sources to deliver the South Lake Union Streetcar. The M-1 Rail project is supported by over a dozen separate – and mostly private - funding sources. Despite the anticipated economic return on streetcar investments, however, few projects across the US have received significant private sector support. In addition, administering multiple sources is a challenge for many project sponsors, and leaves many financial plans vulnerable – such as M-1 Rail's - when any one resource cannot meet expected cash flow requirements.

Eight of the nine projects profiled have received Federal funding for their design and construction. In addition to USDOT TIGER and FTA Urban Circulator or Small Starts funding, most case study MPOs have programmed small amounts of Federal Highway Administration (FHWA) flexible funding sources attributable to their region for streetcar construction.

- Operations and maintenance funding has not been secured for many streetcar projects.** One of the greatest risks to several of the profiled streetcar projects is the absence of long – or even short - term funding and operating agreements. Although well under construction, the City of Cincinnati has a greater than \$2 million annual revenue hole in its operating budget. Sponsors of streetcar projects in Dallas and Detroit are similarly seeking additional operating funds to meet their planned operating needs. The opening of Atlanta's streetcar system was delayed for several months in part because of the lack of an operating agreement which satisfied state and Federal officials, and the safety concerns associated with the absence of strong operations procedures and demonstrated technical capacity.

It should be noted that FHWA Congestion Mitigation and Air Quality (CMAQ) Improvement program funding is being used to support the operations of several of the profiled projects. However, CMAQ funds may only be used to support the first five years of new transit service and should not be considered a sustainable source of funding.

Although small relative to most other traditional urban rail projects, streetcar projects have still proven to be challenging to implement. Of the nine projects profiled, only the Sugar House and South Lake Union streetcars have been delivered consistent with their original schedule and budget. Major schedule drivers include vehicle procurement and utility relocation. Vehicle procurement is a critical path item for most systems, but many schedules are not realistic, owing to the sponsor's lack of experience in procurement, and lack of understanding of the time required for vehicle design and delivery – particularly for new (i.e., off-catenary) technology. Utility relocation agreements have

typically taken longer than scheduled to negotiate, and most utility work proved to be more difficult than expected, usually resulting in added cost as well as schedule slippage. General project management inexperience has also resulted in delays associated with inefficient contract packaging and procurement.

- **The implementation of new streetcar service has been a significant political issue in some areas.** Modern streetcar projects implemented to date have benefitted from generally strong political support throughout their planning and development. The ability of political leadership in Seattle to overcome initial opposition to the South Lake Union Streetcar by minimizing the use of City revenues for its construction and operation demonstrates that creative financing strategies can be an important factor in building consensus for a streetcar investment. Securing the support and cooperation of regional transit authorities, as accomplished in Portland and Dallas, have helped to build local political confidence for advancing – and expanding - their streetcar systems.

Recent local elections in Cincinnati and Arlington County, however, turned into referenda on planned streetcar projects. In both cases, the candidate who opposed the streetcar won, resulting in delays to - and loss of City O&M funding for - the Cincinnati Streetcar and the cancellation of the Columbia Pike Streetcar in Arlington County. Despite locally-sponsored analyses which estimated the anticipated positive economic return of the streetcar investments, the candidates in both areas strongly questioned the cost of building and operating rail transit in mixed-traffic over less expensive bus service. Although not profiled in these case studies, planned streetcar systems in Milwaukee and San Antonio have also been delayed or derailed due to political opposition.

The remainder of this report profiles each of the nine streetcar case studies.

Atlanta Streetcar

Project Owner: City of Atlanta (CoA)

Project Operator: CoA, with MARTA oversight

Project Description

The Atlanta Streetcar is an approximately \$92.6 million, 2.7-mile modern streetcar line being constructed along Auburn Avenue, Luckie Street, and Edgewood Avenues between the Martin Luther King, Jr. National Historic Site and Centennial Olympic Park in Atlanta, Georgia. The project scope includes 4 vehicles, 12 stops, and a vehicle maintenance facility. The streetcar connects a number of regional activity centers such as Centennial Olympic Park, Georgia State University, Edgewood and Auburn Avenues, and the Peachtree Corridor, the Central Business District's (CBD) north-south spine. The streetcar provides direct connectivity to existing Metropolitan Atlanta Rapid Transit Authority (MARTA) transit service, as well as future connectivity to the planned Atlanta BeltLine; in fact, the Atlanta Streetcar is envisioned as the first segment of an eventual 63-mile City of Atlanta BeltLine streetcar system. The Atlanta Streetcar opened for revenue service in December 2014, and is expected to carry 2,600 riders each weekday.



Figure 1 – Atlanta Streetcar Route

Project Goals and Objectives

According to the purpose and need from its Environmental Assessment (EA; November 2010), the Atlanta Streetcar project is intended to “provide an integrated multi-modal, high-quality transit network that will link communities; improve mobility by enhancing transit access and options; support projected growth in a sustainable manner; promote economic development; and encourage strategies to develop livable communities.”

Planning History

In 2003, Atlanta Streetcar, Inc. was formed by Atlanta business, government, and community leaders as a 501(c) 3 non-profit organization for the purpose of examining the feasibility of introducing streetcar service in the Peachtree Corridor and elsewhere in the CBD. In 2004, its *Atlanta Streetcar Feasibility Study* concluded that the Peachtree Corridor was an optimal location for modern streetcar service. It also recommended the addition of a Downtown Loop to connect the Peachtree Corridor system to major tourist attractions and other regional activity centers. The Peachtree Corridor and Downtown Loop streetcar projects were included as part of the City’s *Connect Atlanta Plan* in 2008. The Atlanta Regional Commission (ARC) - the region’s metropolitan planning organization – incorporated the projects into its 2030 long range plan later that year.

In 2009, the City of Atlanta initiated a new partnership effort which included - for the first time – the regional transit authority (MARTA), as well as the Atlanta Downtown Improvement District (ADID) and the Midtown Alliance. That same year, these co-sponsors submitted an unsuccessful USDOT Transportation Investment Generating Economic Recovery (TIGER) grant application for construction of the Peachtree Corridor and Downtown Loop projects. Having commenced Federal environmental review, the partnership re-submitted an application for the TIGER 2010 program only for the Downtown Loop – which constitutes the current Atlanta Streetcar project. The application was successful, and the Atlanta Streetcar project was awarded \$47.6 million in TIGER funding.

Project Link to Regional Planning Process, Policies, and Transportation System

ARC provided technical support for the development of the City’s *Connect Atlanta Plan* and the Atlanta BeltLine /Atlanta Streetcar System Plan. Although ARC does not have an official streetcar policy, its long-range plan, PLAN 2040, specifically supports the development of the Atlanta Streetcar. According to the March 2014 PLAN 2040 Update, ARC “views the Atlanta BeltLine and Streetcar as a foundation of the PLAN 2040 Update’s sustainability and livability strategy.” The plan also states that the “project will provide missing circulation and direct connectivity to existing transit lines Downtown, as well as future light rail corridors, including the Atlanta BeltLine.”

ARC provided \$6.3 million in Livable Centers Initiative funding – comprised of a combination of Federal Highway Administration Surface Transportation Program and regional funds - for the Atlanta Streetcar. The Livable Centers Initiative program was created in 1999 by ARC to encourage local jurisdictions to plan and implement strategies to create sustainable and livable communities consistent with its regional development policies. ARC has also programmed Congestion Mitigation and Air Quality (CMAQ) Improvement funds to help offset the project’s short-term operating costs.

Key Decisions, Challenges, and Issues

MARTA had limited participation in the early planning of the Atlanta Streetcar. MARTA was later engaged as a co-sponsor of the 2010 EA, to serve as the TIGER grantee, and provide technical, procurement, and logistical assistance and oversight during project development and construction. However, as it was a City-originated project, the City sought greater control over the streetcar, including the authority to operate the project itself. The City cited concerns over MARTA’s lack of experience in streetcar operations, its operating cost structure, and competing regional priorities. The City and MARTA have at times further disagreed about the degree to which the streetcar should be designed for integration with potential future extensions and coordination with existing and planned MARTA services.

Table 1 – Atlanta Streetcar Funding

Capital Budget (\$M)	
ARC Livable Centers Initiative	6.3
ADID Capital Contribution	6.0
City of Atlanta Capital Contribution	24.7
Department of Watershed Public Utilities Relocation	8.0
USDOT TIGER	47.6
Total	92.6
Operating Budget	
Operating costs are estimated at \$3.9 million annually. Operating revenues include fares, CMAQ funds, City of Atlanta car rental and hotel motel tax proceeds, ADID contributions, and advertising.	

The Federal Transit Administration (FTA) attempted to facilitate the partnership, strongly urging the City to take advantage of MARTA’s experience as both an operator of rail transit and FTA grantee. Leadership changes at MARTA in 2013 resulted in a shift of the agency’s priorities and, with them, declining enthusiasm for the Atlanta Streetcar. The City of Atlanta went through the process to become an FTA grantee to gain more authority over project decisions, and hired an experienced streetcar operations manager to lead the project. Still, FTA and the Georgia Department of Transportation – the state’s designated rail transit safety oversight agency – expressed some concerns about the City’s technical capacity to safely operate the system, which delayed the opening of the system. Ultimately, the City and MARTA reached an agreement whereby the City would operate the streetcar under MARTA oversight for the first year of operations.

The streetcar experienced several other delays and cost increases, some due to the inability of the City and MARTA to reach critical milestone decisions such as the award of, and changes to, the project’s design/build contract. In addition, the project experienced delays in commencing underground utility relocation and, once initiated, the costs far exceeded budget estimates – a not uncommon problem for streetcar projects across the United States.

The Atlanta BeltLine – to which the Atlanta Streetcar will connect – is a comprehensive urban development effort adjacent to an existing 22-mile historic rail corridor that encircles the central City. In addition to a future streetcar and trail system, the BeltLine features affordable housing and 1,000 acres of Brownfield remediation. Three BeltLine streetcar corridors, led by Atlanta BeltLine, Inc., are currently under Federal environmental review. Under agreement with the City of Atlanta, ABI will be responsible for the planning and development of the City’s future streetcar network.

Cincinnati Streetcar

Project Owner: City of Cincinnati

Project Operator: Southwest Ohio Regional Transit Authority (SORTA)

Project Description

The Cincinnati Streetcar project is an approximately \$148 million, 3.6-mile single-tracked modern streetcar system connecting the Cincinnati Central Riverfront area and Downtown Cincinnati with the predominately low-income and minority Over-the-Rhine Historic District. The project scope includes five vehicles, 18 stations, and construction of a storage yard/maintenance facility. The project is the first phase of a system which is eventually anticipated to extend to the City's Uptown area, home to several hospitals and the University of Cincinnati. The Cincinnati Streetcar is currently under construction and anticipated to open for revenue service in fall 2016; approximately 3,000 daily riders are expected to be carried in its opening year.

Project Goals and Objectives

According to the purpose and need from its Environmental Assessment (March 2011), the Cincinnati Streetcar is “intended to serve as an urban circulator for the Downtown and Uptown districts and adjoining neighborhoods. The purpose of the project is to connect jobs and

trip generators/attractions; help attract redevelopment of adjacent properties; stimulate business and activity along the corridor; enhance the walkability and transit potential of the urban core; and provide a transit line to link with existing bus service, thereby creating a more comprehensive regional transit system.”

Planning History

Since the early 2000's, the Cincinnati City Council has expressed interest in the implementation of a streetcar system, and the completion of the Cincinnati Streetcar Feasibility Study in August 2007 led to passage of a resolution expressing Council's desire “to move forward with the planning of a streetcar system within the City.” The Council's motivation for the resolution was two-fold; first, a system operating within City limits would not be subject to regional approval, a bar that had doomed previous transit initiatives in the area, the most recent being the failed regional Metro Moves referendum of 2002. Second, the City viewed the implementation of a Downtown-Uptown rail circulator as a key economic development strategy. The alignment which emerged from the feasibility study included a 3.9 mile loop through Downtown and Over-the-Rhine Historic District and a one-mile connector extending from there to Uptown. Funding for the streetcar was anticipated to come from City and private resources, and the project became a centerpiece of the City's Growth and Opportunities (GO) Cincinnati economic development initiative. In November 2008, the City issued a Request for Qualifications to Design, Build, Operate, and Maintain the project. A consortium of transit design, construction, and operating and maintenance (O&M) firms was selected in June 2009; however, the O&M principal withdrew. Moreover, private sector interest in the project was less than anticipated. Ultimately, the City and SORTA agreed to team to pursue Federal funding for the project.

With the passage of the American Recovery and Reinvestment Act (ARRA) in 2009, new funding opportunities became available for transportation infrastructure projects. SORTA applied on behalf of the City for ARRA Transportation Investment Generating Economic Recovery (TIGER) program funding in 2009 but was unsuccessful, due to a lack of demonstrated local financial commitment. Subsequently, the City committed \$64 million and SORTA affirmed its role as the operator of the system. The Ohio-Kentucky-Indiana (OKI) Council of Governments (the region's metropolitan planning organization) awarded \$4 million in Congestion Mitigation and Air Quality (CMAQ) Improvement funding towards the project's capital costs. In May 2010, the Ohio Department of Transportation (ODOT) finalized the award of an additional \$15 million in CMAQ funds to the project, and in July 2010 the Federal Transit Administration (FTA) awarded \$25 million in its one-off Urban Circulator program for the CBD-Uptown alignment.



Figure 2 – Cincinnati Streetcar Route

link with existing bus service, thereby creating a more comprehensive regional transit system.”

Project Link to Regional Planning Process, Policies, and Transportation System

Although a rail circulator in central Cincinnati was envisioned as part of SORTA's/OKI's *Metro Moves* initiative (along with light rail and other transit improvements), its alignment differs significantly from today's project. The current Cincinnati Streetcar has always been envisioned by the City as more of an economic development tool than an investment in mobility. No transit route currently serves the alignment. However, as the City began to recognize the need for transit operating expertise and the potential for Federal funding, SORTA and OKI emerged as increasingly critical partners. For its part, SORTA leadership views the agency's role in the project as a potential means of growing the regional transit system. In 2014, SORTA applied to OKI for a discretionary CMAQ grant to help support the initial O&M expenses for the system. However, despite previously committing CMAQ funding to the project's capital plan, OKI rejected the application, as the project scored poorly against several of its rating criteria, including cost effectiveness and regional prioritization.

Key Decisions, Challenges, and Issues

The Cincinnati Streetcar has encountered – and overcome – a number of serious obstacles. The project has withstood two City-wide referenda (2009, 2011) to halt public funding for its implementation and operation. In 2010, after a change in the Governor's office, ODOT rescinded its commitment of State and CMAQ funding for the project, resulting in the elimination of both the Uptown alignment of the project and the segment of the system crossing I-71 to the Riverfront; this later scope was eventually restored with the award of a TIGER III grant in 2011.

Table 2 – Cincinnati Streetcar Funding

Capital Budget (\$M)	
City Property Tax Revenues	33.4
Tax Increment Financing (TIF)	11.0
Other Committed City Revenues	37.0
City Revenues in Escrow	15.0
Duke Energy and Private Contributions	6.5
FTA Urban Circulator Program	25.0
CMAQ	4.0
USDOT TIGER	15.9
Total	147.8
Operating Budget	
Operating costs are estimated at \$4.2 M annually. The City has identified several candidate sources and is in development of an O&M finance plan.	

After the project became Federalized in 2010, FTA found that the solicitation and award of the 2008 Design, Build, Operate, and Maintain contract did not meet its procurement requirements. This resulted in schedule delays and the need to re-package and rebid much of the project work. While the City's design contract was permitted to continue, expenditures were ineligible for Federal reimbursement. In February 2013, the City opened bids for civil construction which greatly exceeded its estimate. \$17.4 million in additional City resources were subsequently pledged to the project. Also in 2013 the City and Duke Energy filed suit against each other over the question of who was responsible for paying for the relocation of utilities. Duke Energy ultimately prevailed, resulting in the use of \$15 million in City funds held in escrow to cover the utility relocation costs.

In November 2013, John Cranley, an opponent of the streetcar, defeated a pro-streetcar candidate in a Mayoral election that was portrayed in local media as another referendum on the project. Upon

assuming office, Cranley and a majority of Council suspended the project and sought to repurpose its Federal funding for other transit projects. When FTA and USDOT required the return of funding, and the estimated costs of demobilizing construction and settling contractor claims approached \$45 million (on top of \$34 million expended to date), Council allowed construction to proceed, but directed staff to pursue non-City funding for O&M. The City, SORTA, and local business leaders are thus currently exploring alternative revenue sources to support system operations.

A cost-benefit analysis of the project performed in 2007 estimated that about 90 percent of total benefits would stem from economic development, with a return on investment over 35 years of 2.7 times.

Columbia Pike Streetcar

Project Owner: Arlington County, Virginia

Project Operator: Arlington County, Virginia

Project Description

The Columbia Pike Streetcar was proposed as an approximately 4.9-mile, \$333 million modern streetcar system linking the Skyline area of eastern Fairfax County with the Pentagon City Metrorail station in Arlington County. The alignment runs primarily on Columbia Pike, a rapidly developing area that currently generates over 16,000 bus transit trips week weekday, the most of any corridor in Northern Virginia. The project featured 14 vehicles, 18 stops, and a vehicle maintenance and storage facility. Operations and maintenance costs were estimated at \$6.0 million, net of fares, in the assumed opening year of 2020, while ridership in 2035 was estimated at 22,500 average weekday riders.



Figure 3 – Columbia Pike Streetcar Route

In November 2014 - during the development of this case study report – Arlington County cancelled the project. It is retained in this report to present key issues which may be of interest to readers.

Project Goals and Objectives

According to the purpose and need statement from its Environmental Assessment (May 2012), the purpose of the Columbia Pike Streetcar was to “implement higher-quality and higher-capacity transit service in the corridor in order to provide more capacity; enhance access within the corridor and provide connections to the regional transit network; and support economic development along the corridor.”

Planning History

In 2002, the Arlington County Board approved the *Columbia Pike Initiative*. The *Initiative* was a comprehensive multi-year land use planning effort, which envisioned the development of a regional town center and three other commercial centers located along the Pike, linked by enhanced transit. Subsequent County efforts in the corridor focused on implementation of the *Columbia Pike Form Based Code* in 2003 and streetscape planning, including improved bicycle and pedestrian facilities and the creation of café space on Columbia Pike sidewalks. In 2010, the County adopted the *Columbia Pike Neighborhoods Plan*, which calls for the addition of 10,000 housing units along the corridor, while maintaining current affordable housing levels.

The need for transit improvements in the corridor sprung from these land use planning efforts, and began with implementation in 2005 of the Pike Ride bus service, which included the introduction of a new Arlington County Transit route and the diversification of an existing Washington Area Metropolitan Transportation Authority (WMATA) bus line into a mix of local, express, and circulator services. That same year, the County initiated an alternatives analysis (AA) to study additional bus service as well as the introduction of other transit modes on Columbia Pike. A combination of bus improvements and streetcar was selected as the locally preferred alternative. In 2007, the Commonwealth of Virginia approved legislation allowing localities to establish new transportation revenue sources, and the County subsequently enacted a transportation tax on commercial and industrial property. In addition, the Northern Virginia Regional Transportation Authority (NVTA), a regional transportation planning body – but not the metropolitan planning organization - pursued the collection and administration of transportation funding. Arlington County’s financial plan for the project assumed NVTA funding.

In 2010 the Virginia Supreme Court ruled that NVTA did not have the authority to collect such revenues. The loss of the potential for NVTA funding led to the County’s consideration of Federal funding for the streetcar. A

second AA, this one coupled with an EA, was initiated in 2011. However, the County's request of Federal Transit Administration (FTA) approval for Small Starts Project Development – a critical step in the path towards Federal discretionary funding - was rejected in 2013 when FTA, after performing its own cost estimate of the project, determined that the cost was greater than \$300 million, thus disqualifying it from Small Starts funding. The County then considered New Starts funding from FTA, but new funding opportunities from both the NVTA and the Commonwealth of Virginia emerged, and in July 2014 the County Board decided to return to the County's original non-Federal funding strategy.

Project Link to Regional Planning Process, Policies, and Transportation System

It was never envisioned by either Arlington County or WMATA that WMATA would serve as the operator of streetcar service in Arlington County. Nevertheless, WMATA played an active role in transit planning on Columbia Pike. Arlington County contracted with WMATA to perform much of the technical work for both AAs. In the late 2000's, the County sought to strengthen the technical capacity of its staff to take a more direct role in transportation project development. At the same time, WMATA, having recently completed its 103-mile Metrorail system, began to focus on the state of repair of its existing facilities rather than on system expansion; furthermore, facing budget cuts, WMATA drastically reduced its planning and engineering staff. Consequently, WMATA played a very limited advisory role in the ongoing design of the Columbia Pike Streetcar. Instead, WMATA has initiated a regional interoperability initiative to ensure coordination of its system with those of local bus operators and sponsors of non-WMATA rail and bus rapid transit (BRT) projects in Virginia (the Columbia Pike and Crystal City Streetcars and Virginia Railway Express), Maryland (the Purple Line light rail and Montgomery County BRT), and the District of Columbia (DC Streetcar system).

Because the Columbia Pike Streetcar emerged as a land use planning outcome, and Federal transportation funding was not originally considered for its implementation, the region's MPO – the Transportation Planning Board – has not played a significant planning or funding role in Arlington County's streetcar planning effort.

Key Decisions, Challenges, and Cancellation of the Project

Although the project was subject to nearly a decade of planning and two major AA studies and associated public outreach, there remained some community opposition to a greater than \$300 million streetcar investment (which had experienced several cost increases throughout its planning) rather than less expensive enhanced bus service. This opposition became a campaign issue in 2014, with the candidate for County Board who opposed the project becoming the first Republican to win a seat on the Arlington County Board since 2004. Even though streetcar proponents continued to maintain a majority on the Board, two members reversed their position only a week after the November election, resulting in the cancelation of the project.

The District of Columbia has completed construction of one modern streetcar line and has developed a 22-mile streetcar system plan. Arlington County and the District had met quarterly to update each other on the status of their streetcar planning and design efforts, but they continued to advance as separate systems. The incoming Washington DC mayor has publicly expressed her concern about the level of public investment required to implement the District's ambitious streetcar plan.

Arlington County commissioned the *Columbia Pike Transit Initiative: Comparative Return on Investment Study*, which was completed in March 2014. The study estimated that the project would have generated \$3.2-\$4.4 billion of new real estate value in the corridor, generated \$375 - \$735 million in new tax revenue over a 30-year period, and attracted 6,600 new jobs. Project opponents disputed these estimates, and their credibility was a topic of debate in the 2014 County Board election.

Delmar Loop Trolley

Project Owner: Loop Trolley Transportation Development District (TDD)

Project Operator: TDD

Project Description

The Delmar Loop Trolley in St. Louis, Missouri is a \$41.0 million, 2.1-mile replica heritage trolley line which will connect two Bi-State Development Agency (Metro) light rail stations through the communities of Forest Park and University City. The trolley features 10 stops and runs primarily along Delmar Boulevard, which to the west features a mixed-use restaurant and entertainment district known as “The Loop.” Moving east, the alignment serves the predominantly low-income communities of Skinker/DeBaliviere and the West End, before turning south on DeBaliviere Boulevard and terminating at the Missouri State Natural History Museum. The project’s annual operating cost is estimated at \$1.3 million (\$2012).

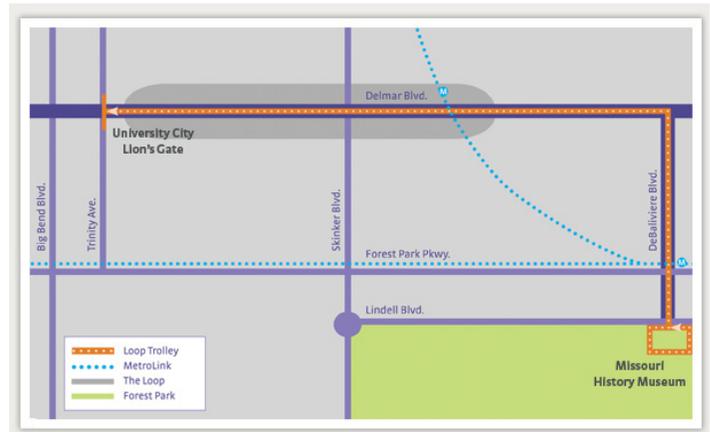


Figure 4 – Delmar Loop Trolley Route

Project Goals and Objectives

According to the purpose and need from its Environmental Assessment (May 2011), the “*purpose of the Loop Trolley Project is to provide a direct transit connection between the Delmar Loop and Forest Park that would encourage greater usage of transit for residents, employees, and visitors and promote economic development and neighborhood revitalization in the study area, while improving the environmental sustainability of the St. Louis region.*”

Planning History

The idea of restoring historic trolley service on Delmar Boulevard emerged in the mid-1990’s when local business owners and developers sought to incentivize an expansion of the Loop entertainment district. At the request of these stakeholders, Metro completed the *Delmar Boulevard Feasibility Study* in 2000 to examine the costs and benefits of a streetcar investment as compared to improvements to local bus service to promote economic development in the corridor. The study found that the potential economic development impacts of a streetcar were promising and warranted further analysis. Interest in the project was taken up by the Loop Trolley Company, a non-profit company formed by local businesses and government agencies and incorporated in 2002 for the purpose of planning, building, and operating a vintage streetcar line on Delmar Boulevard.

The Loop Trolley Company requested a Federal Highway Administration (FHWA) Surface Transportation Program grant from the East-West Gateway Council of Governments (EWGCOG), the region’s metropolitan planning organization (MPO), for planning and preliminary design for the project. EWGCOG approved the grant and led the planning effort, which concluded in 2009. While it was assumed that the project would be funded primarily with local and private revenues, the Federal Transit Administration’s (FTA) 2010 Urban Circulator program opportunity presented a timely alternative. Because the project was viewed more as an economic development investment than as a mobility project, the City of St. Louis agreed to submit an application to FTA on behalf of the Loop Trolley Company. It was awarded a \$25 million Urban Circulator grant in 2011.

Although it applied for the grant, the City did not want to administer it, nor take a significant role in the project; in fact, the City’s priority was the development of a Downtown streetcar circulator (currently under study). The responsibility for advancing the Delmar Loop project fell to a new organization, the Loop Trolley Transportation Development District (TDD), a political subdivision of the State of Missouri established in 2008 to build, own, and operate the trolley. TDD was certified in 2012 as an FTA grantee and will manage project construction and operate the system when it is projected to begin revenue service in 2016.

Project Link to Regional Planning Process, Policies, and Transportation System

EWGCOG has been a strong partner in the development of the project. EWGCOG served as the lead local agency for the project’s Environmental Assessment and, because the TDD had not yet gained status as an FTA grantee, EWGCOG managed the Federally-funded design work. EWGCOG has established ten guiding principles for its 2040 Long Range Transportation Plan (as well as its 2045 update, currently under development) and has determined that the Delmar Loop Trolley meets several of these principles, including the provision of more transportation choices and supporting the health and vitality of neighborhoods and communities throughout the region.

Key Decisions, Challenges, and Issues

While the MPO has taken an active role in the project, Metro’s involvement has been inconsistent. Aside from sponsoring the early planning work, Metro has not been an active participant in the environmental review or design of the project. Moreover, given its financial condition, Metro has never wanted to take responsibility for project operations.

The absence of an experienced transit agency in the development of the project led to FTA concerns regarding the project’s cost estimate, schedule, and financial plan, ultimately contributing to delays in its implementation. FTA withheld the majority of grant funding (obligating to EWGCOG only enough to advance the design effort) until the TDD could demonstrate its legal, financial, and technical capacity to receive Federal funds. TDD became an official FTA grantee in 2012, but has lacked a sustained project management staff presence. Recently, Metro has committed staff to the TDD to assist in grants management, procurement, and safety, and an experienced Metro transit project manager has taken a leave of absence to join the TDD to oversee the project. This has largely satisfied FTA concerns and resulted in the TDD’s issuance in June 2014 of a solicitation of bids for construction of the project.

FHWA Bridge Replacement funding was approved by EWGCOG to re-enforce DeBaliviere Bridge, which spans the Forest Park Metrolink light rail station and links the Delmar Loop Trolley to it and the Natural History Museum. Interestingly, although Federal funding was not originally contemplated for the project, over 77 percent of project capital costs are currently borne by the Federal government.

The TDD solicited bids for construction of the project in June 2014. Upon receipt of bids in early August it was found that the lowest bid was \$11 million over budget, and TDD cancelled the solicitation later that month. TDD has since rebid the project; while the outcome has not been made public, TDD has expressed confidence that project construction will begin as early as spring 2015.

Table 3 – Delmar Loop Trolley Funding

Capital Budget (\$M)	
Tax Increment Financing	4.4
Private Contributions	0.9
New Market Tax Credit Proceeds	4.0
Surface Transportation Program	1.0
CMAQ	1.9
FHWA Bridge Replacement Program	3.8
FTA Urban Circulator Grant	25.0
Total	41.0
Operating Budget	
The estimated annual operating cost of \$1.3 million is to be funded by \$800,000 in TDD sales tax revenue, \$400,000 in anticipated fare revenues, and \$100,000 in advertising and other sources.	

Downtown Dallas – Oak Cliff Streetcar

Project Owner: City of Dallas

Project Operator: Dallas Area Rapid Transit (DART)

Project Description

The Downtown Dallas – Oak Cliff Streetcar project is a \$56.9 million starter line of a planned City-wide modern streetcar system. This first segment is a street-running streetcar system originating at Union Station in Downtown Dallas and running 1.6-miles to the west across the Trinity River, terminating at Methodist Hospital in the community of North Oak Cliff. To the east, the line terminates at Union Station, providing direct access to DART's Red, Blue, and Green light rail transit lines and regional bus service, as well as to the Trinity Railway Express commuter rail service to Fort Worth. The project scope includes a single track alignment across the historic Houston Street Viaduct transitioning to a double track alignment west of the Trinity River; four stations; and two dual-mode vehicles - the first in the United States to use an onboard stored energy system which permits off-wire streetcar operation over the 105-year old bridge. The project is scheduled to open in the spring of 2015 with limited operating hours at an annual operating cost of approximately \$500,000

Project Goals and Objectives

According to the purpose and need from its Environmental Assessment (July 2011), the “*need for the Union Station to Oak Cliff Streetcar Project is to meet existing and future demand placed on the transportation network and to improve the quality of life for the future population. (Implementation) of initial streetcar service to Downtown Dallas would provide a critical rail crossing of the Trinity River...; provide connectivity to Union Station which would improve regional connectivity/transit efficiency, thus improving access for residents to regional employment, educational and entertainment centers; and ... serve as catalyst for mixed use and transit oriented land uses.*”

Planning History

Interest in implementing streetcar service between Oak Cliff and Downtown Dallas began in the early 2000's with the identification by the Oak Cliff Community Association of the need for an improved transit link between the two areas. At around the same time, the City initiated its *Forward Dallas!* comprehensive planning process. The resulting comprehensive plan, adopted in 2006, included both a transportation element and a *Streetcar Action Plan* aimed at planning for a City-wide system to connect communities (including Oak Cliff) as well as provide circulator transit service for a growing Downtown Dallas residential population. DART provided some assistance in implementation of the *Action Plan* and further conceptual planning, as did the North Central Texas Council of Governments (NCTCOG), the region's metropolitan planning organization. NCTCOG, whose responsibilities extend beyond the administration of the Federal metropolitan transportation planning, has a long history of working with the City of Dallas supporting various planning initiatives.

In 2009, NCTCOG applied on behalf of the Cities of Dallas and Ft. Worth for \$98 million in Transportation Investments Generating Economic Recovery (TIGER) program funding for two downtown circulator streetcar systems. USDOT provided only a partial award of \$23 million for a portion of the Dallas streetcar, which resulted in the current project scope. NCTCOG established a partnership with the City of Dallas and DART to advance the project, whereby the City would serve as the project owner, NCTCOG would serve as the Federal grantee and be responsible for Federal grant compliance, and DART would provide technical support, including managing the design and vehicle contracts, overseeing construction, and, ultimately, operating the system once built. Construction of the project is substantially complete, and local funding has already been committed for extensions to both termini of the starter line.

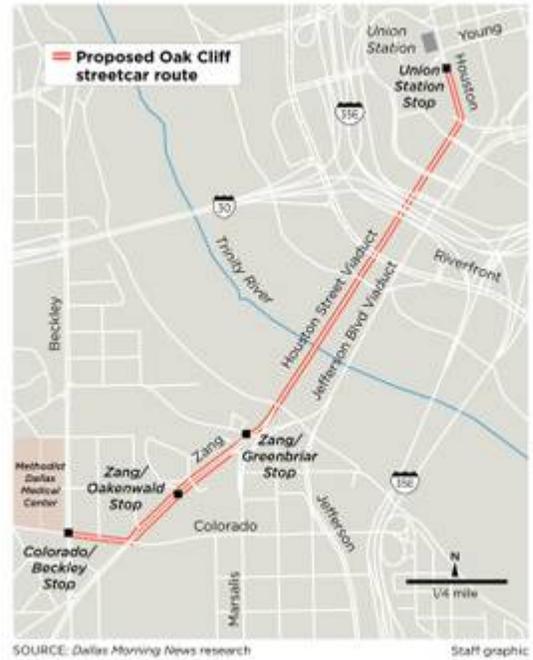


Figure 5 – Oak Cliff Streetcar Route

Project Link to Regional Planning Process, Policies, and Transportation System

NCTCOG plays an unusually active role in local transportation planning activities in the Dallas-Ft. Worth region. The COG administers a regional toll-road revenue program which is used for a variety of multimodal transportation projects. These resources are often used to advance “hard to fund” transportation projects (e.g. projects which are not typically eligible or competitive for traditional transportation program funding); in addition to the streetcar, for example, NCTCOG administers funding for a regional bicycle trail system. The NCTCOG sees the value of streetcars and other similar investments as providing “last-mile” connections which enhance regional travel.

Although its Policy Board includes 43 elected officials representing a 16-county area, NCTCOG has been successful in getting regional buy-in for local projects, in part, by closely monitoring its investments and striving to ensure a geographically- equitable distribution of available funding.

While DART had some involvement in early streetcar planning activities, it was not a strong supporter of the system, and was pursuing TIGER funding for its own projects. After the Downtown Dallas – Oak Cliff Streetcar TIGER grant award, the Federal Transit Administration strongly encouraged DART to take on a more active role in advancing the project. Both the City and NCTCOG valued DART’s experience in delivering transit capital projects, and it was always the City’s intent for DART to operate the streetcar.

Key Decisions, Challenges, and Issues

Several DART Board Members initially questioned its involvement in the Downtown Dallas – Oak Cliff Streetcar project. This was resolved with an agreement that no DART regional funding would be used for the project. Rather, DART’s financial participation has been limited to the re-allocation of approximately \$20 million in funding previously committed to a since-abandoned light rail spur from the Green Line to Love Field airport within the City of Dallas. This funding has been applied to the purchase of the two project vehicles and to an operating and maintenance (O&M) reserve fund.

DART’s O&M commitment to the project is to provide 5-day a week service, 14 hours a day. Additional service must be funded by non-DART revenues. There is no long-term operating finance plan yet in place for the streetcar.

The streetcar system is being designed with full inteoperability with future DART service in mind. The streetcars will be maintained at DART light rail facilities, and track guage, power, and other system elements are being implemented to provide for the interoperability of both light rail and streetcar service, should it be needed. The success of DART’s light rail is stretching the capacity of the core system to accommodate trips Downtown, and DART sees the City’s emerging streetcar system as one measure to relieve this pressure

Table 4 – Dallas Oak Cliff Streetcar Funding

Capital Budget (\$M)	
USDOT TIGER	26.0
Regional Toll Revenue Funding	13.6
DART	9.0
City of Dallas General Revenues	8.3
Total	56.9
Operating Budget	
O&M is estimated at \$500,000 for the first year of operations. These costs are covered by DART’s project reserve fund. Future funding in the amount of \$3 M over 10 years is expected to come from a Tax Increment Finance district established along the corridor.	

M-1 Rail

Project Owner: M-1 Rail, Inc.

Project Operator: M-1 Rail, Inc.

Project Description

The M-1 Rail streetcar project is an approximately \$137 million, 3.3-mile modern streetcar line being constructed along Woodward Avenue between Downtown and Midtown Detroit, Michigan. The project scope includes 6 vehicles capable of operating off-wire for up to one-half of the alignment, 12 stations, and construction of a maintenance facility. The project will connect Downtown Detroit with a number of other important regional activity centers such as the Detroit Medical Center, Henry Ford Hospital, and Wayne State University. The project would also provide a rail transit link to Downtown from future commuter rail service planned to operate between Ann Arbor and Midtown Detroit. The project is anticipated to open for revenue service in 2016, and carry 6,000 daily riders in its opening year. Annual operations and maintenance costs are estimated at \$5.1 million (2012 \$)

Project Goals and Objectives

According to the purpose and need from its Environmental Assessment (February 2013), the M-1 Rail project is intended to “*improve public transit service and provide additional mobility options in the Woodward Avenue Corridor; improve transportation equity among all travelers; improve transit capacity along the Corridor; improve linkages to major activity centers along the Corridor; and support the City’s economic development goals and encourage reinvestment in Detroit’s urban core.*”

Planning History

The M-1 Rail streetcar concept first emerged as the *Woodward Avenue Transit Catalyst Project* in 2007. The project was proposed by local business leaders and foundations (who were later incorporated as M-1 Rail, Inc.) as a privately-funded “*efficient and cost-effective transit system (to) stimulate investment*” in Detroit. The following year, the project was identified as an “early-action” item in the Regional Transit Coordinating Council’s (RTCC) 2008 *Comprehensive Regional Transit Service Plan*. The RTCC served as the region’s transit planning entity from 1989 – 2013 and viewed the project as not only a mechanism for jump-starting economic development in the Downtown to Midtown Woodward Avenue corridor, but to serve as a catalyst for support of high capacity transit throughout the metropolitan area.

In parallel, the Detroit Department of Transportation (DDOT) – the city’s transit operator - had completed an alternatives analysis (AA) of high capacity transit modes on Woodward Avenue from Downtown 9.3 miles north the City’s northern border with Oakland County. The AA resulted in the selection of light rail transit (LRT) as the locally preferred alternative. In September 2010, DDOT and M-1 Rail Inc. agreed to consolidate their transit initiatives into a single project, with the M-1 Rail corridor serving as the first phase of an overall 9.3-mile project. DDOT commenced an Environmental Impact Statement (EIS) in September of that year. The most significant issue raised during the study was the alignment of the project between Midtown and Downtown Detroit. M-1 Rail Inc. preferred curbside, mixed-traffic operations. DDOT – and the majority of the public – preferred a center-running dedicated transit guideway. Ultimately, the absence of any operating revenue source led to the termination of the LRT project in November 2012. The M-1 Rail Inc. business leaders backing the shorter project, however, remained committed to its implementation. As the project’s cost increased beyond the original \$100 million cost estimate, Federal and State funds were secured to meet its capital needs. The project is currently under construction.

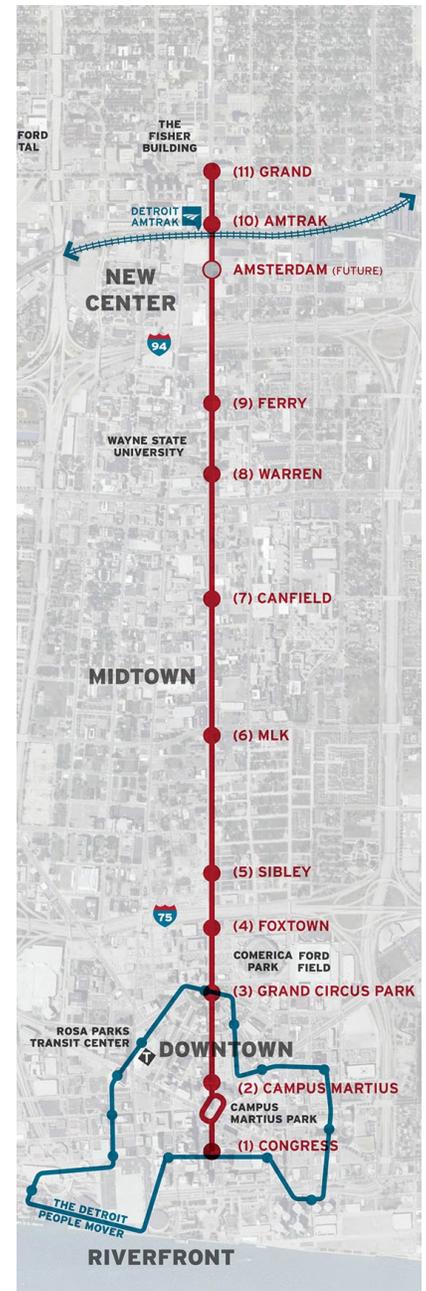


Figure 6 – M-1 Rail Route

Project Link to Regional Planning Process, Policies, and Transportation System

The Southeast Michigan Council of Governments (SEMCOG) serves as the metropolitan planning organization (MPO) for the Detroit region. SEMCOG supported the RTCC in the development of its 2008 Plan. But since the M-1 Rail project was envisioned at first as a private sector investment, SEMCOG was not involved in any studies to refine and advance the streetcar concept, other than through its involvement as a partner agency to DDOT in the AA and EIS for the Woodward Avenue LRT project. SEMCOG has not provided funding to the project, although Congestion Mitigation and Air Quality (CMAQ) Improvement funds attributable to it have been identified as a potential revenue source to help offset operating costs once the project opens. In 2012, SEMCOG applied for an unsuccessful TIGER grant on behalf of M-1 Rail. However, when the project ultimately received \$25 million in Federal (TIGER) capital funding the following year, SEMCOG added the project to its financially constrained long range plan.

SEMCOG does not have a regional streetcar policy, nor does it believe it needs one. Goals of the region’s long range plan include the improvement of transit in major corridors and ensuring regional connectivity. Because M-1 Rail is expected to result in improved transit as compared to existing bus service on Woodward Avenue, and because the project would connect to existing intercity rail service between Chicago and Pontiac, Michigan as well as planned (but not yet funded) commuter rail service between Ann Arbor and Midtown Detroit, SEMCOG believes that the project advances its regional goals.

Key Decisions, Challenges, and Issues

In January 2013, Governor Rick Snyder signed legislation which established the Southeastern Michigan Regional Transit Authority (RTA). The RTA is charged with coordinating local transit services throughout Macomb, Oakland, Washtenaw, and Wayne counties, as well as building and operating a regional bus rapid transit (BRT) network.

M-1 Rail Inc.’s financial plan for its project assumes that the RTA will take over operations of the streetcar 10 years after the start of revenue service. However, the assumption of such responsibilities would require a “super majority” (7 of 9 members) approval by the RTA Board, which consists of representatives from each of the four counties. It is unknown if counties not served by the M-1 Rail streetcar (Detroit is in Wayne County) would accept the transfer of operating responsibilities to the RTA.

Until the RTA is fully staffed, SEMCOG is supporting the organization’s day-to-day activities. SEMCOG has recently completed an alternatives analysis study on behalf of the RTA for BRT on Woodward Avenue. The integration of BRT and streetcar operations on Woodward Avenue will be examined in subsequent environmental work.

Table 5 – Detroit M-1 Rail Streetcar Funding

Capital Budget (\$M)	
Private / Foundation / Institutional Contributions	68.2
New Market Tax Credit Proceeds	16.0
Wayne County	3.0
MDOT and other State sources	12.0
USDOT TIGER	37.2
Total	136.9
Operating Budget	
Operating revenues are estimated at \$5.1 M in its opening year. Assumed revenues include fares, State funding, sponsorships, and advertising.	

Since termination of its proposed 9.3 mile LRT project, DDOT has not been an active participant in the development of the M-1 Rail streetcar project. There is a realization that DDOT bus service should be reconfigured with the introduction of streetcar (and possible BRT) operations on Woodward Avenue. However, there has not yet been any planning undertaken for such modification.

M-1 Rail Inc; remains active in fundraising to cover capital plan shortfalls and secure all necessary operating revenues. In September 2014, the project received an additional \$12.2 million in TIGER funding from USDOT.

Portland Streetcar

Project Owner: City of Portland

Project Operator: City of Portland

Project Description

The initial 4.8-mile segment of the 14.7-mile Portland Streetcar system opened in 2001. The system's first alignment to NW 23rd Street is well-known for its contribution to the revitalization of the city's Pearl District. Subsequent extensions to the South Waterfront and the Oregon Museum of Science and Industry on the east side of the Willamette River have been implemented, and a southern link over the river planned in conjunction with TriMet's (the regional transit authority) Orange Line light rail transit extension will result in the completion of the Portland Streetcar Loop. The current system features 76 stops and a 16 vehicle fleet, and was built at a cost of \$251.4 million. The Portland Streetcar system currently carries approximately 16,000 average weekday riders at an annual cost of \$9.8 million.

Project Goals and Objectives

According to the *Portland Streetcar System Concept Plan* (SSCP; 2009), the key goals for its streetcar are “*encouraging infill development and redevelopment... serving as a catalyst for housing development ...providing an accessible network of transportation options that will reduce dependency on the automobile...and advancing a healthy and competitive local, regional and state economy.*”

Planning History

Planning for the Portland Streetcar began in the early 1970's as part of a long-term strategy to revitalize a declining downtown that was competing with expanding suburban retail and jobs centers. Business leaders generated the momentum for the City to develop the 1972 *Downtown Plan* that emphasized the reinvigoration of a retail core, the introduction of a transit mall and regional LRT to support the core, the replacement of Harbor Drive with Waterfront Park, and the preservation of places of historic and cultural significance. In 1988, the City of Portland approved the *Central City Plan* that further advanced the *Downtown Plan*, emphasizing a vibrant Downtown and calling for development of a vintage trolley circulator system. A 1990 *Streetcar Feasibility Study* determined that a modern streetcar more closely fit the aesthetic of planned Downtown development. In 1994, the Portland City Council approved the first streetcar route as part of a larger circulator system identified in the *Central City Plan*. The first leg of the streetcar through the Pearl District north and west of downtown opened in 2001 at a cost of \$56.9 million and was part of an integrated plan that included the creation of new parks and the tearing down of highway off-ramps and railroad tracks to redevelop the area.

The Portland Streetcar was not initially supported by TriMet. In the mid-1990's TriMet was focused on a \$3 billion light rail project from Vancouver, Washington to Oregon City, and the streetcar was viewed as a competitor for regional and Federal funds. TriMet reached an agreement with the City that the streetcar would not pursue competing funds, and the first alignment was built with City-generated revenues including local improvement district revenues and tax increment financing. However, TriMet agreed to fund approximately two-thirds of the system's operating and maintenance (O&M) costs in exchange for City investment in roadway operational improvements which benefitted TriMet bus service.



Figure 7 – Portland Streetcar System

Project Link to Regional Planning Process, Policies, and Transportation System

After its initial resistance, TriMet recognized the value of the City’s streetcar investment in terms of its positive development impacts and associated mobility benefits, which in turn drew more residents Downtown and helped boost ridership on TriMet’s nearby light rail and bus services. TriMet continues to support streetcar operations (recently entering into an agreement with the City that solidifies and is expected to raise TriMet’s O&M contribution if ridership and development targets are met) and its integration with regional services; specifically, TriMet incorporates the streetcar into its plans for connectivity, customer information, and fares. In 2007, TriMet led the successful application for Federal Small Starts funding for the Eastside extension project – the only streetcar so far funded under the program.

Metro, the region’s metropolitan planning organization, also lent its experience in Federal project development to the Eastside extension. Metro has sponsored the Federal environmental review of two system extensions. More significantly, in its *2035 Regional Transportation Plan*, Metro adopted the advancement of a “Rapid Streetcar” system featuring modern streetcars running in mostly exclusive rights-of-way between downtown and regionally-defined “Regional Centers” throughout the metropolitan area. In addition, local circulation services are viewed by Metro as key components of the regional transportation system, and are consequently eligible for regional transportation funding.

Key Decisions, Challenges, and Issues

When it first decided to pursue Federal funding, the City of Portland believed that it could lead the planning and project development effort. However, the City soon learned the rigor of not only the Federal Transit Administration’s (FTA) Small Starts process, but requirements for becoming an FTA grantee. The City’s transfer of these roles to TriMet helped to expedite project development, and improve the City-TriMet-Metro partnership.

According to the SSCP, “*the City is the system owner, with day-to-day oversight provided by the non-profit Portland Streetcar Inc.; the operators and other personnel are provided by TriMet under contract to PSI.*” Local business leaders, community organizations, and TriMet sit on the Board of Portland Streetcar Inc. The Portland Streetcar Inc. model of system management and operation has provided a model for the development of streetcar projects in Los Angeles and Kansas City.

An audit of the streetcar was conducted by the City in April 2014. The audit identified a lack of clarity in the Portland Streetcar Inc. organizational structure and relationship to the City, and questioned the strategic direction for future streetcar system expansion. The audit requested that the City Council defer future expansion until the City has improved the Portland Streetcar Inc. organizational structure and completed a strategic streetcar plan. The City, with support from Portland Streetcar Inc. and TriMet, is currently in the process of addressing the audit’s recommendations.

Table 6 – Portland Streetcar System Funding

Capital Budget (\$M)
Portland’s streetcar system has cost \$251.4 million to build over the past 15 years. 34 percent of funding has come from tax increment financing and local improvement district revenues; 33 percent has come from Federal programs; 14 percent from various state sources; 11 percent from City parking bonds; and the remainder from five City sources (including transportation, parking, and general revenues).
Operating Budget
Aside from TriMet’s contribution, the approximately \$9.8 annual operating costs are covered by fares, gas taxes, parking fees and fines, and sponsorships.

The Portland Streetcar is widely viewed as the model for the economic development potential of modern streetcar investments. According to a study commissioned by the City of Portland in 2008, \$3.5 billion has been invested, 10,200 new housing units have been built, and 5.4 million square feet of new office, institutional, retail, and hotel development has occurred within two blocks of the streetcar alignment.

South Lake Union Streetcar

Project Owner: City of Seattle

Project Operator: King County Metro

Project Description

The South Lake Union Streetcar project is an approximately 2.6-mile modern streetcar system connecting the South Lake Union area to Downtown Seattle, Washington. The project scope included three vehicles, 11 stops, and construction of a maintenance facility. The Streetcar connects Downtown Seattle to regional activity centers such as a 12-acre water front park, Denny Triangle, and South Lake Union, and provides direct connections to other transit services including King County Metro buses, Sound Transit regional buses and light rail, and the Seattle Monorail. The project opened to revenue service in 2007. The Seattle City Council has since approved a regional streetcar network, including four additional lines in Downtown Seattle; the second streetcar line, the First Hill Streetcar, is expected to open for revenue service in 2015. Streetcar ridership continues to grow, with 755,340 annual riders reported in 2013.

Project Goals and Objectives

According to the project description from its *Capital Financing and Operating and Maintenance Plan* (April 2005), the Streetcar project is intended to “provide local transit service, connect to the regional transit system, accommodate economic development, and contribute to neighborhood vitality.”

Planning History

The South Lake Union development concept first emerged in 2000, after Microsoft co-founder Paul Allen relocated his company, Vulcan, and began using private funding to improve the South Lake Union area. Building off of previous neighborhood plans, the City of Seattle commissioned the *2003 Potential Economic and Fiscal Impacts of South Lake Union Development Plan*. That same year, the City of Seattle’s *Center City Circulation Report* first identified the potential for a streetcar circulator to connect Downtown Seattle with the emerging South Lake Union area, and recommended a comprehensive streetcar study of other potential corridors. The Seattle Department of Transportation (SDOT) completed the *2004 Seattle Streetcar Network and Feasibility Analysis*, and provided an assessment of the South Lake Union Streetcar, as well as other potential streetcar routes in Seattle. The analysis determined that the South Lake Union Streetcar alignment was the “single most promising line for a new streetcar line in central Seattle.”

Paul Allen was backed by the support of then Seattle Mayor Greg Nickels. In 2004, the Mayor developed an action agenda for the South Lake Union area that incorporated the goals and objectives of plans and policies to date for the area, and included the implementation of streetcar as one of his top five goals. In 2005 a *Capital Financing and Operating Maintenance Plan* detailed a streetcar funding plan that included a significant amount of funding from local businesses and the establishment of a local improvement district, with taxes levied on 750 property owners along the streetcar line. SDOT completed environmental review in the project in 2005, final design in 2006, and after only 15 months of construction, the line opened to revenue service in December 2007.

Project Link to Regional Planning Process, Policies, and Transportation System

The Puget Sound Regional Council (PSRC) serves as the metropolitan planning organization for the Seattle region. PSRC was not directly involved in any studies to advance the streetcar concept and does not have a regional streetcar policy. Generally, streetcar projects fulfill regional planning principles related to economic growth, transit-oriented development, and building local transit capacity consistent with PSRC’s transportation plan, *Transportation 2040*, and growth plan, *Vision 2040*.

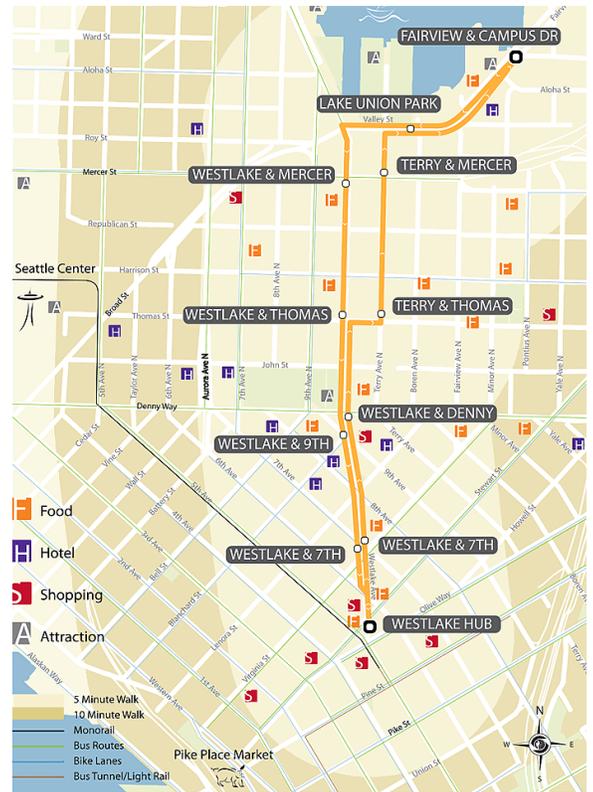


Figure 8 – South Lake Union Streetcar Route

PSRC is responsible for biennial selection of projects competing for Federal funds from the Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ) Improvement Program, and a portion of Federal Transit Administration Section 5307 Urbanized Area Formula and Section 5337 State of Good Repair funds for the region. When prioritizing projects for funding, PSRC categorizes projects by mode and scores each project based on nine evaluation measures. Streetcar projects have historically competed well for PSRC funding within the transit category. PSRC distributed \$1.2 million in STP funds and \$7.0 million in Section 5307 funds to the South Lake Union Streetcar. PSRC has also provided financial support to additional streetcar lines in the region; most recently, the First Hill Streetcar’s Broadway Extension was awarded \$850,000 in Section 5307 funding and \$900,000 in CMAQ funds.

Key Decisions, Challenges, and Issues

Initially, some members of the Seattle City Council questioned if the relatively short streetcar line was a good investment decision when the City had limited available resources to fund capital and operating costs. As a compromise, the project was fully funded without the support of City general funds. The capital costs of the project were funded with a mixture of Federal, state, and local funding, including a significant contribution through the formation of a local improvement district.

The City of Seattle, being legally precluded from operating a transportation system, contracted with King County Metro to operate the Streetcar. As part of the agreement, King County Metro contributes 75 percent of operating costs, net of fare revenue. The remaining 25 percent is funded by the City of Seattle, which is the approximate amount of funding that the City of Seattle would provide Metro for comparable bus service in the corridor. Close to half of the City’s 25 percent contribution is covered by the sale of sponsorships for stations and streetcars. Although initially a robust funding source, these revenues have fallen below projections as sponsors have declined sponsorship renewal. The City has yet to establish a long-term dedicated source of operating assistance. Instead, it has encountered an operating funding deficit each year, which is annually filled by a variety of sources including private contributions and an interfund loan; repayment of these funds are due in 2019.

Table 7 – South Lake Union Streetcar Funding

Capital Budget (\$M)	
Local Improvement District	25.0
Property Exchange Proceeds	1.8
Surplus Property Proceeds	3.5
Interfund Loan	5.0
King County Metro Exchange Proceeds	1.6
Seattle Public Utilities	0.7
State Appropriations	3.0
Federal 5307 and STP Funds	8.2
Other Federal	4.8
Total	53.5
Operating Budget	
Operating costs were \$2.6 million in 2013, net of fare revenue. King County Metro contributes 75 percent and the City is responsible for the remaining 25 percent.	

Since 2011, online retailer/tech company Amazon, along with local health care institutions, has underwritten the operating costs of a third streetcar during the afternoon peak period, reducing headways from 15 to 10 minutes.

Implementation of the South Lake Union Streetcar was largely due to the joint leadership of Nickels and Allen, who mitigated public risk by helping to create a local improvement district to fund nearly one-half of the project’s capital costs. Following the success of the South Lake Union Streetcar, new funding partners are investing in future streetcar lines in Seattle. For example, Sound Transit included the First Hill Streetcar as part of its ST2 mass transit expansion funding package, approved by voters in 2008.

Sugar House Streetcar

Project Owner: Utah Transit Authority (UTA)

Project Operator: UTA

Project Description

The Sugar House Streetcar project is a 2.0-mile modern streetcar line running from the Utah Transit Authority's (UTA) Central Pointe TRAX light rail transit (LRT) station in the City of South Salt Lake along an abandoned Union Pacific (UP) railroad right-of-way east to the Sugar House business district in Salt Lake City. The \$55 million project consists of embedded single track construction with one passing siding, a two track eastern terminal station, and seven streetcar stops. In addition to this scope, three UTA Siemens LRT vehicles have been

repurposed for streetcar operations; these vehicles are maintained at UTA's existing light rail vehicle maintenance facilities. Pedestrian and bicycle facilities and landscaping are also being implemented. The project opened for revenue service in December 2013 – the United States' first Federally-funded modern streetcar starter line. The project is carrying approximately 1,000 daily passengers as of July 2014

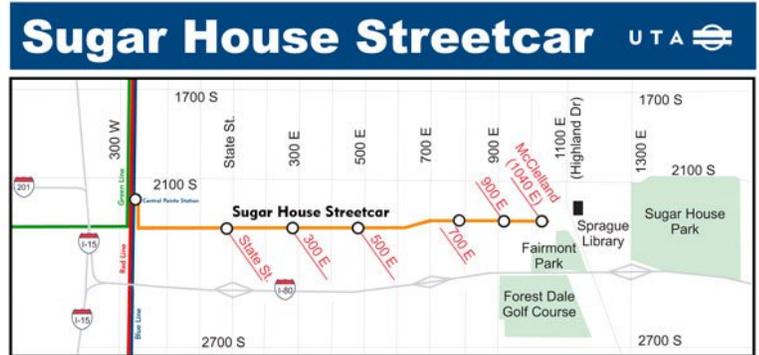


Figure 9 – Sugar House Streetcar Route

Project Goals and Objectives

According to its 2010 Environmental Assessment, “the purpose of the Sugar House Streetcar is to address the need and opportunity for improved connectivity and increased mobility between the newly developing 2100 South area of South Salt Lake.... and the Salt Lake City community of Sugar House, which includes many existing businesses and attractions. Specifically, the project is expected to contribute to improved connectivity on 2100 South and between neighborhoods and attractions in the Sugar House Streetcar study area and beyond; contribute to increased mobility on 2100 South; provide multimodal travel choices in the study area; increase mobility for short-range trips in the study area, especially pedestrian trips; provide connections to the regional transportation network, including the regional transit network; provide a transportation improvement that is pedestrian-friendly, is compatible with surrounding neighborhoods, and supports community and economic redevelopment.”

Planning History

Salt Lake City had demonstrated interest in an extension of UTA's TRAX LRT system to the Sugar House residential and commercial area east of South Salt Lake City since the early 2000's. UTA's long range plan at the time – what would eventually become the *Frontlines 2015* transit expansion program - did not include such an extension. Instead, UTA's planned expansion included light rail extensions to the south and west (including a new line to Salt Lake City International Airport), and the construction of north-south *FrontRunner* commuter rail service along the Wasatch Front from north of Ogden to south of Provo.

In 2002 as part of its strategy to implement commuter rail service, UTA purchased **175 miles of Union Pacific railroad right-of-way, parallel to I-15 and alongside the Union Pacific freight main line, from Brigham City in the north to Payson on the south. Also included in the acquisition was a small section of abandoned rail right-of-way running east-west through Salt Lake County which included the alignment of Salt Lake City's proposed TRAX Sugar House extension. While this acquisition further galvanized Salt Lake City's interest in a Sugar House project, the City of South Salt Lake – within which the western half of the alignment ran - was less supportive. Several regional highway and freight facilities traverse – but provide limited access to - South Salt Lake City, and residents and locally elected officials were weary of another high-speed transportation investment passing through the community to serve regional, rather than local, travel needs.**

Grass-roots vintage trolley advocates promoted an alternative transportation mode for the former Union Pacific right-of-way, and community interest in such a system began to emerge based on the opportunity to secure a slow-speed, neighborhood system with frequent access points in both cities. With most of *Frontlines 2015* underway, UTA, representatives of the Cities of Salt Lake and South Salt Lake, the Utah Department of

Transportation, and the Wasatch Front Regional Council (WFRC – the region’s metropolitan planning organization) began a process to identify and evaluate a range of potential transit projects that would serve the Sugar House corridor. During this process, the team considered 12 transit technologies and three alignment alternatives. This process led to completion of the *Sugar House Transit Corridor Alternatives Analysis (AA)* in 2008, and the identification of a modern streetcar as the locally preferred alternative. UTA applied for and was awarded a Transportation Investment Generating Economic Recovery (TIGER) grant in 2010

Project Link to Regional Planning Process, Policies, and Transportation System

Upon securing funding to implement its *FrontLines* 2015 program, the UTA reflected that it had implemented the “backbone” of its regional system and that it now needed to “reinforce” that backbone. UTA’s 2013 *Network Study* focused less on regional rail expansion and more on improving services which connect to the light and commuter rail system. UTA identified a number of modes which can serve this purpose, including *Bus Plus* enhanced local bus service, *FrontRunner Circulators* intended to provide “last-mile” connections between commuter rail stations and activity centers, and streetcars. The *Network Study* identified three potential streetcar investments in the region: a Downtown Salt Lake City streetcar; an Ogden – Weber State University streetcar circulator; and a northern extension of the Sugar House streetcar line. All three projects are currently under study.

WFRC is in the process of updating its 2040 Regional Transportation Plan (RTP). These three corridors have been identified in scenario planning for potential inclusion in the fiscally constrained RTP. WFRC evaluates transit projects on a range of weighted criteria, including Economic Development (20 percent) and Forecast Boardings per Mile (20 percent) – two measures in which streetcars may prove particularly competitive in the Salt Lake area.

Key Decisions, Challenges, and Issues

While the Sugar House Streetcar greatly benefitted from fortuitous timing (the availability of right-of-way and Federal funding, coupled with a rare lack of UTA projects requiring Federal discretionary funding), its successful implementation was the result of a strong partnership between UTA and the Cities of Salt Lake and South Salt Lake. Both cities value the experience and expertise of the UTA to develop, build, and operate quality transit projects. UTA contributed land, vehicles, and the use of its maintenance facilities to the streetcar, thus minimizing costs. UTA’s experience as both a Federal transit grantee and experienced deliverer of rail transit projects minimized compliance and technical delays in the project’s implementation. The Sugar House Streetcar is the only TIGER or FTA Urban Circulator program-funded streetcar project to date which has opened on-time and on-budget.

When first envisioned, the Sugar House Streetcar was only intended to operate along the length of the current alignment. Community interest in the project increased dramatically during design and construction, and planning has commenced for an extension north to Westminster College. The extension would operate in mixed traffic on Salt Lake City streets.

Table 8 – Sugar House Streetcar Funding

Capital Budget (\$M)	
USDOT TIGER	26.0
Salt Lake City General Revenues	5.4
South Salt Lake City General Revenues	4.2
UTA Sales Tax Revenue	1.6
Value of UTA Right of way	6.3
Value of UTA Vehicles	12.0
Total	55.5
Operating Budget	
Operating costs are estimated at \$1.5 million annually. UTA and the two Cities have each committed \$400,000 to support these costs.	



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