CITY OF LOS ANGELES INTER-DEPARTMENTAL MEMORANDUM

Date:

June 4, 2015

To:

The Honorable City Council

c/o City Clerk, Room 395, City Hall

Attention: Honorable Mike Bonin, Chair, Transportation Committee

Honorable Paul Krekorian, Chair, Budget & Finance Committee

From:

Miguel A. Santana

City Administrative Officer

Hary Lee Moorl
Gary Lee Moore, City Engineer

Bureau of Engineering

Seleta J. Reynolds, General Manager ੈਂਟ

Department of Transportation

Subject:

REPORT ON NEW INDEPENDENT COST ESTIMATE AND CONSTRUCTION SCHEDULE FOR

THE LA STREETCAR PROJECT (C.F. 11-0329-S12)

SUMMARY

This report contains information regarding a new independent cost estimate and construction schedule for the proposed LA Streetcar Project.

RECOMMENDATIONS

That the City Council:

- RECEIVE and FILE the attached document entitled "City of Los Angeles, Restoration of Historic Streetcar Service, Independent Cost Estimate & Cost Methodology Report, Class C Cost Estimate", dated September 17, 2014, and an updated cost and project schedule with cover memo dated May 26, 2015, prepared by AECOM formerly known as URS Corporation (AECOM) under contract to the Los Angeles Department of Transportation (LADOT).
- APPROVE an amendment to the City Council adopted Summary Project Management Plan (PMP)
 for the streetcar project to include an exception allowing Los Angeles Streetcar, Inc. (LASI) to
 competitively contract with a firm to conduct preliminary engineering (30%) using existing funds
 under LASI's control, with the completed preliminary engineering plans subject to final approval
 by the City.
- 3. DIRECT the City Engineer, in coordination with LADOT, to:
 - a) Provide ongoing regular peer review of the streetcar preliminary engineering (30%) work planned to be conducted by a separate consulting firm under contract to LASI;

- Establish a project cost estimate target of \$250 million or less as the project is financially constrained and this amount is the maximum project cost eligible for federal Small Starts grant funding; and
- c) Complete the final review and sign off on the completed preliminary engineering work if it is acceptable or recommend that the City reject the work if it is not acceptable.
- 4. INSTRUCT the City Clerk to place on the agenda for the first regular Council meeting after June 30, 2015, or shortly thereafter, the following instructions:
 - a) AUTHORIZE employment by Resolution Authority for one Principal Civil Engineer, Class Code 9489, to oversee the preliminary engineering work to be conducted by LASI's consultant on behalf of the City, and full year funding of \$167,138 in the Bureau of Engineering, for the period July 1, 2015 through June 30, 2016;
 - b) TRANSFER \$167,138 from the Measure R Local Return Fund No. 51Q, Downtown LA Streetcar-AB1290 Funds Project Account No. 94K690, to the Bureau of Engineering, Fund No. 100, Department No. 78, Account No. 001010, Salaries, General, for salary costs of one Principal Civil Engineer for the period July 1, 2015 through June 30, 2016;
 - c) TRANSFER \$137,321 within the Measure R Local Return Fund No. 51Q, from the Downtown LA Streetcar Project Account No. 94K690 to the Reimbursement of General Fund Costs Account No. to be determined for Fiscal Year 2015-16;
 - AUTHORIZE the City Engineer to hire a consultant to complete a third party cost estimate at the completion of the 30 percent preliminary engineering work at an estimated cost not-toexceed \$120,000;
 - e) TRANSFER \$120,000 from Measure R Local Return Fund No. 51Q, Downtown LA Streetcar Project Account No. 94K690 to a new account within the Engineering Special Services Fund No. 682, Department No. 50, entitled "Downtown LA Streetcar PE Cost Estimate", for the cost to hire a consultant to complete a third party cost estimate at the completion of the 30 percent preliminary engineering work;
 - f) INSTRUCT the City Engineer to report back to the City Council once the work is completed to share whether or not the preliminary engineering documents were formally accepted by the City Engineer along with any major findings from the plans; and
 - g) AUTHORIZE the General Manager of the Department of Transportation to make any technical corrections or clarifications as necessary to the above instructions in order to effectuate the intent of this action.
- 5. INSTRUCT LADOT, in coordination with the CAO and the City Engineer, to report back to the City Council with the following items prior to requesting the Federal Transit Administration (FTA) to evaluate and rate the project for grant funding:
 - a) Recommended significant changes to the project including modifications to the route, project delivery method, etc.; and
 - b) Recommended reasonable financial plan for the streetcar project that funds the full cost of construction; and/or-
 - c) Project update, if a reasonable financial plan that funds the full cost of construction cannot be developed and/or the project is no longer eligible for Small Starts funding.

6. DIRECT the City Administrative Officer (CAO), in coordination with the City Engineer and LADOT, to report back with a recommended consultant firm, estimated costs and a proposed funding source to provide financial analyst services for the streetcar project including assistance in developing a potential public-private partnership (P3).

KEY FINDINGS – COST ESTIMATE / PROJECT SCHEDULE

AECOM was contracted by LADOT to prepare an independent cost estimate and project schedule for the proposed LA Streetcar project. This cost estimate is based on the locally preferred alternative (LPA) route approved by the City Council and contained in the draft environmental document for the project. The following provides a summary of the selected key findings from the AECOM report and the financial status of the project:

- The total estimated cost (updated as of May 28, 2015) to construct the project is \$281,589,228.
- The project currently has a \$144.1 million construction funding shortfall based on the new cost estimate prepared by AECOM, and assuming federal approval of a \$75 million Small Starts grant to go along with \$62.5 million in local Community Facilities District funding.
- The Federal Transit Administration (FTA) has advised the City to develop a reasonable financial
 plan that funds the full cost of construction before requesting the FTA to evaluate and rate the
 project for potential grant funding.
- The AECOM cost estimate is a preliminary Class C cost estimate based on a minimal level of design (5%) and includes an overall 30% project contingency as required by the FTA.
- AECOM has identified a number of potential cost reduction strategies that the City should evaluate as the project moves forward.
- The CAO, in coordination with BOE and LADOT, is exploring potential interest in a public-private partnership (P3) to help finance and construct the project.
- The revised project schedule estimates the completion of construction and the start of service to the public in December 2020.

The Discussion section below provides additional details regarding the AECOM report and the status of the project.

DISCUSSION

Independent Cost Estimate

Attachment 1 of this report is the executive summary of a report entitled "Independent Cost Estimate & Cost Methodology Report", dated September 17, 2014, prepared by the consultant AECOM under contract to the Department of Transportation (LADOT). AECOM also prepared a revised cost estimate and project schedule dated May 28, 2015. AECOM was hired by LADOT to provide project management services for the streetcar project. The purpose of this cost estimate is to assist the City in analyzing the project's feasibility and to establish the project budget. This cost estimate was prepared independently from previous estimates for the project.

The updated new cost estimate developed by AECOM shows a total project cost of \$281,589,228 to design and construct the streetcar using the locally preferred alternative (LPA) 7th St. route approved by the City Council and defined in the Project Development (PD) documentation provided to the FTA. The

AECOM cost estimate cited above is in escalated dollars to 2019 year of expenditure (YOE). As part of its report, AECOM also prepared a cost estimate for the 9th St. alternative route. This cost estimate of \$263,910,851 is slightly lower than the LPA route. However, the City Attorney advises that a revote of the CFD likely would be required if the 9th St. alternative route is selected by the City as the ballot measure defined tax zones based on a specific route (LPA) and the intended use of the CFD funds. See the attached ICE Executive Summary for a map of the streetcar LPA route and 9th St. alternative.

Utility Relocation Costs

AECOM has estimated that utility relocation costs, one of the largest line items in the streetcar cost estimate, will be \$69.3 million. As discussed below, this cost estimate is less than the \$79.3 million - \$165.8 million estimate for utility relocation costs completed last year and eliminates the wide range in costs from last year's estimate. AECOM was able to refine and lower the utility relocation cost estimate based on extensive discussions with the City's public utility agencies including LADWP and the Department of Public Works. In addition, AECOM included 25% of the estimated private utility costs in the total utility relocation cost estimate.

All work to-date has relied primarily on existing utility design plans. The existence of as yet unidentified utilities along the streetcar route may increase the total construction cost estimate. AECOM also assumed in the cost estimate that a majority of the utility relocation work would be conducted by streetcar construction contractor staff rather than LADWP / City staff. Utility relocation costs would increase if City utility staff conducted all the relocation work. An overall project contingency of 30% was assumed to address these types of possible cost increases.

Vehicle Run Time Analysis - Fleet Requirements

Previous cost estimates assumed a total of eight streetcar vehicles (six in-service and two spares). The fleet size was based on an estimated average travel speed and the assumed streetcar frequencies (every seven minutes during peak, 10-15 minutes during off-peak). A recent analysis by LADOT and verified by AECOM found the estimated average travel speed to be significantly slower than previously estimated, resulting in a longer travel time to complete the route. LADOT projects that four additional vehicles would be needed to maintain the assumed streetcar frequencies. These four added vehicles would increase the total fleet from eight to 12 vehicles.

The estimated cost of \$24,335,274 for the four additional vehicles was not included in the AECOM cost estimates cited above. If included, the estimated total cost for the 7th St. route alternative would be \$305,924,502. Traffic engineering solutions will be evaluated as part of the environmental and project design processes that may help to increase the travel speed of the streetcar, thus reducing the total number of vehicles required. Alternatively, the assumed streetcar frequencies can be adjusted to reduce or eliminate the need for additional vehicles (will impact estimated streetcar ridership). The preparation of a detailed operational plan is needed once the project is further along in the design process.

Comparison to Previous Cost Estimates

As illustrated in the table below, the new AECOM cost estimate for the LPA route is approximately \$50 million less than the high end of the previous cost estimate prepared by HDR (consultant to Metro) for the project in 2013. HDR's cost estimate for the LPA route had a range of \$232.2 million - \$327.8 million.

Streetcar Cost Estimates (Millions of Dollars)

	CRA/LA 2011	HDR 2013	AECOM 2015
Base Project Costs*	\$114.5	\$125.7-\$134.8	\$172.4
Utility Costs	\$4.5	\$79.3-\$165.8	\$69.3
Facility Land Costs	\$6.0	\$27.2	\$39.9
Total Project Cost	\$125.0	\$232.2-\$327.8	\$281.6

Note: Base Project Costs include track and facility construction, vehicle and land acquisition, and professional services unrelated to utility relocation/replacement. Estimated \$24.3 million for the potential purchase of four additional vehicles is <u>excluded</u> (see Run Time Analysis Section above).

The large range contained in the previous HDR cost estimate is due primarily to utility relocation cost estimates which ranged from \$79.3 million to \$165.8 million. AECOM worked closely with the LA Department of Water and Power (LADWP), the City's Department of Public Works and private utility companies to develop a significantly more refined cost estimate for utility relocation.

The AECOM cost estimate is significantly higher than the original \$125 million cost estimate prepared by the former Community Redevelopment Agency of the City of Los Angeles (CRA / LA) in 2011 and referenced as part of the 2012 report to the City Council concerning the establishment of the CFD (C.F. 11-0329-S6).

Class C Preliminary Estimate

Per AECOM, the new cost estimate is a preliminary estimate based on conceptual engineering at the 5% design level, also known as a Class C Estimate. AECOM states that preparation of this estimate included a significantly greater amount of research and development compared to most Class C estimates. An example of this higher level of development is the fact that the alignment has been refined to a specific route and location in the street. In addition, a high level of effort has been conducted to examine the potential utility impacts and relocation costs. Based on guidance from the FTA, an overall 30% contingency was assumed for the project. This large contingency allows for projects to absorb potential cost overruns during construction. AECOM noted that value engineering and strategic design decisions during the project's design process may result in a reduced project cost.

Projected Construction Funding

There are currently two primary sources of funding anticipated for constructing the streetcar project. As discussed in the Background section of this report, one source of funding is the Community Facilities District (CFD) approved by voters in 2012. The City has secured \$62.5 million in local CFD funds for the construction of the streetcar project. The non-profit Los Angeles Streetcar, Inc. (LASI), with funding from CRA / LA, was instrumental in securing these funds.

LADOT has also initiated the Project Development (PD) process with the FTA for a federal Small Starts capital grant for the project. The FTA is currently reviewing the project and has made no funding commitments at this time. Assuming that the City is awarded the maximum available \$75 million grant by the FTA as part of the Small Starts program, the total amount of identified funding available to construct the streetcar project would be \$137.5 million.

The estimated project funding cited above does not include approximately \$11 million in project funding (\$10 million in funding from the former CRA / LA and \$1 million in City Measure R local return funds) approved by the City Council and currently being expended to support streetcar pre-development work such as environmental, preliminary engineering and project management. Further, the cost for this work is not included in the AECOM cost estimate.

The FTA Small Starts grant funding program establishes a maximum total project cost cap of \$250 million. Projects costing more than \$250 million will be considered by the FTA under the New Starts grant program (which traditionally funds regional transit projects). The new streetcar cost estimate of \$281.6 million places the project above the \$250 million Small Starts cap by \$31.6 million. Staff is currently revisiting the project elements and plans to continue with preliminary engineering in order to identify any recommended cost reduction strategies. If any are identified, staff will ensure that any changes to the project definition will not compromise the project's original intent, and stay consistent with the purpose and need. Staff will report back to the City Council if the \$250 million cap cannot be met for the project, thus precluding LADOT from submitting a Small Starts grant application.

Projected Construction Funding Shortfall

Based on the new AECOM cost estimate, the City is facing a projected \$144.1 million shortfall for the streetcar project (LPA route). The table below summarizes the projected funding shortfall for the project.

Summary – Projected Streetcar Construction Funding Shortfall

CFD Funds	FTA Small Starts	Total Funding	Construction	Funding
	Grant		Cost	Shortfall
\$62.5 M**	\$75.0 M*	\$137.5 M*	\$ 281.6 M	\$ 144.1 M***

Note: * FTA Small Starts grant approval is pending

** \$22.5 M of the \$85 M in CFD funds is allocated for bond issuance and administration

*** Excludes \$24,335,274 for four additional vehicles (see run-time analysis discussion)

The City will need to prepare and submit a reasonable financial plan for the project that funds the total cost of construction. A reasonable funding plan must be identified before the FTA will review the draft

EA and consider awarding grant funding for the project to the City. The CAO, in coordination with BOE, LADOT, CD 14 and LASI, is exploring potential P3 opportunities to address the projected streetcar funding shortfall.

Potential Cost Reduction Strategies

Given that the design work for the streetcar project is only about 5% complete, AECOM indicates that there are potential opportunities that the City may elect to pursue in order to reduce the overall cost of the project including value engineering of the route alignment. The following is a brief summary of selected potential cost reduction strategies identified by AECOM.

- Remove 1st and Grand Route Segment The LPA route includes a segment on First St. (between Grand Ave. and Hill St.) and Grand Ave. (between First St. and Second St.), also known as the 1st and Grand Ave. extension or spur. AECOM indicates that eliminating or deferring this portion of the route to a later phase could potentially save an estimated \$15.4 million (2019 YOE). The potential impacts of such a change, including reduced ridership, would need to be analyzed as part of the environmental review for the project. The Grand Ave. spur is also outside the boundaries of the existing CFD. Further investigation of other potential funding sources, including a second CFD, would be required.
- <u>Land Acquisition for Maintenance Facility</u> AECOM, with guidance provided by the FTA, assumed a full site acquisition for the streetcar maintenance facility at an estimated cost of approximately \$36.2 million (escalated). The construction of a maintenance facility on the site without further development can be characterized as an underutilization of the property given the high costs of land in Downtown Los Angeles. AECOM suggests that alternative uses of the land such as joint development could potentially generate revenues (for transit use) that may reduce the net cost of the streetcar project.

Logistical issues associated with a potential joint development include alignment of the schedules for the streetcar project and the joint development project. AECOM estimates that any delays to the streetcar schedule, including potential joint development related delays, will add an estimated \$8 million - \$10 million per year (\$750,000 per month) to the streetcar construction cost estimate.

The FTA released a new circular, FTA C 7050.1, dated August 25, 2014, that provides guidance on how to use FTA funds or FTA-funded property for joint development. In summary, any future joint development of the streetcar maintenance yard must be approved by the FTA and comply with all federal requirements. The joint development of property purchased using FTA funds must involve a compatible use that will enhance the effectiveness, and provide a fair share of revenues, for public transportation. FTA-assisted joint development procurements must also comply with federal requirements including the general requirement for full and open competition.

Further, Mello-Roos statutes require that the CFD bonds be issued only for public facilities. A joint development and the level of private benefit will have implications for the CFD bonds as to whether they can be issued. The potential impacts of a proposed joint development project must also be considered as part of the environmental review process.

- <u>Utility Relocations</u> As previously discussed, the estimated cost for utility relocations is \$69.3 million. Per AECOM, strategic options exist to potentially reduce this cost such as leaving certain maintenance holes in place rather than relocating them and sharing the costs of utility relocation with the LADWP and other public utilities. It should be noted that leaving these maintenance holes in place may result in streetcar operations being shut down due to maintenance of underground utilities. Value engineering of the route alignment as part of the design process (past 30%) may also reduce the estimated cost of utility relocations.
- <u>Project Schedule / Expediting Preliminary Design</u> AECOM assumed starting the advanced conceptual design work (15% design) and preliminary design work (30% design) in mid-2015 in order to expedite the project schedule and reduce the construction cost estimate. AECOM estimates that it would cost an estimated \$3.64 million to complete the preliminary design work, exclusive of City staff costs.

As discussed by AECOM, there are significant challenges, issues and/or uncertainties associated with each of the potential cost reduction strategies. After consultation with the FTA, these potential cost reduction strategies were not assumed by AECOM as part of the total estimated project cost. Further analysis and evaluation is recommended before any decisions are made by the City to pursue one or more of these potential cost reduction strategies.

Revised Project Schedule

In addition to the independent cost estimate, the scope of work for AECOM also included the development of a revised, updated streetcar project schedule. According to AECOM, the project is anticipated to start service in December 2020. This revised project schedule, which is summarized on page 7 of the attached May 28, 2015 revision to the Final ICE Executive Summary, was used by AECOM to help develop the new ICE. The administrative draft streetcar EIR will need to be updated to reflect this new 2020 estimated start date. The administrative draft EIR currently assumes a 2016 start date. The Regional Transportation Plan (RTP) prepared by the Southern California Association of Governments (SCAG) will also need to be updated. The estimated December 2020 project service start date by AECOM is based on the following assumptions:

- Local funding will be identified /allocated for final project engineering and construction in the next year.
- The FTA will award a \$75 million Small Starts grant for the project.
- The environmental process is anticipated to be complete by late 2016.
- Design activities will begin in early 2016.
- Right of Way Acquisition for Maintenance Facility and Traction Power Substations (TPSS) by late 2017.

It should be noted that the estimated project schedule is fluid and subject to additional revisions throughout the life of the design and construction of the project. Further, the estimated schedule assumes that the project will be awarded federal Small Starts grant funding and that all funding shortfalls will be resolved within the next year. As previously discussed, AECOM estimated that any delays to the project schedule will result in a project cost increase of approximately \$8 million to \$10 million per year. Similarly, expediting the project schedule would result in a similar level of project cost savings.

Next Steps / Key Issues

The following summarizes selected next steps / key issues for the streetcar project.

Revised Ridership Estimate - The FTA has completed a demonstration of its new STOPS ridership
estimation model for the LA streetcar project. Preliminary results were received in in October
2014. The FTA has recently released a new version of its STOPS model. LADOT is coordinating
with Metro and the FTA to recalculate the ridership estimate using the new model and analyze
and verify the preliminary results. Once the final results are available, LADOT will meet with the
FTA to discuss how this ridership estimate compares to the previous ridership estimate prepared
by the consultant Fehr & Peers and contained in the Alternatives Analysis.

The FTA and LADOT will also discuss how the new ridership estimate may impact the streetcar project definition including the LPA route and/or additional route options. It should be noted that there are legal risks associated with modifying the route, to the extent that a specific route was identified and assumptions made in the formulation of the CFD boundary and special tax structure which were presented in the ballot measure and approved by the registered voters of the CFD.

If the STOPS ridership model shows a significant reduction in streetcar ridership, LADOT will apprise Council of the change and what possible steps can be implemented to improve ridership.

2. <u>Preliminary Design</u> - Per AECOM, completing preliminary design work (to the 30% stage) for the project will provide the City with a sense of value engineering opportunities and a magnitude of the potential cost savings that may be achievable. AECOM estimates that achieving 30% preliminary engineering will cost an estimated \$3.6 million to complete (not including City costs for oversight of a third party).

The City's non-profit partner on this project, Los Angeles Streetcar, Inc. (LASI), has expressed interest in assisting the City to expedite preliminary engineering by contracting directly with a firm to perform the preliminary design work. LASI will issue the RFP, select a firm, execute and manage the contract. No new City funds would be needed for this work as LASI plans to use approximately \$2.6 million in former Community Redevelopment Agency (CRA) funding, which expires if not used by on March 8, 2016, and other LASI-controlled funds such as TFAR transfers.

The City Council, at its meeting on September 17, 2013, adopted a Summary Project Management Plan for this project (C.F. 11-0329-S7). The summary plan states that the City will execute agreements for all major contract awards and will be directly responsible for managing these contracts and administering all funds throughout all phases of the project. An amendment to the adopted Summary Project Management Plan is needed in order for LASI to assume responsibility for contracting directly with a firm to perform preliminary engineering (see Recommendation #2 of this report).

While LASI will directly manage the contract for preliminary engineering and pay all contractor invoices, the City is ultimately responsible for making the decision whether or not to accept the preliminary engineering work. As such, LASI has agreed to allow access for BOE and LADOT, along with the City's contracted project manager (AECOM), to actively review and comment on work

products prepared by LASI's preliminary design contractor (see Recommendations 2 and 3 of this report). Recommendation 4 of this report provides for BOE to assume the lead role in providing oversight for the City, with AECOM providing technical assistance. Under this scenario, BOE is requesting authority to hire a new Principal Civil Engineer staff position under resolution authority, for the period July 1, 2015 through June 30, 2016, at a cost of \$167,138. Recommendation 5 of this report provides for the appropriation of an additional \$120,000 for BOE to hire a consultant to conduct a third party cost estimate at the completion of the preliminary engineering work. The total funding required for BOE in FY 2015-16 is \$287,138. A funding source would need to be identified for these additional costs.

- 3. <u>CEQA/NEPA Environmental Review</u> After consultation with the FTA, the City has decided to separate the joint administrative draft EIR/EA into two separate documents and move forward with preparation of a draft EIR. Once a project alternative included in the EIR is considered and approved by City Council, the FTA will prepare and consider an EA focused on this project alternative. The administrative draft EIR under preparation is being modified to include:
 - Additional project alternatives (7th Street alignment without the Grand Avenue Spur and 9th Street alignment without the Grand Avenue Spur);
 - An additional potential site for the planned streetcar maintenance facility;
 - Four alternative locations for a layover track;
 - Updated assumed opening year date from 2016 to 2020;
 - Updated horizon year date from 2035 to 2040; and
 - Revisions to the technical studies to support these changes.

The City will need to resolve outstanding issues with the project before it can request the FTA to evaluate and rate the project for grant funding. These outstanding issues include identifying and studying potential new route alternatives and maintenance facility sites, any potential changes to the Project Management Plan (including potential P3) and the development of a reasonable financial plan. Recommendation #5 of this report directs staff to report back to City Council with the final proposed project description and a financial plan for the project.

4. Explore Potential P3 Opportunities — The feasibility of P3 to help the City address the significant projected construction funding shortfall for the project should be explored. The CAO recently circulated a Request for Information (RFI) to solicit information regarding potential P3 opportunities for the streetcar project. In addition to the project construction funding shortfall issue, a potential P3 agreement may also impact the approved project delivery method and proposed project management plan for the streetcar project.

Since CFD bonds can only be issued to finance public facilities, the analysis of a potential P3 agreement would also need to consider the level of ownership, risks and rewards accruing to the private party in order to determine that the project is eligible for CFD bonding. Further, as part of this analysis the City would need to consider federal private use issues and the cost/benefit of issuing CFD bonds as taxable as compared to tax exempt.

The CAO is planning to release an RFP for a consultant to provide financial analyst services for the streetcar project including a potential P3 agreement. Recommendation #6 of this report directs

the CAO staff to report back to the City Council with the recommended firm and estimated budget to perform the financial analyst services for the project.

It should be noted that a P3 would follow a different procurement path than Council approved in the PMP. A P3 project would follow a Design-Build-Operate-Maintain and Finance (DBOMF) procurement. Currently, the streetcar project is approved to follow the Construction Management/General Contractor procurement method.

5. <u>Develop Balanced Financial Plan</u> – One of the critical steps for the City in fully developing the project definition for the streetcar project is the preparation of a balanced financial plan. This plan would need to demonstrate to the FTA how the City plans to fund the construction and operation of the project <u>without a funding shortfall</u>. The pursuit of a P3 by the City to help fund the project may also impact the selected construction delivery method for the project and the Project Management Plan (PMP) as required by the FTA.

BACKGROUND

Route

The proposed Streetcar Project in Downtown Los Angeles is a fixed-rail streetcar system that will link with existing regional transit using Broadway, 11th, Figueroa, 7th or 9th Streets & Hill Street. The route will serve the Civic Center, Broadway and the Historic Core, the Fashion District, South Park, L.A. Live and the Convention Center, the Financial District, and restaurant row through the Jewelry District, and on to Grand Avenue.

Environmental Review

The City Council, at its meeting on July 9, 2010, authorized the Community Redevelopment Agency (CRA) to enter into an agreement with Metro to prepare the federally required National Environmental Protection Act (NEPA) and California Environmental Quality Act (CEQA) documentation for the streetcar (CF 10-0937). As part of this agreement, Metro was also tasked with preparing the planned FTA Small Starts grant application for the streetcar. Regarding the environmental review process, the City's Department of Public Works, Bureau of Engineering (BOE) is the Lead Agency under CEQA. The FTA and LADOT are the Lead Agencies under NEPA.

Community Facilities District (CFD)

The City Council and Mayor enacted Ordinance No. 182192 (CF 11-0329-S6) that approved the special CFD election to levy a special tax for the purposes of issuing up to \$85 million in bonds to partially fund construction of the streetcar. Approximately \$62.5 million of the approved \$85 million is estimated to be available for construction. It is anticipated that the remaining amount will be used for interest cost. The elections were certified by City Council on December 12, 2012 with 72.9% of the ballots cast supporting the formation of the CFD. The CFD was to fund half of the original \$125 million construction cost.

Measure R Operating Fund Commitment

The City Council, at its meeting on March 6, 2013, committed to spend \$294.73 million in City Measure R 15% Local Return funds for streetcar operations (C.F. 11-0329-S7). The City Council approved a 30-year operational plan with funding programmed over a 23-year period from FY2017 through FY2039, based on an opening year streetcar operation cost of \$6.8 million (\$5.9 million subsidy), with an assumed cost escalator of 3% annually. The City Council also authorized LADOT to submit an FTA Small Starts grant application for the streetcar project.

Project Delivery & Management Plan

The City Council, at its meeting on September 17, 2013, approved a project delivery method (Construction Management / General Contractor aka CM/GC) and summary project management plan (amended) as recommended by the CAO, BOE and LADOT for the streetcar project (C.F. 11-0329-S7). The City Council also directed the CAO, BOE and LADOT to report to the Budget & Finance and Transportation Committees after submission of the project development letter to the FTA, but prior to the request of the FTA to rate and evaluate the project, with a status report on the Independent Cost Estimate (ICE) including utility relocation costs and the streetcar funding plan.

FTA Small Starts Grant Process

LADOT submitted a request, dated December 3, 2013, for the FTA to evaluate the streetcar project for entry into the Project Development (PD) phase of the federal Small Starts grant process under MAP 21. LADOT was notified by the FTA in a letter dated February 28, 2014 that the project had been approved to enter PD. LADOT must complete the EIR / EA review process and provide the FTA with required information for evaluation and rating to complete PD and become ready for a construction agreement. Entry into PD does not constitute a commitment that any FTA funds will be approved for the project. In addition, the project must be below \$250 million to be eligible for a Small Starts grant.

FTA 2014 TIGER Grant Application

LADOT submitted a FY 14 TIGER VI grant application to the FTA in April 2014 for the streetcar project. LADOT requested \$2.5 million in funding for preliminary engineering activities. The FTA recently announced the projects that were awarded TIGER grant funding for FY 2014. The streetcar project was not one of the selected projects.

Public - Private Partnership

The CAO issued an RFI on September 18, 2014 to solicit information and potential interest from the private sector regarding potential public-private partnerships (P3) for the streetcar project. A total of 23 responses were received by the due date of October 30, 2014. It is hoped that this information will assist the City in evaluating alternative project delivery methods through P3 such as Design-Build-Finance-Operate-Maintain (DBFOM).

FISCAL IMPACT

There is no impact to the budget as the recommendations in this report do not commit the City to expend any additional funds for the streetcar project. The CFD tax funds will be used by the City as the local match for federal grant funding (if approved by the FTA), and the City has committed to use approximately \$295 million in local Measure R funds over the next 30 years for streetcar operations. An additional funding source must be identified by the City to eliminate the projected construction funding shortfall. The FTA will not consider the project for Small Starts grant funding unless the estimated project cost is reduced to below \$250 million and the City submits a balanced financial plan for construction that does not contain a funding shortfall.

SjR:JL

Attachments

City of Los Angeles Restoration of Historic Streetcar Service

INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

May, 2015 Revision to the Final ICE dated September, 2014

May 28, 2015

Submitted to:

City of Los Angeles
Department of Transportation
100 S. Main St., 10th Floor
Los Angeles, CA 90012

City of Los Angeles Bureau of Engineering 1149 S. Broadway, Suite 700 Los Angeles, CA 90015

Prepared by:

AECOM 515 S. Flower St. Los Angeles, CA 90071

Certifying Signatures in Support of the Independent Cost Estimate

BAR	Shirteenn _{ing}		6/4/15
Bob Post, AECOM, Vice	Expert in the Construction of	Date	
President, National Streetcar	Streetcar Projects in Heavily		
Lead	Urbanized Environments in		
	the United States		
	7/		
1901 / Te			6/4/15
Richard Norton, PE, AECOM,	Registered Civil Engineer in	Date	
Los Angeles Metro Region	Good Standing with a PE		
Transportation/Civil	License from the State of		
Department Manager	California		
John Sway			6/4/15
John Swartz, AECOM, Senior	Certified Professional	Date	
Estimator	Estimator		
See attached CBRE report for sig	nature		
David A. Zoraster, MAI,	Real Estate Appraiser	Date	
David A. Zoraster, MAI, Director	Real Estate Appraiser Professionally Licensed and in	Date	-
		Date	
Director	Professionally Licensed and in	Date	
Director California State Certification	Professionally Licensed and in Good Standing in the State of	Date	
Director California State Certification	Professionally Licensed and in Good Standing in the State of California, with Experience in	Date	6/4/15
Director California State Certification No. AG001735, CBRE	Professionally Licensed and in Good Standing in the State of California, with Experience in	Date	6/4/15
Director California State Certification No. AG001735, CBRE	Professionally Licensed and in Good Standing in the State of California, with Experience in Downtown Los Angeles		6/4/15

Owner: Estimator Los Angeles Department of Transportation AECOM

Project: Phase:

Los Angeles Streetcar Class C Cost Estimate



CHANGES BETWEEN 9/17/14 TO May 2015

		7th Street A	lignment	9th Street A	lignment
ITEM	ESTIMATE CHANGE DESCRIPTION	BASE YEAR DOLLARS	YEAR OF EXPENDITURE	BASE YEAR DOLLARS	YEAR OF EXPENDITURE
9/17/2014	Total Project Cost - September 9/14	\$236,791,889	\$274,346,481	\$222,128,881	\$257,122,810
1	Adjust for 8 Months of Delay @ 4% per year (0.33% per month)	\$6,251,305	\$7,242,747	\$5,864,202	\$6,788,041
	Total after Adjustment	\$243,043,195	\$281,589,228	\$227,993,083	\$263,910,851
2	Add 4 Vehicles	\$21,623,374	\$24,335,274	\$21,623,374	\$24,335,274
CURRENT	Total Project Cost - Updated 4/15	\$264,666,569	\$305,924,502	\$249,616,457	\$288,246,125
DELTA	\$ VARIANCE 9/17/14 TO APRIL 2015	\$27,874,680	\$31,578,021	\$27,487,576	\$31,123,315
DELTA	% VARIANCE 9/17/14 TO APRIL 2015	12%	12%	12%	12%

Owner: Estimator Los Angeles Department of Transportation

URS

Project: Phase: Los Angeles Streetcar Class C Cost Estimate



5/28/2015

SUMMARY 1: EXECUTIVE PROJECT SUMMARY (Table 1, 5, & 6 from ICE)

	7th Street- Preferred Alignment	Current Year Value	Escalated
1	ESTIMATED PROJECT COST	\$264,666,569	\$305,924,502

100	9th Street- Alternative Alignment	Current Year Value	Escalated
2	ESTIMATED PROJECT COST	\$249,616,457	\$288,246,125

	7th Street Alignment Excluding 1st & Grand Segment	Current Year Value	Escalated
3	ESTIMATED PROJECT COST	\$251,591,149	\$290,565,667

· Make	9th Street Alignment Excluding 1st & Grand Segment	Current Year Value	Escalated
4	ESTIMATED PROJECT COST	\$236,541,037	\$272,887,290

Notes

- 1. ITEM #1 represents the total project cost of the streetcar and associated utility relocations for the preferred alignment on 7th Street, including the full acquisition cost for the operations & maintenance facility. This alignment corresponds to the preferred alignment in the Environmental Impact Report.
- 2. ITEM #2 represents the total project cost of the streetcar and associated utility relocations for the preferred alignment on 9th Street, including the full acquisition cost for the operations & maintenance facility. This alignment corresponds to the alternative alignment in the Environmental Impact Report.
- 3. The Current Year refers to 2014. This is the approximate current market value if the project were in construction this year.
- 4. The escalated value includes anticipated commodity and labor escalation from the date of the report to the estimated date of expenditure, which is assumed to a mid-point of 2019.
- 5. All costs include 15-30% design contingency and 10% construction contingency. The average total contingency is 30%.
- 6. All costs include construction costs, professional services, vehicles, and land acquisition.

Owner:

Los Angeles Department of Transportation

Professional Services

Estimator URS

Project: Los Angeles Streetcar Phase: Class C Cost Estimate



\$44.395,638

5/28/2015

SUMMARY 2: DETAILED PROJECT SUMARY- PREFERRED ALIGNMENT (Table 9 from Original ICE pg 39) 7TH ST ALIGNMENT

A	9		C	D	Ę	F	G	H=C+D+E+F+G
Item #	PREFERRED ALIGNMENT- 7TH STREET ALIGNMENT- BASE YEAR	%	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES	LAND COST	VEHICLE COST	TOTAL PROJECT COST
1	Streetcar Construction Costs	2.64%	\$71,126,016					\$71,126,016
2	Utilities Construction Costs	2.64%		\$37,992,805	\$2,043,787			\$40,036,592
3	Land Acquisition Costs - Full acquisition	2,64%				\$32,190,778		\$32,190,778
4	Vehicles	2.64%					\$59,457,299	\$59,457,299
5	Professional Services	34.00%	\$24,182,845	\$12,917,554	\$694,888			\$37,795,287
6	Unallocated Contingency	10.00%	\$9,530,886	\$5,091,036	\$273,867	\$3,219,078	\$5,945,730	\$24,060,597
A	TOTAL - BASE YEAR COST		\$104,839,747	\$56,001,394	\$3,012,542	\$35,409,856	\$65,403,029	\$264,666,569
Item #	PREFERRED ALIGNMENT- 7TH STREET ALIGNMENT- ESCALATED (2019)		STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES ALLOWANCE	LAND COST	VEHICLE COST	TOTAL PROJECT COST
7	Streetcar Construction Costs	17.46%	\$83,547,054					\$83,547,054
8	Utilities Construction Costs	17.46%		\$44,627,649	\$2,400,702			\$47,028,352
9	Land Acquisition Costs	12.54%				\$36,227,991		\$36,227,991
10	Vehicles	12,54%					\$66,914,149	\$66,914,149

LZ Unallocated Contingency	10,00%	\$11,195,305	\$5,980,105	\$321,694	\$3,622,799	\$6,691,415	\$27,811,318
10 W 10 W	4.44						
B TOTAL - ESCALATED COST		\$123,148,357	\$65,781,155	\$3,538,635	\$39,850,790	\$73,605,564	\$305,924,502

\$15,173,401

\$816,239

Notes

- 1. This table displays the main cost components of the Preferred Alignment on 7th Street.
- 2. Streetcar: Includes all costs associated with the construction, design, and management of streetcar, land acquisition, and vehicles.

\$28,405,998

34.00%

- 3. Public Utilities: Includes all costs associated with the construction, design, and management of the public utility relocation. No cost mitigation options such as strategic engineering and sharing costs with LADWP have been assumed in this number.
- 4. Private Utilities: This is an allowances of approximately 25% of the total estimated cost for private utility work. This cost is meant to allow for coordinating with the private utility companies and performing a small portion of the work. Per the franchise agreements, relocation of the private utility companies is the responsibility of the private utility firms and is not a project cost.
- 5. Land Cost: This estimate assumes the full purchase of a lot size of 55,000 SF in size, using the average market value price for land per current property value. No cost sharing options such as P3 are assumed in this unit price.
- 6. Vehicle Cost: The vehicle costs assume 12 vehicles (10 in service and 2 spares).
- 7. Professional Services: Professional services are marked-up 34% on top of the construction cost and include design and consultancy services, insurances, legal, agency costs, permits, etc.
- 8. All costs include 15 to 30% design contingency plus 10% unallocated contingency. The average total contingency is 30%,

Owner: Estimat Project: Phase: Los Angeles Department of Transportation

Estimator URS

Project: Lo

Los Angeles Streetcar Class C Cost Estimate



SUMMARY 3: DETAILED PROJECT SUMARY- ALTERNATIVE ALIGNMENT (Table 10 from Original ICE pg 39) 9TH ST ALIGNMENT ALTERNATIVE

A	В		C	D	E	F	G	H=C+D+E+F+G
The second second	9TH STREET ALIGNMENT ALTERNATIVE- BASE YEAR (2014)	%	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES	LAND COST	VEHICLE COST	TOTAL PROJECT COST
1	Streetcar Construction Costs	2.64%	\$70,519,592		Official		H-14-1-10-10-10-10-10-10-10-10-10-10-10-10-1	\$70,519,592
2	Utilities Construction Costs	2.64%		\$28,470,293	\$1,962,334			\$30,432,628
3	Land Acquisition Costs	2.64%				\$32,190,778		\$32,190,778
4	Vehicles	2.64%					\$59,457,299	\$59,457,299
5	Professional Services	34.00%	\$23,976,661	\$9,679,900	\$667,194			\$34,323,755
6	Unallocated Contingency	10.00%	\$9,449,625	\$3,815,019	\$262,953	\$3,219,078	\$5,945,730	\$22,692,405
Α	TOTAL - BASE YEAR COST		\$103,945,879	\$41,965,213	\$2,892,481	\$35,409,856	\$65,403,029	\$249,616,457

Item #	9TH STREET ALIGNMENT ALTERNATIVE- ESCALATED (2019)	%	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES ALLOWANCE	LAND COST	VEHICLE COST	TOTAL PROJECT COST
7	Streetcar Construction Costs	17.46%	\$82,834,728			İ	i	\$82,834,728
8	Utilities Construction Costs	17.46%		\$33,442,182	\$2,305,025			\$35,747,206
9	Land Acquisition Costs	12.54%				\$36,227,991		\$36,227,991
10	Vehicles	12.54%					\$66,914,149	\$66,914,149
11	Professional Services	34.00%	\$28,163,807	\$11,370,342	\$783,708			\$40,317,858
12	Unallocated Contingency	10.00%	\$11,099,854	\$4,481,252	\$308,873	\$3,622,799	\$6,691,415	\$26,204,193
В	TOTAL - ESCALATED COST		\$122,098,389	\$49,293,776	\$3,397,607	\$39,850,790	\$73,605,564	\$288,246,125

Notes

- 1. This table displays the main cost components of the Alternative Alignment on 9th Street.
- 2. Streetcar: Includes all costs associated with the construction, design, and management of streetcar, land acquisition, and vehicles.
- 3. Public Utilities: Includes all costs associated with the construction, design, and management of the public utility relocation. No cost mitigation options such as strategic engineering and sharing costs with LADWP have been assumed in this number.
- 4. Private Utilities: This is an allowances of approximately 25% of the total estimated cost for private utility work. This cost is meant to allow for coordinating with the private utility companies and performing a small portion of the work. Per the franchise agreements, relocation of the private utility companies is the responsibility of the private utility firms and is not a project cost.
- 5. Land Cost: This estimate assumes the full purchase of a lot size of 55,000 SF in size, using the average market value price for land per current property value. No cost sharing options such as P3 are assumed in this unit price.
- 6. Vehicle Cost: The vehicle costs assume 12 vehicles (10 in service and 2 spares).
- 7. Professional Services: Professional services are marked-up 34% on top of the construction cost and include design and consultancy services, insurances, legal, agency costs, permits, etc.
- 8. All costs include 15 to 30% design contingency plus 10% unallocated contingency. The average total contingency is 30%.

Owner:

Los Angeles Department of Transportation

Estimator (

Project: Los Angeles Streetcar Phase: Class C Cost Estimate



5/28/2015

SUMMARY 4: 1ST & GRAND EXTENSION

A	В		C	D .	D	E=C+D
Item #	1ST & GRAND EXTENSION- UNESCALATED	%	STREETCAR	PUBLIC UTILITIES	PRIVATE UTILITIES	TOTAL PROJECT COST
1	Construction Costs	2.64%	\$6,893,506	\$1,825,870	\$151,329	\$8,870,705
2	Land Acquisition Costs - Full acquisition	NA				\$0
3	Vehicles	NA				
4	Professional Services	34.00%	\$2,343,792	\$620,796	\$51,452	\$3,016,040
5	Unallocated Contingency	10.00%	\$923,730	\$244,667	\$20,278	\$1,188,674
Α	TOTAL - ESTIMATED BASE YEAR COST		\$10,161,028	\$2,691,332	\$223,059	\$13,075,419

Item #	1ST & GRAND EXTENSION- ESCALATED	%	STREETCAR	PUBLIC UTILITIES	PRIVATE UTILITIES	TOTAL PROJECT COST
6	Construction Costs	17.46%	\$8,097,348	\$2,144,729	\$177,756	
7	Land Acquisition Costs - Full acquisition	NA				\$0
8	Vehicles	NA				
9	Professional Services	34.00%	\$2,753,098	\$729,208	\$60,437	\$3,542,744
10	Unallocated Contingency	10.00%	\$1,085,045	\$287,394	\$23,819	
В	TOTAL - ESTIMATED ESCALATED COST		\$11,935,491	\$3,161,331	\$262,013	\$15,358,835

Notes

- 1. This table displays the main cost components of the Alternative Alignment on 9th Street without the 1st & Grand Extension.
- 2. Streetcar: Includes all costs associated with the construction, design, and management of streetcar, ROW, and vehicles.
- 3. Public Utilities: Includes all costs associated with the construction, design, and management of the public utility relocation.
- 4. Private Utilities: This estimate includes an allowance of approximately 25% of the total estimated cost for private utility work as an allowance for coordinating with the private utility companies. It is assumed that the majority of the cost will be paid directly by the private utility companies.
- 5. All costs include 15 to 30% design contingency and 10% construction contingency.

LA Streetcar - Project Schedule- Updated May, 2015

2015 Q1 Q2 Q3 Q4	2014 4 Q1 Q2 Q		2017 Q2 Q3 Q4	2018 Q1 Q2 Q3	2019 Q4 Q1 Q2 Q3	
Q1 Q2 Q3 Q4	4 Q1 Q2 Q	33 Q4 Q1	Q2 Q3 Q4	Q1 Q2 Q3	04 Q1 Q2 Q3	Q4 Q1 Q2 Q3 Q
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City of Los Angeles
Restoration of Historic Streetcar Service

INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

September 17, 2014

Submitted to:
City of Los Angeles
Department of Transportation
100 S. Main St., 10th Floor
Los Angeles, CA 90012

City of Los Angeles Bureau of Engineering 1149 S. Broadway, Suite 700 Los Angeles, CA 90015

Prepared by: URS Corporation 915 W. Wilshire Blvd, Ste. 700 Los Angeles, CA 90017

Signature Page

Bolo Part			9/17/14
Bob Post, URS, Vice	Expert in the Construction of	Date	
President, National	Streetcar Projects in Heavily		
Streetcar Lead	Urbanized Environments in		
	the United States		
	P		
Choren S			9/17/14
Andrew Liu, URS, Los	Registered Civil Engineer in	Date	
Angeles Office	Good Standing with a PE		
Transportation/Civil	License from the State of		
Department Manager	California		
John Sway			9/17/14
John Swartz, URS, Senior	Certified Professional	Date	
Estimator	Estimator		
See attached CBRE report for s	signature		
David A. Zoraster, MAI,	Real Estate Appraiser	Date	
Director	Professionally Licensed and		
California State Certification	in Good Standing in the		
No. AG001735, CBRE	State of California, with		
	Experience in Downtown Los		
	Angeles		
Stew Orthur			9/17/14
Steve Ortmann, URS, Vice	Principal from the Company	Date	
President, Streetcar Project	Hired to Perform the		
Manager	Estimate		

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INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

SECTION 1: EXECUTIVE SUMMARY

1. EXECUTIVE SUMMARY

1.1 Total Project Cost

This document is an Independent Cost Estimate and Cost Methodology Report prepared by URS Corporation for the Los Angeles Streetcar Project. This estimate is a "Class C Cost Estimate," based on a project that is at the 0-5% design stage. Due to the early stage of the project, this estimate includes a weighted average allocated contingency of 20%, as well as unallocated contingency 10% of on all project components. The overall average contingency is 30%, per Federal Transit Administration (FTA) guidance.

Though characterized as a Class C Cost Estimate, the work undertaken to prepare this document exceeds what is typically done for a Class C Cost Estimate. Specifically, there has been extensive coordination with the City of Los Angeles Department of Water and Power (LADWP) and Bureau of Sanitation (BOS) on utility relocation assumptions, a detailed breakdown of construction quantities and scope, and coordination with real estate experts on land acquisition costs.



FIGURE 1- ALIGNMENT ALTERNATIVES

The Locally Preferred Alignment as identified in the Environmental Impact Report is the 7th Street Alignment (Figure 1). An alternative alignment on 9th Street is also being evaluated. The total project cost in current year and escalated year (mid-point of 2018) dollars is presented below.

TABLE 1: TOTAL PROJECT COST

	7th Street- Preferred Alignment	Current Year Value	Escalated
1	ESTIMATED PROJECT COST	\$236,791,889	\$274,346,481
	9th Street- Alternative Alignment	Current Year Value	Escalated
2	ESTIMATED PROJECT COST	\$222,128,881	\$255,858,080

1.2 Total Project Cost by Component

The total project cost consists of construction costs (which include utility relocations), land acquisition costs, vehicles, professional services, allocated contingency, and unallocated contingency. The following tables and charts depict the total estimated project cost for the preferred alignment on 7th Street as well as the 9th Street Alignment Alternative. The 7th Street Alignment corresponds with the Locally Preferred Alternative in the Environmental Impact Report (EIR)/Environmental Assessment (EA) currently being prepared for the project.

TABLE 2: TOTAL PROJECT COST BY PROJECT COMPONENT- 7TH STREET ALIGNMENT

	PREFERRED ALIGNMENT- 7TH STREET ALIGNMENT- ESCALATED (2018)	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES ALLOWANCE	LAND COST	VEHICLE COST	TOTAL PROJECT COST
7	Streetcar Construction Costs	\$81,398,143		- 10 to			\$81,398,143
8	Utilities Construction Costs		\$43,479,783	\$2,338.954			\$45,818,738
9	Land Acquisition Costs				\$35,296,172		\$35,296,172
10	Vehicles					\$43,639,100	\$43,639,100
11	Professional Services	\$27,675,368	\$14,783,126	\$795,245			\$43,253,739
12	Unallocated Contingency	\$10,907,351	\$5,826,291	\$313,420	\$3,529,617	\$4,363,910	\$24,940,589
							- Y.
В	TOTAL - ESCALATED COST	\$119,980,862	\$64,089,201	\$3,447,619	\$38,825,789	\$48,003,010	\$274,346,481

TABLE 3: TOTAL PROJECT COST BY PROJECT COMPONENT- 9TH STREET ALIGNMENT ALTERNATIVE

Item#	9TH STREET ALIGNMENT ALTERNATIVE- ESCALATED (2018)	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES ALLOWANCE	LAND COST	VEHICLE COST	TOTAL PROJECT COST
7	Streetcar Construction Costs	\$80,704,139					\$80,704,139
8	Utilities Construction Costs		\$32,582,016	\$2,245,738			\$34,827,754
9	Land Acquisition Costs				\$35,296,172		\$35,296,172
10	Vehicles					\$43,639,100	\$43,639,100
11	Professional Services	\$26,289,653	\$11,077,886	\$763,551	200 200 200 200 200 200 200 200 200 200		\$38,131,089
12	Unallocated Contingency	\$10,699,379	\$4,365,990	\$300,929	\$3,529.617	\$4,363,910	\$23,259,825
В	TOTAL - ESCALATED COST	\$117,693,171	\$48,025,892	\$3,310,217	\$38,825,789	\$48,003,010	\$255,858,080

For both tables above, Items 7-10 include a weighted average of 20% allocated contingency and escalation. Item 11 is calculated as a 34% mark-up on Item 7 and 8. Finally, Item 12 is calculated as a 10% mark-up on Items 7-11.

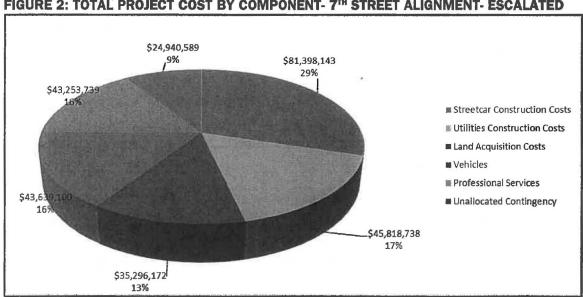
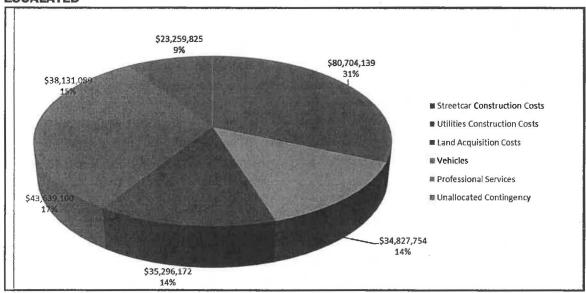


FIGURE 2: TOTAL PROJECT COST BY COMPONENT- 7TH STREET ALIGNMENT- ESCALATED

FIGURE 3: TOTAL PROJECT COST BY COMPONENT- 9TH STREET ALIGNMENT ALTERNATIVE-**ESCALATED**



As shown, the major cost driver for the project is construction costs, which include allowances for relocation and coordination of public and private utilities. The choice between routing the streetcar on 7th Street versus 9th Street has implications on the cost of the project. The 7th Street Alignment costs roughly \$19 million (Year of Expenditure, YOE) more than the 9th Street Alignment Alternative, largely due to utility costs.

Hard costs are based on specific project construction, land, and vehicle quantities, whereas soft costs and contingencies are calculated as a percentage of other costs. Professional services are estimated as a 34% mark-up on construction costs. A weighted average 20% allocated contingency is added on each of the major project components. Finally, unallocated contingency is estimated at 10% of construction costs, land acquisition costs, vehicle costs, and professional services. Construction costs are escalated to 2018 dollars. Land acquisition and vehicle costs are escalated to early 2017, the scheduled expenditure date for those items.

All estimate totals assume full land acquisition for the operations and maintenance facility, per FTA guidance. A 55,000 square foot (SF) parcel is assumed to accommodate the operations and maintenance facility. Land acquisition options are further discussed in Section 6.6 Right-of-way, land, existing improvements. In addition options for acquiring the maintenance facility/depot, other cost reduction strategies are discussed in Section 5: Cost Management Strategies.

The utility costs estimate assumes that contractors will perform the majority of the utility relocation work. There have been numerous meetings with LADWP to assess the technical scope of work. At this stage in the process LADWP concurs with this assumption, with the caveat that this may change as the project is further developed and more precise assessment of work scope is developed. Contractors would not perform certain electric utility work (hot power) and would be paid a prevailing wage that achieves union wage parity. Because of scheduling, it is assumed that some portion of the private utility lines will become a project cost. This estimate makes an allowance of approximately one quarter (25%) of the full value of the costs for private utility relocation to account for this scope. This is a conservative allowance based on known information at this time. The estimate also includes allowance for the contractor to coordinate and oversee the private utility relocation work.

Public and private utility relocations were quantified based on the alignment. For purposes of this estimate, it is assumed that the private utility companies will be both financially and physically responsible for relocating the majority of their own utility lines, vaults, manholes, and other facilities, as provided for in their franchise agreements with the city. The following tables summarize the public and private utility cost estimates for the 7th Street Alignment.

TABLE 4: PUBLIC & PRIVATE UTILITIES SUMMARY- 7TH STREET ALIGNMENT

	PUBLIC & PRIVATE UTILITIES SI			REFERRED ALIGN			din de tratant la com
ITEM NO.	DESCRIPTION	В	D 2014 COSTS	COST PER MILE	Sir	DE 2018 COSTS	COST PER MILE
40.02.01	POWER		\$19,650,916			\$23,082,639	
40.02.02	WATER		\$8,627,570			\$10,134,239	
40.02.03	SANITARY SEWER		\$3,744,676			\$4,398,624	
40.02.04	STORM DRAIN		\$3,063,479			\$3,598,468	
40.02.05	TRAFFIC CONTROL		\$1,928,952			\$2,265,814	
40.02.06	PRIVATE UTILITIES- allowance		\$1,991,219			\$2,338,954	
Α	Construction Subtotal (10 - 50)	\$	39,006,813	\$10,104,797	\$	45,818,738	\$11,869,440
80	PROFESSIONAL SERVICES		\$13,262,316			\$15,578,371	
В	Subtotal (60-80)	\$	13,262,316	\$3,435,631	\$	15,578,371	\$4,035,610
C	Subtotal (10 - 80)	\$	52,269,129	\$13,540,428	\$	61,397,109	\$15,905,050
90	UNALLOCATED CONTINGENCY (10%)		\$5,226,913			\$6,139,711	
D	TOTAL PUBLIC AND PRIVATE UTILITIES COST	\$	57,496,042	\$14,894,471	\$	67,536,819	\$17,495,5 55

1.3 Project Schedule

The project is anticipated to start service in 2019. This service date has assumed a Construction Manager/General Contractor (CM/GC) project delivery method. Further, this start date assumes that the project will qualify for Federal Small Starts Funding, which has a project cap of \$250M. In order to meet this requirement, project costs must be reduced to below \$250M, or the scope of the project must be adjusted to reduce costs. Moreover, the schedule assumes that a mechanism for eliminating the capital budget shortfall will be identified in the next twelve months. One potential scenario is likely to include investigation of a public-private partnership (P3), which could either shorten or lengthen the project schedule, depending on when a P3 team is brought on board. If conceptual design can be advanced, as recommended in Section 5, and the P3 or CM/GC schedule is linked to this design work, there is the potential to shorten the project schedule. The current schedule is subject to change as alternative project delivery strategies are explored and refined.

This startup date is based on the following assumptions:

- Funding will be identified/allocated for the project engineering and construction.
- The environmental process will be complete by early 2016.
- Bid and selection of a project delivery team will each take no more than one year.
- Vehicle selection and delivery will be scheduled to coincide with construction activity.
- Design activities will begin in early 2016.

Project delivery is anticipated to occur in three main phases: pre-construction, construction, and start-up. The pre-construction phase, which includes the environmental review process, advanced conceptual design, and program management, is essentially now underway and should conclude by mid 2017. This phase must also include the selection of a project delivery team which will consist of, at minimum, a final design/engineering team, and a general contractor. Construction is anticipated to begin in mid 2017 and conclude in mid 2019, and includes vehicle delivery, utility relocation, and track and station construction. Finally, startup activities are anticipated to conclude in late 2019, and include station finishes and landscaping, and vehicle testing and training. A simplified project schedule is presented below. A comprehensive project schedule has been developed (Appendix 9.9) including the pre-design, design, construction, and testing durations and subtasks.

FIGURE 4: PROJECT SCHEDULE

FIGURE 4: PROJECT SCHEDULE			76557681	= * */		Throw with an array
	2014	2015	2016	2017		019
	Q1 Q2 Q3 Q4 (Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4 Q	1 Q2 Q3 Q4	Q1 Q2 Q3 Q4 Q1 Q2	Q3 Q4
Independent Cost Estimate				ASSESSED FOR		
Start ICE				i	4	İ
Deliver Final ICE Report						
Environmental Document				一种人工工作	Emesymples Alex Summer	
Draft EIR/EA						
Final EIR/EA						L
Mitigation Monitoring	[]					
Funding						
Federal Small Starts Grant						[
Engineering and Contractor RFPs		以中国的				
Engineer Design RFP						
Contractor RFP						!
Construction and Startup						
Design						
Preconstruction				many in		i
Vehicles/Long Lead Items						
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Operations and Testing						THE REAL PROPERTY.
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1.4 Methodology

This estimate is a "Class C" estimate, meaning it has been prepared during the pre-design stage. The estimate has been prepared in the standard Federal Transit Authority (FTA) Format, which divides the project into ten main scope elements: Guideway Trackwork, Stations/Stops, Yard & Shops, Sitework/Utilities, Systems, Right of Way, Vehicles, Professional Services, Unallocated Contingency, and Finance Charges.

The methodology to complete the cost estimate consisted of the following:

- Existing utility plans and drawings, and design documents for other projects along the alignment were reviewed to determine existing conditions and design plans for future projects.
- Estimates prepared for other projects along the corridor, as well as estimates for water, power, sewer, and storm drain utility relocations were reviewed. Utility relocation estimates were reviewed and referenced to determine the proper assumptions and means and methods for the scope of work. Two one-page summary sheets of an estimate prepared for the Los Angeles Streetcar project were reviewed following completion of this estimate to analyze and report cost variances. No back-up detail, assumptions, or means and methods for previous Los Angeles Streetcar cost estimates were provided.
- The preliminary alignment was adjusted as necessary to provide proper radii on curves and to make the streetcar alignment fit within the proposed lanes of traffic.
- Once the preliminary alignment was adjusted, existing utility data was overlaid on the alignment to determine potential utility conflicts.
- Consultation meetings and calls were held with public and private utility providers. As utility-related costs are the major driver of the Los Angeles Streetcar project's overall cost, extensive early consultation was conducted to refine, revise, and narrow the estimated cost for utilities. The project team shared preliminary alignment drawings overlain with existing utilities with public utility providers. During consultation meetings, the scope of potential utility conflicts was discussed and agreed upon. Private utility providers along the alignment were also contacted to discuss the project background and obtain an overall understanding and agreement on costs associated with private utility relocation. An extensive amount of effort was put into this early coordination in order to refine and reduce the range of the utility relocation cost estimate at this early stage, given known information.
- The amount of materials needed (for example, miles of track, number of stations, etc.) were measured based on the preliminary alignment and potential utility conflicts. Detailed quantities or "take-off" were measured with the use of on-screen image reading software titled "Planswift." For a detailed description of measurement guidelines, refer to Section 6.
- Costs for each scope item were developed from historical cost data, both internal and gathered from due diligent research. Statistical analysis was performed on

several recent streetcar estimates and bid results, including Portland, Seattle, Dallas, Charlotte, Tucson, Cincinnati, Kansas City, and Detroit. All costs were appropriately adjusted with location and escalation factors in order to be comparable to Los Angeles in the current year. Additionally, during the preparation of this estimate, CBRE, a real estate firm, prepared an Independent Land Appraisal Report identifying the potential cost of acquiring a maintenance site. The Independent Land Appraisal Report is provided in Appendix 9.6.

 Contractor, management, and permit fees, overhead costs, labor costs, escalation, and contingencies were added to the estimate to account for all related costs. Per FTA guidance, an average overall contingency of 30% was used, which includes a weighted average allocated contingency of 20% and unallocated contingency of 10%.

Section 3 of this report includes a detailed description of the methodology used in preparation of the independent cost estimate, including definitions to common terms, an explanation of the estimate format, and the Basis of Estimate. The Basis of Estimate identifies all documents used for scope measurement, the methods used for quantification, sources of pricing, explanation of contractor and project mark-ups, escalation factors, and market factors.

1.5 Cost Management Strategies

Several strategies may be used to manage the overall project cost, as further described in Section 5. This estimate takes a conservative approach to account for uncertainty, unknown factors, and risks. Additionally, opportunities exist to refine the engineering of the alignment, pursue different land acquisition methods, coordinate cost saving with related projects, and use innovative project delivery strategies and technologies. These cost management strategies are further detailed below, along with issues and considerations related to each strategy.

Land Acquisition for Maintenance Facility/Depot: Land acquisition for a maintenance facility represents a cost driver for the Los Angeles Streetcar. A full site acquisition purchased at market rate may total in excess of \$30 Million (YOE for land acquisition costs is early 2017). Alternative methods of site acquisition could be used, such as joint development, in which the maintenance facility/depot could be incorporated into the design of a mixed—use project developed by either the City or by others. A joint development approach could also provide a revenue source if development rights were sold or leased. This estimate assumes full site acquisition consistent with FTA guidance.

Issues and Considerations

 A joint-developed site may present compatibility issues between the streetcar activities and other uses developed on the site.

- Joint development would require an agreement to be established and approved with a private entity. This would necessitate close coordination on funding and implementation issues.
- Joint development may require additional environmental review and costs, both for environmental review and due to schedule slippage.

Remove 1st and Grand Segment: The Locally Preferred Alternative as listed in the EIR includes a segment of the alignment that travels up 1st Street to Grand. The 1st and Grand component is a cost addition of approximately \$15M Year of Expenditure (YOE). Delaying implementation of this segment to a future phase would reduce costs, as shown in the tables below.

TABLE 5: 7TH STREET ALIGNMENT ALTERNATIVE EXCLUDING 1ST AND GRAND SEGMENT

	7th Street Alignment Excluding 1st & Grand Segment	Current Year Value	Escalated
3	ESTIMATED PROJECT COST	\$224,052,782	\$259,382,690

TABLE 6: 9TH STREET ALIGNMENT ALTERNATIVE EXCLUDING 1ST AND GRAND SEGMENT

	9th Street Alignment Excluding 1st & Grand Segment	Current Year Value	Escalated
4	ESTIMATED PROJECT COST	\$209,389,774	\$240,894,289

- Issues and Considerations
 - The City of Los Angeles would have to adopt a refined Locally Preferred Alignment to exclude the 1st and Grand segment from the initial alignment and make the appropriate adjustments to the Environmental Impact Report.
 - o Excluding this project segment will impact projected ridership.
 - o If estimated ridership changes, traffic analysis may have to be redone, resulting in additional cost and time to complete the EIR/EA.

Utility Relocations: The largest single scope cost in the estimate is for the utility relocations, which may be up to \$45M construction cost and \$67M total project cost, which includes professional services and contingencies (YOE) for the 7th Street Alignment. The following strategies could reduce this cost:

• Rail Engineering: Advancing the preliminary rail engineering may generate significant savings in the utility relocations costs. Strategic rail engineering has been conducted in other cities to dramatically reduce the utility relocations costs in other streetcar systems. For example, the current estimate includes an allowance for relocation (replacement) of all manholes within a minimum distance beyond the track slab due to maintenance accessibility. However, this is not necessarily the industry standard.

In other US cities, such as Portland and Seattle, strategic rail engineering occurred to reduce the utility impacts.

Issues and Considerations

- Maintenance to manholes during hours when the streetcar is operational would require it to be shut down, which would impact ridership.
- Conducting rail engineering before the alignment is finalized in the environmental document could result in re-work and costs if the environmental process results in a changed preferred alignment. For example if advanced conceptual design is conducted for the 7th Street Alignment but the environmental process results in selection of the 9th Street Alignment Alternative, this work would have to be redone. This issue could be addressed through phasing, by focusing advanced conceptual design on those project elements that are likely to remain fixed throughout the environmental process.
- Funding would have to be identified and committed to begin advanced conceptual design.
- Share costs for replacing utilities past their useful life with public utility agencies:
 Some utilities within the project alignment are already past their useful life and their replacement could be considered a betterment project. Agreements could potentially be made between the LADOT, Bureau of Engineering (BOE), LADWP, and the Bureau of Sanitation (BOS) in order to share some of these replacement/relocation costs. If successful agreements are reached, the utility relocations costs for the streetcar project may be reduced.
 - o Issues and Considerations
 - Agreements with public utility providers would need to be reached to pursue this strategy.
 - The utility costs estimate assumes that contractors will perform the majority of the utility relocation work, as advised by LADWP. Contractors would not perform certain electric utility work (hot power) and would be paid a prevailing wage that achieves union wage parity. If the public agencies were to require that city employee forces perform the complete utility relocation scope, the utility costs would be higher than currently assumed. The power systems scope would increase less because the base cost estimate already assumes that LADWP forces would perform much of that work. However, the utility relocation costs associated with water, sewer, and storm portions of work would almost double. On average, having LADWP forces conduct all utility relocation work would result in an increase of the utility costs by 43%

(an approximate \$27M increase in 2018 YOE for the 7th Street Alignment).

Project Schedule- Advanced Conceptual Design (ACD): Costs could be reduced by starting ACD immediately rather than the twelve month delay that is currently assumed in the project schedule and this estimate.

- Rail Engineering: Commencing rail engineering will allow for the identification of opportunities to avoid utility conflicts. This provides the highest possibility of cost reduction.
 - Issues and Considerations
 - Conducting rail engineering before the alignment is finalized in the environmental document could result in re-work and additional costs if the alignment changes. For example if advanced conceptual design is conducted for the 7th Street Alignment but the environmental process results in selection of the 9th Street Alignment Alternative, this work would have to be redone. This issue could be addressed by focusing advanced conceptual design on those project elements that are likely to remain fixed throughout the environmental process.
- Escalation: This estimate includes escalation at approximately 4% per year from the report date to the anticipated mid-point of construction date of 2018, which equates to about \$8-10 Million per year. The current schedule includes a one year delay between now and mid-2015 for preliminary design work. The reason that the project schedule includes this one year delay is strictly a function of the City's procurement process and timeline. However, the preliminary design work was to commence in early 2015, the project schedule would be reduced by approximately one year, resulting in the elimination of one year of cost escalation (4% of the project total) or \$8-10 Million. Therefore, if conceptual design were advanced, there could be a savings of \$8-10 Million. If additional funding is not allocated, the project timeline could be delayed which would result in increased associated escalation costs. Additionally, advancing preliminary design presents risk for rework and associated costs if designs need to be re-done or adjusted due to the results of the environmental review process.
 - Issues and Considerations
 - A funding source would need to be identified and committed to advance conceptual design.

Wireless or Hybrid Vehicle Power Supply: Wireless or hybrid streetcar technology presents a potential opportunity for cost savings compared to traditional overhead catenary system (OCS). Cost savings may be realized through reduced overhead catenary system costs and reduced impacts to underground infrastructure. It is expected that vehicle and charging

facilities for hybrid technology will be more expensive than conventional technology. For the purposes of this estimate, conventional technology has been assumed.

- Issues and Considerations
 - Wireless vehicles would avoid impacts on traffic poles and underground vaults and associated costs.
 - o Battery-powered vehicles are heavier, which may make grades more difficult.
 - Battery-powered vehicles may have reduced passenger capacity due to space needed for batteries.
 - Wireless technologies are relatively new and untested in the United States.
 - Wireless vehicles would avoid associated OCS infrastructure costs.
 - o Wireless technology could increase vehicle costs.

Project Delivery Method: The delivery method for the streetcar project will impact the total costs. For purposes of generating this Independent Cost Estimate, it is assumed that the chosen delivery method will be a Construction Manager at Risk (Construction Manager/General Contractor) method, utilizing a construction firm independent of the designer that will construct the system per an established engineering and specification set of contract documents. Variations in delivery methods offer different options, with corresponding benefits and risks, in the contracting and execution of the project. Other approaches to project delivery include Design-Build and Public Private Partnerships (P3). A more in-depth assessment and comparison of project delivery options, including advantages and disadvantages, can be found in Appendix 9.7. An innovative project delivery method presents opportunities to save time and cost.

- Issues and Considerations
 - o Innovative project delivery methods could accelerate the timeline by allowing the construction phase to begin concurrent with final design, reducing the project schedule, and resulting in escalation cost savings.
 - o Innovative project delivery methods could bring private investment to the project.
 - o Innovative project delivery method negotiations can be complex, requiring expertise to negotiate and coordination with the private sector in an unfamiliar context. They may require deviation from traditional City contractual agreements; can be complex and time consuming to negotiate; and must be structured to be compliant with FTA requirements if federal funds are involved.

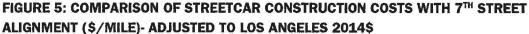
1.6 Comparison to Other Streetcar Projects

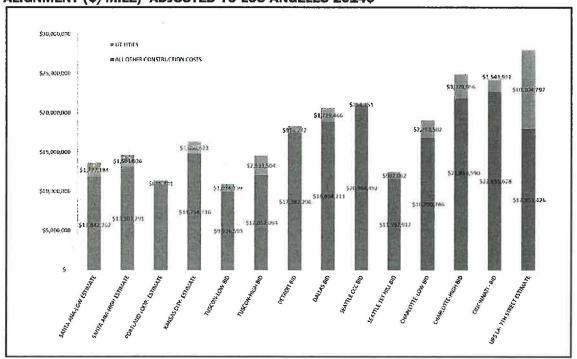
The estimate for the 7th Street Alignment was compared to several other US streetcar estimates and bids. In general, the cost per mile for the Los Angeles Streetcar for guideway and track elements; stations, stops and terminals; yards, shops, and administrative buildings; and systems are all within the range of minimum and maximum and are slightly higher than the average cost per mile for other streetcar systems. Costs related to utilities, however, are significantly above the highest cost per mile of other US streetcar estimates.

Streets in downtown Los Angeles present a unique condition as they contain older and more complex utility systems, which results in the relatively higher cost, at this stage in the process.

Utility relocations are the driving factor for the higher than average construction cost when compared to other streetcar estimates. Downtown Los Angeles, particularly historic streets, have much older and more complex utility systems than other cities in which streetcars have been constructed, and therefore have higher associated utility costs. For example, the water main on Broadway was constructed in 1893. Nevertheless, this estimate is based on conservative allowances with input from all utility companies prior to any strategic engineering or cost sharing agreements that will likely occur during the design process.

Construction Cost Total: The overall estimated costs in \$/Track Mile for the LA System are higher than all other cities compared in this study, largely due to the conservative utility relocations estimate in the current estimate. This comparison confirms that the estimate is conservative and within a reasonable range for budgeting purposes. Value engineering and strategic design should be used throughout the design process to drive down sitework and utility costs and control costs of other sections.





This chart compares construction costs only. (Excludes vehicles, land acquisition, professional services, and unallocated contingency.

September 2014

NDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

SECTION 2: PROJECT BACKGROUND AND ALIGNMENT

2. PROJECT BACKGROUND

2.1 Introduction

This is a Class C Cost Estimate developed from the advanced conceptual design plans which can be considered at a 5% design level. A traditional Class C estimate is based on a general idea of the project's size and location using cost information from other similar projects. However, the preparation of this estimate included a significantly greater amount of research and development than in traditional Class C estimates. For example, the alignment is not general, but has been refined to a specific route and position in the street. In addition, an exhaustive and robust level of effort has been conducted to examine the potential utility impacts and relocation costs, including engaging all public utility agencies and many private utility firms affected. The cost estimate includes all major components of the project, including civil construction, utility relocation, structures, stops, traction power, communication systems, vehicles, right-of-way acquisition, professional services, and contingencies. This document consists of the following sections:

- 1. Executive Summary: This section includes the cost estimate executive summary.
- 2. Project Background: This section includes the purpose and goal of this estimate and a brief history of the LA Streetcar Project, including prior planning and estimating efforts, as well as the current preferred and alternate route alignments.
- Cost Estimate Methodology: This section includes the "Basis of the Estimate," which
 describes the estimate content, inclusions, methods of measurement, sources of
 pricing, mark-ups, and adjustment factors.
- 4. Cost Estimate Summaries: This section includes both high level and detailed summary tables and graphs of cost estimates for the base and alternate alignments, including the official Federal Transportation Administration FTA Summaries. (Detailed estimates, unit price backup, and escalation calculations are provided in Appendices 9.1 through 9.5.)
- 5. Cost Reduction Strategies: This section discusses preliminary concepts to reduce project cost.
- Detailed Scope of Estimate, Assumptions, and Pricing Sources: This section defines
 the content of each subsection of the estimate, assumptions used, methods of
 measurement, and sources for the pricing.
- 7. Separate Related Streetscape and Transit Projects: This section discusses several projects that share work area with the LA Streetcar.
- 8. Comparison with Other Streetcar Systems: This section compares this estimate to streetcar estimates and bid prices of similar streetcar systems in other cities.
- 9. Appendices: This section includes the detailed cost estimates of the preferred and alternate alignments as well as all relevant back-up calculations.

2.2 Purpose and Goal

This estimate was prepared for the City of Los Angeles Department of Transportation and Bureau of Engineering for purpose of analyzing the project's feasibility and setting the project budget. The purpose is to provide the City of Los Angeles Department of Transportation and Bureau of Engineering, elected officials, and other interested agencies and persons with an understanding of the probable cost for all major components of the project, prepared by independent experts. The estimate is a preliminary estimate based on conceptual engineering at a 5% Design level, also known as a Class C Estimate. The detailed scope of work, assumptions, and means and methods of construction have been based on similar modern streetcar systems in other US cities.

The goal of this estimate to capture the Fair Market Value for a modern streetcar system based on the given preferred alignment and all known restrictions and requirements. This estimate is representative of the most realistic price under stable bidding conditions for a project with the given assumptions and design criteria. Any variance to the assumptions listed in this report could be the cause for a variance in the design and construction costs for the project. This estimate is not intended to be a prediction of an under-designed streetcar system or a low-bid estimate. Likewise, this estimate is not intended to be a prediction of an over-designed system or open ended contract.

2.3 Project and Estimate History

Streetcars served Downtown Los Angeles as a popular means of transportation in the early and mid-1900s. By 1963 streetcar service in Los Angeles was abandoned, in part due to the rising convenience of personal automobiles and adoption of diesel buses. More recently, Downtown Los Angeles' stakeholders have explored reviving streetcar service. This concept has been considered intermittently for a decade by the Community Redevelopment Agency (CRA), Metro, former Central City Association Red Car Advisory Committee, and elected officials.

In 2006 the CRA/LA commissioned a Red Car study for Downtown Los Angeles that determined that streetcar service would be feasible. In 2010 Los Angeles Streetcar Inc. (LASI) was formed to advocate for the project. City of Los Angeles elected officials as well as the Department of Transportation, Bureau of Engineering have worked in collaboration with advocacy groups like LASI to obtain funding, conduct environmental review, and complete alternatives analysis for the streetcar. Additionally, in 2012 Downtown Los Angeles residents voted to approve a Community Facilities District (special tax) that will provide \$62.5M in local funding for the project construction.

As the Downtown LA Streetcar has gained momentum and support, additional studies and cost estimates have been conducted to further refine and define the project. Early cost estimates for the project were based on cost-per-mile estimates of other streetcar projects

(in Portland, OR), with no allowance for inflation. In 2013 HDR, Inc. conducted a cost estimate for the Downtown LA Streetcar, including estimates for unexpected costs, inflation, and utility relocation costs provided by the utility providers. The 2013 estimate consisted of a low to high end cost range. This document was prepared independently from the prior estimate, but has built upon the prior research and coordination performed with the various City agencies and private utilities to provide a single target budget, in lieu of a range, based on agreed upon assumptions and allowances that have been deemed to be conservative and most realistic for the expected outcome of the project with the known information.

The Downtown LA Streetcar is planned as a modern, fixed-rail streetcar system that will offer a convenient mode of transportation connecting many of Downtown's key destinations. It is intended to promote revitalization and reactivation of historic resources (such as Broadway's historic theaters), employment, housing, entertainment, tourism, and general economic development. It will link and enhance activity centers within Downtown and reinforce the area's diverse mix of commercial, residential, and historic districts.

2.4 Preferred and Alternative Alignments

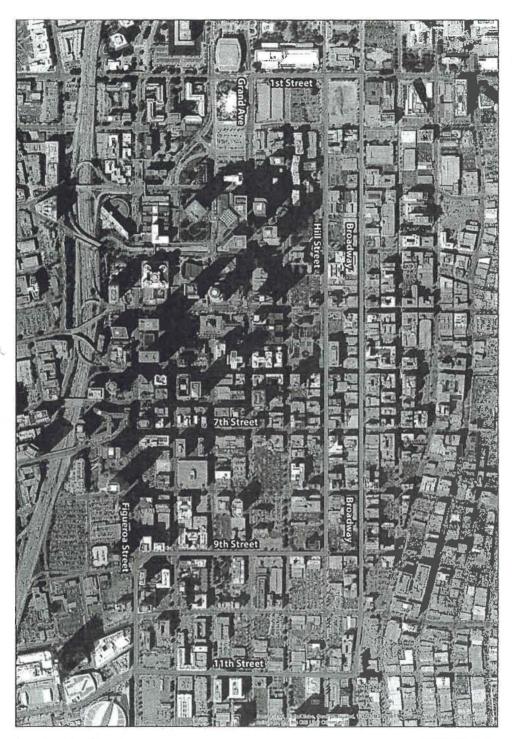
Two alignments have been analyzed in this cost estimate. Both alignments share a similar structure: heading northbound on Hill Street to First Street, southbound on Broadway, westbound on 11th Street, extending up First Street to Grand Avenue, and northbound on Figueroa Street. Two alternatives exist to connect Broadway and Figueroa- the 7th Street Alignment and the 9th Street Alignment Alternative. The 7th Street Alignment is the Locally-Preferred Alternative as identified in the Small Starts Project Development submittal to the FTA and the proposed project as being evaluated in the Environmental Impact Report/Environmental Assessment (EIR/EA). The 9th Street Alignment Alternative is a project alternative evaluated in the EIR/EA. The 7th Street Alignment and 9th Street Alignment Alternative differ in route, costs, and ridership. The 7th Street Alignment provides direct connectivity to the Metro station and shopping at 7th Street and Figueroa. Selection Additional alignment alternatives that exclude the 1st and Grand segment as a cost management strategy are presented in this report. The figures below depict the 7th Street Alignment, the 9th Street Alignment Alternative and the 7th Street Alignment and 9th Street Alignment Alternative without the 1st and Grand segment.



Los Angeles Streetcar 7th Street Alignment

0 0.125 0.25 0.5 Miles

FIGURE 6: 7TH STREET ALIGNMENT



Los Angeles Streetcar 9th Street Alignment

0 0.125 0.25 0.5 Miles

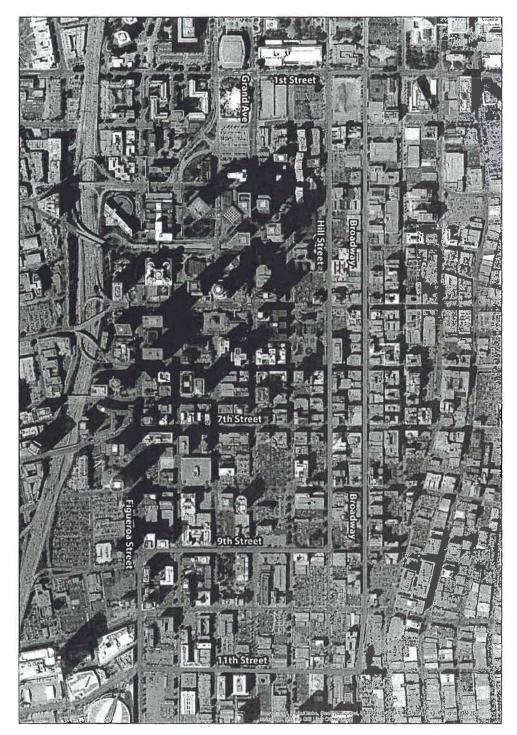
FIGURE 7: 9TH STREET ALIGNMENT ALTERNATIVE



Los Angeles Streetcar 7th Street Alignment Excluding 1st and Grand Segment URS 0
0 0.125 0.25 0.5
Miles

FIGURE 8: 7TH STREET ALIGNMENT EXCLUDING 1ST AND GRAND SEGMENT

September 2014



Los Angeles Streetcar 9th Street Alignment Excluding 1st and Grand Segment 0 0.125 0.25 0.5 Miles

FIGURE 9: 9TH STREET ALIGNMENT ALTERNATIVE EXCLUDING 1ST AND GRAND SEGMENT

INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

SECTION 3: COST ESTIMATE METHODOLOGY

3. COST ESTIMATE METHODOLOGY

This section of the report identifies the methodology used in preparation of the independent cost estimate, including definitions to common terms, an explanation of the estimate format, and the Basis of Estimate. The Basis of Estimate identifies all documents used for scope measurement, the methods used for quantification, sources of pricing, explanation of contractor and project mark-ups, escalation factors, and market factors.

3.1 Definitions

- a. Class C Cost Estimate: an estimate prepared during the pre-design stage when the project is between 5%-20% complete. A Class C estimate is based on a general idea of the project's size and location using cost information from other similar projects.
- b. Fair Market Value: The anticipated project value for delivery of a project with complete and responsible bid with a fair overhead and profit, in competitive, yet stable bidding conditions.
- c. Construction Costs: Costs to construct the project including the labor, equipment, and material costs; subcontractors' overhead and profit; and the general contractor's overhead and profit.
- d. **Project Costs:** Complete project cost, including the construction costs, vehicles, right-of-way acquisitioning, design, and construction and project management fees.
- e. **Escalation:** An adjustment factor that is meant to account for expected labor and commodity increases between the time of the estimate and the mid-point of construction.
- f. **Allocated Contingency:** Also known as design contingency, this is an allowance carried within the estimate detail that accounts for expected design development and unknowns at the time of the estimate.
- g. Unallocated Contingency: Also known as construction contingency, this is an allowance carried at the executive summary level to account for unexpected changes that may occur during construction, including unknown or undocumented site conditions.

3.2 Estimate Format

The estimate has been prepared in the standard Federal Transit Authority (FTA) Format. This format separates major scope elements into 10 sections:

- 10: Guideway Trackwork
- 20: Stations/Stops
- 30: Yard & Shops
- 40: Sitework/Utilities
- 50: Systems
- 60: Right of Way
- 70: Vehicles
- 80: Professional Services

- 90: Unallocated Contingency
- 100: Finance Charges

3.3 Basis of Estimate

3.3.1 Information Provided to URS

Drawings:

- Existing Utility Composite Plans, prepared by BA, Inc., dated 2/18/14. These
 drawings were used by URS to indicate the alignment location and quantify
 the utility relocation scope.
- Water Utility Drawings, prepared by Los Angeles Department of Water and Power (LADPW) Water Department, received 5/22/14. These drawings included additional water utilities not indicated in the BA Inc. drawings.
- Broadway Streetscape Masterplan Design and Other Documents, dated 2008-2013, prepared by Melendrez Architects and IBI Group. These drawings were reviewed to research scope expected to be included in the Broadway Streetscape Project.
- My Figueroa Masterplan Design and Other Documents, dated 2014, prepared by KPFF Consulting Engineers and Melendrez Architects. These drawings were reviewed to research scope expected to be included in the My Figueroa Streetscape Project.

Estimates

- Los Angeles Department of Water and Power (LADWP) Water Utility Relocation Estimate- Dated 6/13. This estimate was reviewed and referenced in reconciliation meetings with LADWP to determine the proper assumptions and means and methods for the scope of work.
- LADWP Power Utility Relocation Estimate Dated 6/13. This estimate was reviewed and referenced in reconciliation meetings with LADWP to determine the proper assumptions and means and methods for the scope of work.
- o LA Bureau of Sanitation (BOS): Sewer and Storm Drain Cost Estimates- Dated June, 2013. This estimate was reviewed and referenced in reconciliation meetings with the BOS and Bureau of Engineering (BOE) to determine the proper assumptions and means and methods for the scope of work.
- Broadway Streetscape Rough-Order-of-Magnitude Estimate, prepared by Cumming Corporation, dated 2/8/10. This estimate was reviewed to research scope expected to be included in the Broadway Streetscape Project.
- My Figueroa Streetscape Estimate, prepared by LADOT, dated 2/13/14. This
 estimate was reviewed to research scope expected to be included in the My
 Figueroa Streetscape Project.
- HDR, Inc. Preliminary Estimate dated 9/18/13, received 2/20/14-. Two onepage summary sheets were shared with URS. No back-up detail, assumptions, or means and methods were provided. Following completion of URS's bottom-

up estimate, HDR's estimate was compared to the URS estimate to analyze and report cost variances.

3.3.2 Alignment Concept Development Performed by URS

- Preliminary alignment drawings: Alignment adjustments The URS team walked the
 project alignment and made adjustments as necessary to provide proper radii on
 curves and make the streetcar alignment fit within the proposed lanes of traffic. The
 alignment needed to be adjusted in many areas in order to make the alignment fit
 within the future traffic lanes and avoid potential conflicts with vehicular traffic.
- Utility overlay: The URS team utilized the existing utility data provided by past consultants and built upon this information in order to provide comprehensive existing utility plans. The existing plans provided to URS by other consultants were in both Microstation and AutoCAD format. In order to comply with the City of Los Angeles Bureau of Engineering Standards and provide a comprehensive set of base sheets URS converted all files to AutoCAD format. URS then cleaned up the plans to comply as much as possible with the City of Los Angeles Bureau of Engineering CAD standards. The new alignment was than overlaid on the existing utility base map to determine where potential utility conflicts may occur with the streetcar alignment.

3.3.3 Quantity Take-off Procedures and Software

All scope has been quantified and presented in the FTA format at an approximate 5% design level of detail. In some cases, quantities have been developed to a further level of detail based on design assumptions, such as guideway, facilities, and utilities. A complete detailed quantity take-off has been performed for the utility relocations based on the existing utility information provided from BA, Inc. and other documentation and information provided by LADWP and LA Bureau of Engineering. Allowances have been carried for undeveloped scope based on best practices and experienced judgment. The track alignment length has been quantified based on the preliminary alignment drawings and separated into 11 segments or "links." The scope of work has been quantified and segregated into these 11 segments so that costs may be broken down into various groupings or alternatives. Detailed quantities or "take-off" have been measured with the use of on-screen image reading software titled "Planswift." For a detailed description of measurement guidelines, refer to Section 6.

3.3.4 Sources for Pricing

Unit costs have been developed from historical cost data, both internal and gathered from due diligent research. Statistical analysis was performed on several recent streetcar estimates and bid results, including Portland, Seattle, Dallas, Charlotte, Tucson, Cincinnati, Kansas City, and Detroit. Many unit prices are based on the average or more conservative higher-end of the statistical averages from these referenced projects. All costs have been appropriately adjusted with location and escalation factors in order to be comparable to Los

Angeles in the current year. Cost estimates for these systems were obtained by acquiring bid results from the lead agencies as well as in-house estimates performed by URS.

Statistical analysis was performed on normalized \$/Track Mile and \$/Track Foot costs from these historical estimates and cost data. Costs were adjusted to the Los Angeles region by applying a city index adjustment as published in the industry standard RS Means Cost Data. Costs were adjusted to the current date by applying appropriate escalation factors which are discussed in the escalation section of this report. In addition to historical data, detailed unit costs were derived from industry accepted data base sources and trade publications, such as RS Means.

Pricing is also based on communication with experts in the public transit industry and streetcar projects, material suppliers, and trade subcontractors. These sources were used as a basis along with the estimator's professional judgment to adjust for this specific project type, location, size, and complexity. Unit costs, section costs, and bottom line costs were analyzed by an in-house peer reviewer for an added level of quality control. Additionally, during the preparation of this estimate, CBRE, a real estate firm, prepared a Valuation Report identifying the potential cost of acquiring a maintenance site. The Valuation Report is provided in Appendix 9.6.

3.3.5 Contract Procurement & CMGC Fee

The General Contractor's fee includes the "profit" for performing the work at-risk and the "home office overhead" supporting the on-site activities. The FTA standard format does not include a specific location for the contractor's fee. Therefore, the contractor's fee has been included throughout the estimate at the unit cost level. The estimate includes a 5% mark-up over the direct construction cost for the general contractor's fee. A typical project of this size and scope may include a profit mark-up between 3-5% or as negotiated with the owner. This estimate assumes the conservative higher end of the range.

3.3.6 General Conditions & General Requirements

General conditions (GCs), also known as "Overhead," are indirect costs that are <u>an inherent</u> <u>part of the "contract."</u> These include the contractor's costs to perform the work, including staffing, mobilization, insurances, bonds, site offices, supplies, small tools, trucks, disposables, etc. The FTA standard format does not include a specific location for the contractor's General Conditions. Therefore, the contractor's General Conditions have been included throughout the estimate at the unit cost level. The estimate includes a total GC mark-up of 15%, consisting of 13.5% mark-up for indirect costs and a 1.5% Mark-up for Bond, applied to the direct construction cost. A typical project of this size and scope may include a General Conditions Mark-up between 10-20%, depending on the project conditions. This estimate assumes the mid-range allowance.

General requirements are indirect costs that are <u>an inherent part of the "specifications"</u> and are specific to the type of contract and work performed. These include project requirements such as traffic control, temporary utilities, erosion control, and quality and safety requirements. These costs are carried in the FTA section 40.08 "Temporary Facilities and other indirect costs during construction."

3.3.7 Subcontractor / Trade Work Mark-up

The Subcontractor Overhead and Profit (OH&P) are included within the individual unit costs throughout the estimate. The average subcontractor OH&P for this type of project is typically between 15-20% over the bare trade cost. This mark-up is meant to account for the subcontractor's general conditions, management, small tools, home office overhead, and profit.

3.3.8 Labor, Material, & Equipment

- Material prices are based on trade publications, market analysis, and in-house research including discussions with manufacturers, vendors, and subcontractors.
- Sales taxes is included at 9% on material.
- Construction Equipment costs includes rental and operating fees.
- All trade labor is assumed to be Prevailing Wage Rates.
- Some specific electrical utility scope must be performed by LADWP personnel. The
 wages carried for this work includes additional mark-ups and productivity factors as
 specified by LADWP personnel.

3.3.9 Buy America

- Material prices take into account the FTA requirement for Buy America.
- The Buy America requirements apply to any transportation project applying for federal funding.
- One particularly requirement for rolling stock (rail), used in the estimate, which is a
 heavier rail manufactured in USA than its counterpart manufactured elsewhere, which
 will require a 19" thick slab in lieu of a 12" slab.

3.4 Construction Schedule and Phasing

- This estimate assumes a 24 month construction duration. The construction phase is scheduled to occur between the second quarter of 2017 and the first quarter of 2019.
- A comprehensive project schedule has been developed including the pre-design, design, construction, and testing durations and subtasks. For the detailed project schedule, please refer to Appendix 9.9.
- The project is anticipated to start service in 2019. This service date has assumed a Construction Manager/General Contractor (CM/GC) project delivery method. Further, this start date assumes that the project will qualify for Federal Small Starts Funding,

September 2014

which has a project cap of \$250M. In order to meet this requirement, project costs must be reduced to below \$250M, or the scope of the project must be adjusted to reduce costs. Moreover, the schedule assumes that a mechanism for eliminating the capital budget shortfall will be identified in the next twelve months. One potential scenario is likely to include investigation of a public-private partnership (P3), which could either shorten or lengthen the project schedule, depending on when a P3 team is brought on board. If conceptual design can be advanced, as recommended in Section 5, and the P3 or CM/GC schedule is linked to this design work, there is the potential to shorten the project schedule. The current schedule is subject to change as alternative project delivery strategies are explored and refined.

The startup date is based on the following assumptions:

- Funding will be identified/allocated for the project engineering and construction.
- The environmental process will be complete by early 2016.
- Bid and selection of a project delivery team will each take no more than one year.
- Vehicle selection and delivery will be scheduled to coincide with construction activity.
- Design activities will begin in early 2016.

Project delivery is anticipated to occur in three main phases: pre-construction, construction, and start-up. The pre-construction phase, which includes the environmental review process, advanced conceptual design, and program management, is essentially now underway and should conclude by mid 2017. This phase must also include the selection of a project delivery team which will consist of, at minimum, a final design/engineering team, and a general contractor. Construction is anticipated to begin in mid 2017 and conclude in mid 2019, and includes vehicle delivery, utility relocation, and track and station construction. Finally, startup activities are anticipated to conclude in late 2019, and include station finishes and landscaping, and vehicle testing and training. A simplified project schedule is presented below. A comprehensive project schedule has been developed (Appendix 9.9) including the pre-design, design, construction, and testing durations and subtasks.

3.5 Cost Escalation Methodology and Calculations

The unit prices in the estimate detail are priced in current value at the date of the estimate. An adjustment for cost escalation has been performed at the summary level to account for the anticipated cost increases between the report date and the date of expenditure. The main elements of the estimate have been escalated to the following milestone dates:

- Construction costs Escalated to Construction Mid-point- July, 2018 4% per year-17.27%
- Vehicle Costs- Escalated to Vehicle Procurement Date-December, 2016- 4% per year-10.55%

September 2014

- ROW Acquisition costs

 Escalated to ROW Purchase Date-August, 2016- 4% per year-10.55%
- Professional Services- Escalated to Construction Start date- July, 2017- 2% per year-7.85%

Escalation adjustment is meant to account for normal market growth in the project city. The escalation factor is calculated based on long term commodity and labor escalation rate data and is not meant to forecast or anticipate rapid shifts in the market, such as recessions, depressions, or spikes. Projects that are put on hold for more than a few months should be re-assessed to determine if current escalation factors are still accurate with those used at the time of the estimate.

The long range annual escalation factor has been calculated by aggregating escalation procured from several government and consulting sources, including California Department of Transportation, American General Contractors, Turner Construction, Cumming Corporation, Davis Langdon, Engineering News Record, and the Los Angeles Bureau of Engineering. The average escalation factor calculated when aggregating the data is 3.99%. This estimate rounds the escalation rate up to 4% per year for long range estimating purposes. The table below depicts the reference long-term escalation rates, sources, and the average escalation rate of all the reference sources.

TABLE 7: LONG-TERM ESCALATION RATES AND AVERAGE

Source	Long-Term Rate
CA Department of Transportation	4.55%
Associated General Contractors of America	3.99%
Turner	3.29%
Cumming	4.00%
Davis Langdon	3.10%
LA Bureau of Engineering	5.00%
Engineering News Record- LA	4.02%
Average	3.99%

The following graph shows the average annual escalation data during the past 12 years and the projected escalation rates through 2018.

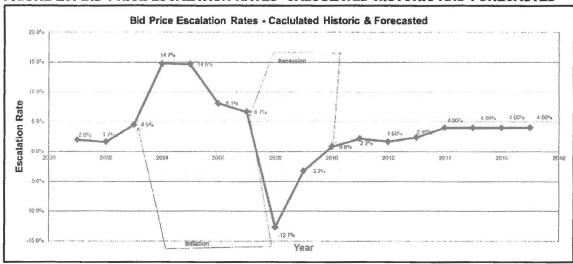


FIGURE 10: BID PRICE ESCALATION RATES- CALCULATED HISTORIC AND FORECASTED

Sources: Escalation rates have been calculated by aggregating long range historic trends and forecasts from the following sources: Caltrans Average Highway Contract Prices 2000-2012, ENR- LA BCI & CCI 2000-2012, AGC Construction & Materials Outlook, May 1, 2013.

This graph represents the market volatility between 2001 and 2010 as well as the anticipated long term trend for the future. The graph highlights the rapid inflation between 2003 and 2007 as well as the recession between 2007 and 2010. The overall state of the construction market in in the US and California is on the upturn after several years during the recession and post-recession lag. The upturn of the construction industry lagged behind the upturn of stock market in 2009 and the upturn of the general US economy in 2010 as public agencies, owners and developers hesitated on new construction until the market regained stability. In 2012, the construction market returned to growth, increasing steadily after falling 24% from 2008-2011. Design billings, an indicator of future construction activity, have also been increasing, rising steadily in since 2012 after three flat years.

3.6 General Bidding Trends / Market Factor

This estimate has not made an adjustment factor an unstable market or bidding climate. It is the intention of this estimate to capture the "FAIR MARKET VALUE" under "NORMAL" bidding conditions for the average "complete and responsible" bid. The estimate reflects probable construction costs obtainable in a competitive and stable bidding market. This estimate is based upon a minimum of three (3) subcontractor bids per trade. This estimate is a determination of fair market value for the construction of the project and is not intended to be a prediction of low bid. Experience indicates that a fewer number of bidders may result in a higher bid amount, and more bidders may result in a lower bid result. Likewise, it is no the intension for this estimate to be the prediction of an open-ended uncompetitive bid.

INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

SECTION 4: ESTIMATE SUMMARIES

4. ESTIMATE SUMMARIES

TABLE 8: EXECUTIVE SUMMARY OF PROJECT COSTS

	SUMMARY 1: EXECUTIVE PROJECT SUMMARY					
15.19	7th Street- Preferred Alignment	Current Year Value	Escalated			
1	ESTIMATED PROJECT COST	\$236,791,889	\$274,346,481			
	9th Street- Alternative Alignment	Current Year Value	Escalated			
2	ESTIMATED PROJECT COST	\$222,128,881	\$255,858,080			

Notes

- 1. ITEM #1 represents the total project cost of the streetcar and associated utility relocations for the preferred alignment on 7th Street, including the full acquisition cost for the operations & maintenance facility. This alignment corresponds to the preferred alignment in the Environmental Impact Report.
- 2. ITEM #2 represents the total project cost of the streetcar and associated utility relocations for the preferred alignment on 9th Street, including the full acquisition cost for the operations & maintenance facility. This alignment corresponds to the alternative alignment in the Environmental Impact Report.
- 3. The Current Year refers to 2014. This is the approximate current market value if the project were in construction this year.
- 4. The escalated value includes anticipated commodity and labor escalation from the date of the report to the estimated date of expenditure, which is assumed to a mid-point of 2018.
- 5. All costs include 15-30% design contingency and 10% construction contingency. The average total contingency is 30%.
- 6. All costs include construction costs, professional services, vehicles, and land acquisition.

TABLE 9: DETAILED SUMMARY OF PROJECT COSTS- 7TH STREET ALIGNMENT

	SUMMA	RY 2: DETAILED	PROJECT SUMA	RY- PREFERR	ED ALIGNMEN	T		
7TH ST ALIGNMENT								
A	В	С	D	E	F	8	H=C+D+E+F+G	
Item #	PREFERRED ALIGNMENT-7TH STREET ALIGNMENT-BASE YEAR	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES	LAND COST	VEHICLE COST	TOTAL PROJECT COST	
1	Streetcar Construction Costs	\$69,296,586					\$69,296,586	
2	Utilities Construction Costs		\$37,015,593	\$1,991,219			\$39,006,813	
3	Land Acquisition Costs - Full acquisition				\$31,362,800		\$31,362,800	
4	Vehicles				200 IO2 E	\$38,776,000	\$38,776,000	
5	Professional Services	\$23,560,839	\$12,585,302	\$677,015			\$36,823,155	
6	Unallocated Contingency	\$9,285,742	\$4,960,089	\$266,823	\$3,136,280	\$3,877,600	\$21,526,535	
Α	TOTAL - BASE YEAR COST	\$102,143,167	\$54,560,984	\$2,935,057	\$34,499,080	\$42,653,600	\$236,791,889	
item #	PREFERRED ALIGNMENT- 7TH STREET ALIGNMENT- ESCALATED (2018)	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES ALLOWANCE	LAND COST	VEHICLE COST	TOTAL PROJECT COST	
7	Streetcar Construction Costs	\$81,398,143					\$81,398,143	
8	Utilities Construction Costs		\$43,479,783	\$2,338,954			\$45,818,738	
9	Land Acquisition Costs				\$35,296,172		\$35,296,172	
10	Vehicles					\$43,639,100	\$43,639,100	
11	Professional Services	\$27,675,368	\$14,783,126	\$795,245			\$43,253,739	
12	Unallocated Contingency	\$10,907,351	\$5,826,291	\$313,420	\$3,529,617	\$4,363,910	\$24,940,589	
В	TOTAL - ESCALATED COST	\$119,980,862	\$64,089,201	\$3.447,619	\$38,825,789	\$48,003,010	\$274,346,481	

FIGURE 11: 7th STREET YEAR OF EXPENDITURE COST BREAKDOWN

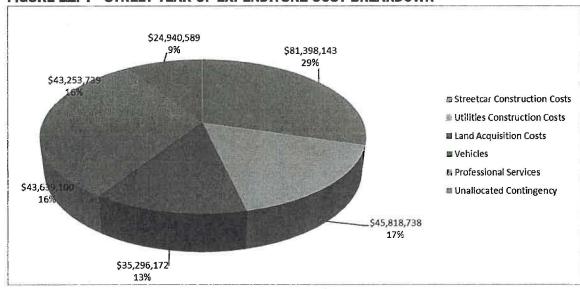


TABLE 10: DETAILED SUMMARY OF PROJECT COSTS- 9TH STREET ALIGNMENT ALTERNATIVE

SUMMARY 3: DETAILED PROJECT SUMARY- ALTERNATIVE ALIGNMENT 9TH ST ALIGNMENT ALTERNATIVE							
Α	В	С	D	E	F	G	H=C+D+E+F+B
Item #	9TH STREET ALIGNMENT ALTERNATIVE- BASE YEAR (2014)	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES	LAND COST	VEHICLE COST	TOTAL PROJECT COST
1	Streetcar Construction Costs	\$68,705,760					\$68,705,760
2	Utilities Construction Costs		\$27,738,010	\$1,911,861			\$29,649,87
3	Land Acquisition Costs				\$31,362,800		\$31,362,800
4	Vehicles					\$38,776,000	\$38,776,000
5	Professional Services	\$23,359,958	\$9,430,923	\$650,033			\$33,440,91
6	Unallocated Contingency	\$9,206,572	\$3,716,893	\$256,189	\$3,136,280	\$3,877,600	\$20,193,53
Α	TOTAL - BASE YEAR COST	\$101,272,291	\$40,885,827	\$2,818,083	\$34,499,080	\$42,653,600	\$222,128,88
Α	TOTAL - BASE YEAR COST	\$101,272,291	\$40,885,827	\$2,818,083	\$34,499,080	\$42,653,600	\$222,128,88
	9TH STREET ALIGNMENT ALTERNATIVE- ESCALATED (2018)	\$101,272,291 STREETCAR CONSTRUCTION	\$40,885,827	\$2,818,083 PRIVATE UTILITIES ALLOWANCE	\$34,499,080 LAND COST	\$42,653,600	\$222,128,88 TOTAL PROJECT COST
	9TH STREET ALIGNMENT	STREETCAR		PRIVATE UTILITIES			TOTAL PROJECT
item #	9TH STREET ALIGNMENT ALTERNATIVE- ESCALATED (2018)	STREETCAR CONSTRUCTION		PRIVATE UTILITIES			TOTAL PROJECT COST \$80,704,138
item#	9TH STREET ALIGNMENT ALTERNATIVE- ESCALATED (2018) Streetcar Construction Costs	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES ALLOWANCE			TOTAL PROJECT COST \$80,704,138 \$34,827,75
Item # 7 8	9TH STREET ALIGNMENT ALTERNATIVE- ESCALATED (2018) Streetcar Construction Costs Utilities Construction Costs	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES ALLOWANCE	LAND COST		TOTAL PROJECT COST
7 8 9	9TH STREET ALIGNMENT ALTERNATIVE- ESCALATED (2018) Streetcar Construction Costs Utilities Construction Costs Land Acquisition Costs	STREETCAR CONSTRUCTION	PUBLIC UTILITIES	PRIVATE UTILITIES ALLOWANCE	LAND COST	VEHICLE COST	**TOTAL PROJECT COST
7 8 9	9TH STREET ALIGNMENT ALTERNATIVE- ESCALATED (2018) Streetcar Construction Costs Utilities Construction Costs Land Acquisition Costs Vehicles	STREETCAR CONSTRUCTION \$80,704,139	\$32,582,016	PRIVATE UTILITIES ALLOWANCE \$2,245,738	LAND COST	VEHICLE COST	\$80,704,13 \$34,827,75 \$35,296,17 \$43,639,10

FIGURE 12: 9th STREET YEAR OF EXPENDITURE COST BREAKDOWN

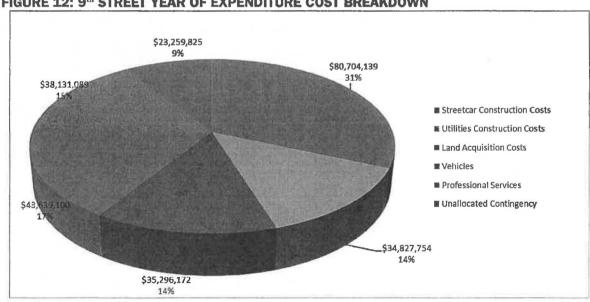


TABLE 11: FTA WORKSHEET

LA Histor	eles Department of Transportation ric Streetcar Service		Se,	gments 101, 102	, 103, 104, 105,	107, 108, 110, 111	1	F	stimate Date		9/17/14
	uc othesical pelvice										
A	Cost Estimate								of Base Year of Mid-Point		2014
	3	Constitu	Unit	E Cons Vens	I Desa Vaca	S S	H_	Base Year	Base Year	Escalation	K
		Quantity	Orga	Base Year Dellars w/o Contingency (X000)	Base Year Dollars Aircoated Contingency (X000)	Base Year Dolars TOTAL (XG00)	Base Year Dellars Unit Cost (X000)	Dailars Parcentage of Construction Cost	Dollars Dollars Percentage of Total Proojat Cost	Excherch	Mid-Point Y Dollars TOT
	AY & TRACK ELEMENTS (TF)	3.86	M	14,159	2,761	16,920	4,383	16%	7%	2,955	19,
	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	-	M M				-				
10.03	Guideway At-grade in mixed traffic	3.86	M	7,876	1,535	9,412	2,438			1,544	11
	Guideway: Aerial structure Guideway: Built-up flü		M		-					-	
	Guideway: Underground out & cover		M								
	Guideway: Underground tunnel Guideway: Retained out or fill		M		-	<u>:</u> -	-:-				
	Track Direct fixation		M		-	-17		3 (d)	De Prim	Acres e	
	Track: Embedded Track: Ballasted	3.85	M	4,051	790	4,841	1,254			845	5
	Track Special (switches, turnouts)	3.86	M	1,620	316	1,936	501		201	338	2
	Track: Vibration and noise dampening	3.36	M	511	119	731	199		414	126	
	S, STOPS, TERMINALS, INTERMODAL (number) At-grade station, stop, shelter, mail, terminal, platform	25 25	EA EA	2,108 2,108	422 422	2,529 2,529	101	2%	1%	442	2
20.02	Aenal station, stop, shelter, mall, terminal, platform		EA				SETTE		deposit of	V E3/3-3	140
	Underground station, stop, shelter, mail, terminai, platform Other stations, landings, terminals: intermodal, ferry, trolley	et c	EA EA	-		Nell-Hills			16.000		SHUMA
20.05	Joint development		EA		-	Life bases	3.1.	1150	11.00	Carling.	166
	Automobile parking multi-story structure Elevators, escalators		EA EA		-						
	FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	1	EA	7,614	1,523	9,137	9,137	8%	4%	1,596	10
	Administration Building: Office, sales, storage, revenue coun		EA		-				r = 1		77.5
	Light Maintenance Facility Heavy Maintenance Facility	1	EA EA	3,984	797	4,781	4,7B1		e de la companya de l	835	
30 04	Storage or Maintenance of Way Building		EA	-	-		- 7 / - 1		W-78-4-5-5	Noviet de	1.04
	Yard and Yard Track K & SPECIAL CONDITIONS	3.86	EA M	3,630 46,634	725 10,909	4,356	4,356 14,907	53%	24%	761	67
	Demolition, Clearing, Earthwork	3.86	M	1,081	324	1,405	364	3375	2476	245	6/
40.0Z	Site Utilities, Utility Relocation	3.86	14	30,812	6,162	36,975	9,578		O HALLOW THE	6,457	43
	Haz. mat'l, contam'd soil removal/mitigation, ground water Environmental mitigation, e.g. wetlands, historic/archeologic	3.85 3.86	M	350 1,219	108 366	1,595	411			277	
40 05	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	3.85	M			888	230			Lat. 31	SAME
40 07	Automobile, bus, van accessways including roads, parking	3.86	N.	683	205	800	230			155	1
	lots	3.86	М	8,133	2,440	10,573	2,739		An East A	1,846	12
40.08 SYSTEMS	Temporary Facilities and other indirect costs during construc	3.86	M M	4,345 18,479	1,304 3,696	5,649	1,463 5,744	20%	9%	987	26
	Train control and signals	3.86	М	360	72	432	112	DIN STREET		75	
	Traffic signals and crossing protection Traction power supply: substations	3.86	M	5,990	1,198	7,188 5,220	1,862		COLUMN TO SERVICE	912	1 2 1
	Traction power distribution: catenary and third rail	3.86	84	6,867	1,373	8,240	2,135		E CONTRACTOR A	1,439	
	Communications	3.85	M	912	182	1,095	284			191	
	Fare collection system and equipment Central Control	3.86	M							The Asset	
estruction	s Subtotal (10 - 50)			88,993	19,310	108,303	28,056	100%	46%	18,913	12
	ND, EKISTING IMPROVEMENTS Purchase or lease of real estate	3,86	M	27,272	4,091	31,363 31,363	8,125 8,125	VC(5)-(9.94)	13%	3,933	35
	Relocation of existing households and businesses	3.60	M	21,212	4,031	DANGE II-Y	- 0,123			3,553	3:
	(number)	10	EA	32,861	5,915	38,776	3,878	ET STATE	16%	4,863	45
	Light Rail Heavy Rail	8	EA	32,461	5,843	38,304	4,788		Test Section	4,804	4.
70.03	Commuter Rail	- 0						SHARRE	85.65	100	F
- 1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	Bus Other	2	EA	400	72	472	236			- 59	7 114
70.06	Non-revenue vehicles		- CA	- 400			230	a New Line			J-5 ((1)
	Spare parts						Marie 4		ALEXANDER FOR THE	ATTENDED	I ARCHUS
	ONAL SERVICES (applies to Cats. 10-50) Froject Development	10.03%		30,258 8,899	6,565 1,931	36,823 10,830	9,539	THE PARTY	15%	6,431	43
80,02	Engineering (not applicable to Small Storts)	X/2005	Ш				1 + 1 - 1	- 17 T	2-37		
	Project Management for Design and Construction Construction Administration & Management	9.00%		5,340 8,009	1,159	6,49B 9,747	108,303	SUPPLEMENT OF		1,135 1,702	11
80.05	Professional Liability and other Non-Construction insurance	2.00%	100	1,780	396	2,166	108,303		Sec. V	378	7
	Legal, Permits; Review Fees by other agencies, cities, etc.	3.00%	-	2,670	579 579	3,249	108,303	PER CO		567 567	3
	Surveys, Testing, investigation, inspection Start up	1.00%		2,670 893	193	3,249 1,083	108,303		1000	189	
itotal (60	-80)	EESHAR	(Pall)	90,391	16,571	106,962	27,709	F-24-3 D	45%	15,227	122
rtotal (10	-80)		CHIC	179,384	35,881	215,265	55,765	Marie See	91%	34,141	249
	ATED CONTINGENCY			17,938	3,588	21,527	204.03		9%	3,414	24
total (10	- 90)			197,322		236,792	61,341		100%	37,555	274
	E CHARGES t Cost (10 - 100)		-	197,322	39,469	236,792	61,341		100%	37,555	274
	tingency as % of Base Yr Dollars w/o Contingency		5000	191,322	39,409	20.00%	01,541		100%	37,555	274
slincated C	Contingency as % of Base Yr DoHars w/o Contingency					10.00%					
	ency as % of Base Yr Dollars w/o Contingency Contingency as % of Subtotal (16 - 80)					30.00% 10.00%					
	tion Cost per Mile (2000)					\$ 28,056					\$ 32
	ject Cost per Mile Not Including Vehicles (X000)					\$ 51,296					\$ 59

TABLE 12: PUBLIC UTILITIES SUMMARY- 7TH STREET ALIGNMENT

	PUBLIC UTILITIES SUMMARY	Y - PREFEF	RED A	LIGNMENT-	7 TI	STREET	
		EVAL MELLE	PF	REFERRED ALIGNI	VIENT	: 7TH STREET	E HEZ TO THE STATE OF THE
ITEM NO.	DESCRIPTION	BYD 2014 (OSTS	COST PER MILE	YC	E 2018 COSTS	COST PER MILE
40.02.01	POWER- Including design contingency	\$19,6	50,916			\$23,082,639	
40.02.02	WATER- Including design contingency	\$8,6	27,570			\$10,134,239	
40.02.03	SANITARY SEWER-Including design contingency	\$3,7	44,676			\$4,398,624	
40.02.04	STORM DRAIN- Including design contingency	\$3,0	63,479			\$3,598,468	
40.02.05	TRAFFIC CONTROL- Including design contingency	\$1,9	28,952			\$2,265,814	
Α	Construction Subtotal (10 - 50)	\$ 37,0	15,593	\$9,588,967	\$	43,479,783	\$11,263,529
80	PROFESSIONAL SERVICES	\$12,5	85,302			\$14,783,126	
В	Subtotal (60-80)		85,302	\$3,260,249	\$	14,783,126	\$3,829,600
С	Subtotal (10 - 80)	\$ 49,6	00,895	\$12,849,216	\$	58,262,910	\$15,093,129
90	UNALLOCATED CONTINGENCY (10%)	\$4,9	60,089			\$5,826,291	
D	TOTAL PUBLIC UTILITIES COST	\$ 54,5	60]ej:[0]	\$14,134,138	\$	64,089,201	\$16,602,442

TABLE 13: PRIVATE UTILITIES SUMMARY- 7TH STREET ALIGNMENT

		MARY- PRE	INC. DO . IN PACE				
EM NO.	. DESCRIPTION	ВУ	D 2014 COSTS	REFERRED ALIGI COST PER MILE	YOE 2018 C	Market Water	COST PER MILE
	TRACK LENGTH		3.86	MILE		3.86	MILE
1	AT&T Telecom		\$4,728,679		\$5,5	54,468	
2	FIBER OPTIC		\$1,317,677			47,789	
3	CABLE TC		\$37,670		\$	44,249	
4	GAS		\$1,467,504		\$1,7	23,780	
5	TRAFFIC CONTROL		\$413,347		\$4	85,531	
Α	Construction Subtotal (10 - 50)	\$	7,964,877	\$2,063,318	\$ 9,31	55,818	\$2,423,644
80	PROFESSIONAL SERVICES		\$2,708,058		\$3,1	80,978	× 2
В	Subtotal (60-80)	\$	2,708,058	\$701,528		80,978	\$824,039
С	Subtotal (10 - 80)	\$	10,672,936	\$2,764,846	\$ 12,5	36,796	\$3,247,683
90	UNALLOCATED CONTINGENCY (10%)	A Marie A Salar a	\$1,067,294	E R. O. C. S. (10)	\$1,2	53,680	3 3 4
D	TOTAL PRIVATE UTILITIES COST - 100%		\$11,740,229	\$3,041,331	\$13,7	90,475	\$3,572,452
E	PRIVATE UTILITIES COST AT 25% OF TOTAL		\$2,935,057	\$760,333	\$3,4	47,619	\$893,113

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INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

SECTION 5: COST MANAGEMENT STRATEGIES

5. COST MANAGEMENT STRATEGIES

5.1 Summary

This section discusses strategies that may be used to manage the overall project cost. This Class C Cost Estimate has been prepared during the pre-design stage, when the project is roughly at 5% complete. Therefore, a conservative approach has been used to account for uncertainty, unknown factors, and risks. Additionally, opportunities exist to refine the engineering of the alignment, pursue different land acquisition methods, coordinate cost saving with related projects, and use innovative technologies. These cost management strategies are further detailed below.

5.2 Cost Management Strategies

5.2.1 Land Acquisition for Maintenance Facility/Depot

Land acquisition for a maintenance facility represents a cost driver for the Los Angeles Streetcar. A full site acquisition purchased at market rate may total in excess of \$30 Million (YOE for land acquisition costs is early 2017). Alternative methods of site acquisition could be used, such as joint development, in which the maintenance facility/depot could be incorporated into the design of a mixed —use project developed by others. A joint development approach could also provide a revenue source if development rights were sold or leased. This estimate assumes full site acquisition consistent with FTA guidance.

It is worth noting that full site acquisition does not preclude future joint development opportunities. It is possible that LADOT/BOE could purchase the land and subsequently sell or lease air rights for a joint development project.

Issues and Considerations

- It is unlikely that the City would purchase land and use it solely for the maintenance facility/depot. The City would likely use the land for other public benefit opportunities.
- A joint-developed site may present compatibility issues between the streetcar activities and other uses developed on the site.
- Joint development would require an agreement to be established and approved with a private entity. This would necessitate close coordination and synching up project timelines and schedules.
- Joint development may require additional environmental review and costs, both for environmental review and due to schedule slippage.

5.2.2 Remove 1st and Grand Segment

The Locally Preferred Alternative as listed in the EIR includes a segment of the alignment that travels up 1st Street to Grand. The 1st and Grand component is a cost addition of

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approximately \$15M Year of Expenditure (YOE). Delaying implementation of this segment to a future phase would reduce costs, as shown in the tables below.

TABLE 14: 7TH STREET ALIGNMENT EXCLUDING 1ST AND GRAND SEGMENT

	7th Street Alignment Excluding 1st & Grand Segment	Current Year Value	Escalated
3	ESTIMATED PROJECT COST	\$224,052,782	\$259,382,690

TABLE 15: 9TH STREET ALIGNMENT ALTERNATIVE EXCLUDING 1ST AND GRAND SEGMENT

\$240,894,289

- Issues and Considerations
 - The City of Los Angeles would have to adopt a refined Locally Preferred Alignment.
 - Excluding this project segment will impact projected ridership and may create potential operational issues.
 - If estimated ridership changes, traffic analysis may have to be redone, resulting in additional cost and time to complete the EIR/EA.

5.2.3 Utility Relocations

The largest single scope cost in the estimate is for the utility relocations, which may be up to \$45M construction cost and \$67M total project cost, which includes professional services and contingencies (YOE) for the 7th Street Alignment. There are many strategies which could reduce this cost.

- Rail Engineering: Advancing the preliminary rail engineering may generate significant savings in the utility relocations costs. Strategic rail engineering has been conducted in other cities to dramatically reduce the utility relocations costs in other streetcar systems. For example, the current estimate includes an allowance for relocation (replacement) of all manholes within a minimum distance beyond the track slab due to maintenance accessibility. However, this is not necessarily the industry standard. In other US cities, such as Portland and Seattle, strategic rail engineering occurred to reduce the utility impacts. In many instances, the track slab was constructed with non-pressurized manholes in-place, integrated within the track slab (pressurized manholes were moved). Access issues are addressed by maintenance activity occurring during off-revenue hours or temporarily shut downs in case of emergencies. This approach could be developed during the design phase to significantly reduce costs associated with manhole relocations.
 - Issues and Considerations

- Maintenance to manholes during hours when the streetcar is operational would require it to be shut down, which would impact ridership.
- Conducting rail engineering before the alignment is finalized in the environmental document could result in re-work and costs if the environmental process results in a changed preferred alignment. For example if advanced conceptual design is conducted for the 7th Street Alignment but the environmental process results in selection of the 9th Street Alignment Alternative, this work would have to be redone. This issue could be addressed through phasing, by focusing advanced conceptual design on those project elements that are likely to remain fixed throughout the environmental process.
- Share costs for replacing utilities past their useful life with public utility agencies: Some utilities within the project alignment are already past their useful life and their replacement could be considered a betterment project. For example, the water main under Broadway was built in 1893. Agreements could potentially be made between the LADOT, BOE, BOS, and the LADWP in order to share some of these replacement/relocation costs. If successful agreements are reached, the utility relocations costs for the streetcar project may be reduced.
 - o Issues and Considerations
 - Agreements with public utility providers would need to be reached to pursue this strategy.
 - The utility costs estimate assumes that contractors will perform the majority of the utility relocation work, as advised by LADWP. Contractors would not perform certain electric utility work (hot power) and would be paid a prevailing wage that achieves union wage parity. If the public agencies were to require that city employee forces must perform the complete utility relocation scope, the utility costs would be higher than currently assumed. The power systems scope would increase less because the base cost estimate already assumes that LADWP forces would perform much of that work. However, the utility relocation costs associated with water, sewer, and storm portions of work would almost double. On average, having LADWP forces conduct all utility relocation work would result in an increase of the utility costs by 43% (an approximate \$27M increase in 2018 YOE for the 7th Street Alignment).
 - Regardless of whether public utilities pay for a portion of the utility costs, the FTA may view these costs as part of the project based on existing definitions or the replacement schedule of utilities.

5.2.4 Project Schedule- Advanced Conceptual Design (ACD)

Costs could be reduced by starting ACD immediately rather than the twelve month delay that is currently assumed in the project schedule.

- Rail Engineering: Commencing rail engineering will allow for the identification of opportunities to avoid utility conflicts. This provides the highest possibility of cost reduction.
 - Issues and Considerations
 - Conducting rail engineering before the alignment is finalized in the environmental document could result in re-work and additional costs. For example if advanced conceptual design is conducted for the 7th Street Alignment but the environmental process results in selection of the 9th Street Alignment Alternative, this work would have to be redone. This issue could be addressed by focusing advanced conceptual design on those project elements that are likely to remain fixed throughout the environmental process.
- Escalation: This estimate includes escalation at approximately 4% per year from the report date to the anticipated mid-point of construction date of 2018, which equates to about \$8-10 Million per year. The current schedule includes a one year delay between now and mid-2015 for preliminary design work. The reason that the project schedule includes this one year delay is due to the funding schedule. However, if funds could be shifted to allow the preliminary design work to commence now, in mid-2014, the project schedule would be reduced by approximately one year, resulting in the elimination of one year of cost escalation (4% of the project total) or \$8-10 Million. Therefore, if conceptual design were advanced, there could be a savings of \$8-10 Million. If additional funding is not allocated, the project timeline could be delayed which would result in increased associated escalation costs. Additionally, advancing preliminary design presents risk for rework and associated costs if designs need to be re-done or adjusted due to the results of the environmental review process.
 - Issues and Considerations
 - A funding source would need to be identified and committed to advance conceptual design.

5.2.5 Wireless or Hybrid Vehicle Power Supply

Wireless or hybrid streetcar technology presents a potential opportunity for cost savings compared to traditional overhead catenary system (OCS). Cost savings may be realized through reduced overhead catenary system costs and reduced impacts to underground infrastructure. It is expected that vehicle and charging facilities for hybrid technology will be more expensive than conventional technology. For the purposes of this estimate, conventional technology has been assumed.

Issues and Considerations

- Wireless vehicles would avoid impacts on traffic poles and underground vaults and associated costs.
- Battery-powered vehicles are heavier, which may make grades more difficult.
- Battery-powered vehicles may carry less passengers due to space needed for batteries.
- Wireless technologies are relatively new and untested in the United States.
- o Wireless vehicles would avoid associated OCS infrastructure costs.
- o Wireless technology is relatively new and still being developed.
- Wireless technology could increase vehicle costs.

5.2.6 Project Delivery Method

The delivery method for the streetcar project will impact the total costs. For purposes of generating this Independent Cost Estimate, it is assumed that the chosen delivery method will be a Construction Manager at Risk (Construction Manager/General Contractor) method, utilizing a construction firm independent of the designer that will construct the system per an established engineering and specification set of contract documents. Variations in delivery methods offer different options, with corresponding benefits and risks, in the contracting and execution of the project. Other approaches to project delivery include Design-Build and Public Private Partnerships (P3). A more in-depth assessment and comparison of project delivery options, including advantages and disadvantages, can be found in Appendix 9.7. An innovative project delivery method presents opportunities to save time and cost.

- Issues and Considerations
 - Innovative project delivery methods could accelerate the timeline by allowing the construction phase to begin concurrent with final design, reducing the project schedule, and resulting in escalation cost savings.
 - Innovative project delivery methods could bring private investment to the project.
 - Innovative project delivery method negotiations can be complex, requiring expertise to negotiate and coordination with the private sector in an unfamiliar context. They may require deviation from traditional City contractual agreements; can be complex and time consuming to negotiate; and must be structured to be compliant with FTA requirements if federal funds are involved.

INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

SECTION 6: DETAILED SCOPE OF ESTIMATE, ASSUMPTIONS, AND PRICING SOURCES

6. DETAILED SCOPE OF ESTIMATE, ASSUMPTIONS, & PRICING SOURCES

This estimate is a "Class C Cost Estimate," based on a project that is at the 0-5% design stage. Federal Transit Authority (FTA) Standard Cost Categories (SCC) have been used to summarize the unit prices into a comprehensive total estimate for each segment or alternative. The following are the FTA Standard Cost Categories.

SCC 10: Guideway and Track Elements

SCC 20: Stations, Stops, Terminals, Intermodal

SCC 30: Support Facilities: Yards, Shops, Admin Buildings

SCC 40: Sitework & Special Conditions

SCC 50: Systems

SCC 60: ROW, Land, Existing Improvements

SCC 70: Vehicles

SCC 80: Professional Services

SCC 90: Unallocated Contingency

SCC 100: Finance Charges

The sum of these ten cost categories comprises the total Project Cost Estimate. The cost categories are described in greater detail below.

6.1 Guideway and Track Elements (SCC 10)

6.1.1 Guideway: At-grade in mixed traffic (SC10.03)

Detailed Scope of Work:

This category includes capital costs for construction of fixed guideways including demolition of existing paving, excavation, sub-grade preparation, aggregate base, and construction of track slab.

Assumptions:

- Street demolition of approximately 12' wide is necessary for the guideway track slab.
- The existing pavement is approximately 50% concrete paving and 50% asphalt concrete paving.
- The entire guideway length will be at-grade in mixed traffic.
- Earthwork: Excavation of 10' wide x 2'-6"deep along entire route. Excavated spoils must be removed from site. The sub-surface is fine graded.
- Track Slab: 8' wide x 19" thick concrete, epoxy coated bar reinforcement, 10" sub-base, and PVC geomembrane. This track slab is compliant with FTA's Buy America requirements.

Pricing and Measurement:

Quantities for the main components are developed by applying the guideway assumptions along the entire alignment length, separated into 11 segments. The components are priced

based from in-house and referenced unit pricing and validated by comparing assembly unit costs to other transit and streetcar projects.

6.1.2 Embedded Trackwork (SCC 10.10-10.13)

Detailed Scope of Work:

This category includes the capital costs for procurement and installation of streetcar tracks including embedded rail, fasteners, special trackwork, crossovers, turnouts, track crossings, welding, and miscellaneous track items.

Assumptions:

- All track will be embedded trackwork in the track slab.
- Track: Two- 115lb rails, rail boot, and formed concrete flangeway. This rail is compliant with FTA's Buy America requirements.

Pricing and Measurement:

Measurement is based on a track-foot basis for the type of trackwork proposed. Pricing is parametric: a statistical average, based on cost information from other projects, adjusted to the location and escalated to current day. Track vibration mitigation is carried as an allowance based on similar projects.

6.2 Stations, Stops, Terminals, Intermodal (SCC 20)

6.2.1 At-grade station, stop, shelter, mall, terminal, platform (SCC 20.01)

Detailed Scope of Work:

This category includes the capital costs for fixed facilities and amenities for transit stops. The capital costs for stops will include streetcar stops, shelters, lighting, signage, landscaping, furnishings, and sidewalks for pedestrian access.

Assumptions:

- All stations will be side platforms, except for the terminus at 1st and Grand.
- Two sizes of stops- 70' platforms and 120' platforms
- Two stations will have premium features- located at LA Live and 1st and Grand.
- Stops consist of a widened concrete bulb-out, a decorative streetcar shelter, decorative pavement surface, and signage.
- The station costs include finishes and structures for the platform areas, but exclude additional sidewalk and pedestrian improvements that extend beyond the platform.
- It is assumed that the My Figueroa project will be constructed before the streetcar and leave open spaces for future station stops in their appropriate locations. No additional demolition or streetscape work will be required.
- It is assumed that the Broadway Streetscape project will be designed with the station stops and will the construction of the streetscape improvements will happen concurrent with the streetcar, but funded under a separate project budget.

- It is assumed that central control room for monitoring the vehicles will be within the department's main headquarters.
- Artwork costs for stations are included within Sitework section SCC 40.

Pricing and Measurement:

Measurement was performed by counting the number of each type of stop, itemized by main building components. The components are priced based from unit pricing from in-house and referenced sources and validated by comparing the assembly unit cost to other transit and streetcar projects.

6.3 Support Facilities (SCC 30)

6.3.1 Support Facilities

Detailed Scope of Work:

This category includes capital costs for facilities and equipment needed to support operation of the transit system. This category includes an administrative building, maintenance shop / overnight storage area, equipment, maintenance facility/depot tracks, maintenance facility/depot tracks, maintenance facility/depot traction power, maintenance facility/depot signals, and civil construction as needed. This section does not included land acquisition costs. For cost associated with purchasing the land, see section 5.6 (SCC 60).

Assumptions:

- Land acquisition year of expenditure (YOE) is assumed to be early 2017,
- The facility will serve as the main site for storage, cleaning, inspection, and light repairs for the streetcar vehicles. It will be an enclosed facility.
- It is assumed that heavy maintenance will be performed off-site by a contractor.
- The maintenance facility/depot is a single site location, approximately 1 to 1-1/2 acres in size, and is inclusive of all trackwork components, guideway, power facilities, and equipment needed for the maintenance facility/depot.
- The maintenance facility/depot will hold up to 8 Cars, including 3 tracks, 1 pit, work platforms, overhead cranes, and portable jacks.
- The cost estimate includes the construction of a two-story stand-alone storage and maintenance building approximately 10,000 square feet in area.

Pricing and Measurement:

The facility costs are itemized by main building and site component. The components are priced based from in-house and referenced unit pricing and validated by comparing the assembly unit cost to other transit and streetcar projects.

6.4 Sitework and Special Conditions (SCC 40)

6.4.1 Demolition, Clearing, & Earthwork (SCC 40.01)

Detailed Scope of Work:

This category includes the capital costs for demolition costs for streetscape over and above that required specifically for the guideway construction. This includes demolition at intersections and other existing conditions. Demolition and earthwork costs for the guideway

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are carried in SCC 10. Demolition and earthwork costs associated with stations and support facilities are carried in SCC 20 and 30, respectively. Demolition costs associated with utility work are carried in SCC 40.02.

Assumptions:

- It is assumed that Historic streetcar tracks from the abandoned streetcar systems will be found when excavating along much of the alignment. The historic Pacific Electrical Streetcar system included routes along all streets in the proposed alignment. However, it is assumed that newer streets along Figueroa and 11th have previously excavated these historic tracks.
- It is assumed that the demolition for sidewalks and pedestrian streetscape improvements over and above that which is required for the station stops are carried under the streetscape project contracts, including the Broadway Streetscape project and My Figueroa.

Pricing and Measurement:

The demolition costs are itemized by a square foot or track foot bases. Pricing is parametric: a statistical average, based on in-house cost information and similar transit and streetcar projects adjusted to the location and escalated to current day.

6.4.2 Site Utilities, Utility Relocation (SCC 40.02)

Detailed Scope of Work:

This category includes the capital costs for the relocating and adjusting utilities for purposes of guideway construction. The costs include relocating shallow main lines; protecting and lowering utility crossings; and/or relocating or adjusting manholes, vaults, and access facilities. Relocating means replacing the existing lines and abandoning in-place the existing pipes, vaults, manholes, etc.

General Assumptions:

- It is assumed that the engineer's design approach will focus on minimizing utility impacts where possible by the use of strategic design. This estimate is considered a conservative allowance and does not account for several cost saving techniques that will likely be applied during the design, which will minimize utility impacts.
- The estimate assumes that contractors will perform the majority of the utility relocation work. Contractors would not perform certain electric utility work (hot power).
- Contractors are assumed to be paid a prevailing wage that achieves union wage parity.
- The estimate includes the costs for utility relocations that are directly resulting from the streetcar project. The estimate excludes betterment projects, such as replacement of existing broken or aging lines that are not directly affected by the project.

- Additional utility replacement beyond that which is necessary for the project is considered a "betterment project" and is not assumed to be the responsibility of the streetcar project.
- It is assumed that some "betterment projects" will ultimately be incorporated into the design of the project, but will be funded by other improvement sources.
- It is assumed that utility relocation scope of other associated projects, such as the Broadway Streetscape Project, My Figueroa, and the Regional Connector, will need to be coordinated with the Streetcar Project.

Specific Approach by Utility Type:

Public Power:

- The project contains many underground electrical vaults that contain wire and cabling for power distribution. Many of the existing vaults are older, including precast concrete and brick vaults containing asbestos.
- It is assumed that all new infrastructure construction may be performed by the contractor. However, all "live" electrical work, such as pulling wire, modifying existing vaults, and electrical tie-in, must be performed by LADWP crews.
- The estimate is based on a Tiered Approach to classifying the scope of work. The following is a description of each Tier:
- Tier 1 Replace Vault
 - All existing vaults must be replaced within 7' from the center of slab if they have circular manhole cover entrances and 7'-10" from the center of slab if they have square vault door type entrance.
 - All vaults deemed to be replaced are replaced with one of 4 sizes of LADWP approved vaults supplied by Jensen Precast.
 - The conduit duct bank is made of fiber material; therefore it cannot be spliced in next to the vault. The ductbank must be replaced back to the nearest vault structure. The average ductbank per new vault replacement has been calculated at 100 linear feet per vault.
 - The estimate includes the costs for the contractor to provide excavation, pit shoring, backfill, demolition and street reconstruction, supplying and placing the new vault, and supplying and placing concrete encased conduit ductbank back to the nearest vault structure.
 - The estimate includes the costs for LADWP crews to connect to the existing service, pull wire, and monitor the construction.
 - Many of the existing vaults are assumed to contain asbestos. It is assumed these vaults must undergo asbestos abatement if they are to be modified. This estimate includes an allowance for such asbestos abatement.

Tier 2- Major Structural Modification

- Tier 2 is a theoretical situation in which a new shaft is excavated and constructed next to the existing vault, beyond 7' from the center of the slab. The existing vault is then accessed from the new vault without re-wiring.
- This case was deemed unfeasible or very unlikely and has not been included as an option in the estimate.

o Tier 3- Minor Modification / Replace Vault Lid

- Tier 3 vaults are vaults that lay on the edge of the 7' from center of slab line, but the vault is large enough for the access to be clear if the vault lid is modified.
- It is assumed that replacing the precast lid of these vaults will result in the access being beyond the 7' from center clear line.
- It is assumed that LADWP crews must perform this work. The estimate includes rates that will cover these additional costs.
- This roof replacement scope assumes that LADWP will approve this as a viable solution. If LADWP does not approve this design standard, the alternative may require replacing the entire vault structure.

Tier 4- Vault Access is Clear

- Tier 4 vaults are vaults where a portion of the vault may lay under the 7' from the center of the track slab, however the access to the vault is beyond the center of the track slab.
- It is assumed that the entrance is passed the safe clear zone and therefore, no work is necessary.
- The estimate includes a small allowance for protection / coordinating around these existing vaults.

o Tier 5- Abandoned Vault

- Tier 5 vaults are abandoned vaults that lay within 7' from the center of the track slab.
- It is assumed that no work is required at abandoned vaults.
- The estimate includes a small allowance for protection / coordinating around these existing abandoned vaults.

Public Water:

o Main Lines

- Water Main Lines located within 10' from the edge of the track slab will be replaced in new trenches at least 10' beyond the edge of slab.
- New main lines will be Ductile Iron Pipe.

- Main line crossings will be replaced and lowered for the 28' length crossing the area of influence
- Main Line crossings will be Steel Pipe with a Steel Pipe Sleeve 4" diameter larger than the pipe.

Domestic and fire service line crossings

- Crossing at Relocated Main line- service line is replaced from the main line to the water meter.
- Crossing at Existing Main Line- service is replaced and lowered, for the 28' length crossing the area of influence.
- It is assumed that the new pipe will connect to the existing meter. Replacing of the meters is considered a betterment project and is not assumed to be a project cost.

Fire Hydrant Service

- Where fire line crossings occur, service line is replaced from the main line to the water meter.
- It is assumed that the new pipe will connect to the existing fire hydrants. Replacing of the fire hydrants is considered a betterment project and is not assumed to be a project cost.
- If the fire hydrant is within 28' area of influence, the estimate includes replacing the hydrant in a new location.

Storm Drainage

- Manholes, vaults, and other access facilities within <u>10' from center of the track</u> slab will be replaced / relocated.
- It is assumed that concrete utility protection will be required for storm drain lines due to the fact that the storm drain lines are shallow.

Sanitary Sewer

- Manholes, vaults, and other access facilities within <u>10' from center of the</u> <u>track</u> slab will be replaced / relocated.
- It is assumed that sanitary sewer lines are 4' to 7' deep, or greater, and do not need to be relocated.
- It is assumed that concrete utility protection will not be required for sanitary sewer lines due to the depth of the line.

Private Utilities

o Private utility lines along the streetcar alignment include telecommunication, cable, and fiber optic networks. These are provided by

- a variety of private entities, including but not limited to AT&T, Time Warner, Nextlink, Level 3, Quest Century Link, and others.
- A full estimate based on quantity take-offs was prepared for private utility relocation.
- o For purposes of this estimate, it is assumed that the private utility companies will be both financially and physically responsible for relocating the majority of their own utility lines, vaults, manholes, and other facilities, as provided for in their franchise agreements.
- o Because of scheduling, it is assumed that some portion of the private utility lines will become a project cost. This estimate makes an allowance of approximately one quarter (25%) of the full value of the costs for private utility relocation to account for this scope. This is a conservative allowance based on known information at this time.
- The estimate also includes allowance for the contractor to coordinate and oversee the private utility relocation work.

Pricing and Measurement:

The utility scope has been quantified using quantity take-off software. All utilities have been measured and presented to LADOT/BOE as back-up to the quantity take-off. The quantities have been logged and priced based on in-house and referenced unit pricing and validated by comparing the assembly unit cost to other similar transit and streetcar projects. Specific pricing sources that have been used include engineers cost estimates of LA Metro's Westside Subway Extension and Crenshaw/LAX corridor. In addition, specific cost data, wage rates, and mark-up calculations received from LADWP have been used for work to be conducted by LADWP crews.

Reconciliation and Review with City of LA Utility Departments

During the estimating review period, URS held multiple meetings with LADWP Water and Power departments, the City of LA Bureau of Sanitation, and the City of LA Bureau of Engineering to coordinate and reconcile the utility relocation estimates. URS prepared an independent draft estimate and then compared to the respective utility estimates prepared by the utility agencies. Then, an initial meeting was held to determine the general approach regarding types of service, levels of impact, and allowable distances the utilities must be from the streetcar service. A second meeting was held to finalize the assumptions and approach including two working sessions, in which URS's estimator and the respective LADWP estimators identified all utility impacts and the means and methods that will most likely be required for relocations. URS's estimate was revised and resubmitted to LADPW and BOS for review and comment. The final utility estimates represents an agreed-upon approach and scope of work that is acceptable for all parties involved. Refer to Appendix 9.8 for public utility correspondence.

Discussions with Private Utility Firms

Preliminary coordination meetings with private utility providers were held on July 7, 2014 and July 10, 2014 with Time Warner Cable, Quest Century Link, and Teleport Communications Group (a division of AT&T). Additional private utilities have been contacted and invited to coordinate on the project. The project scope, background, and approach to private utility relocation cost estimating were discussed during these meetings. Private utility representatives confirmed that utility relocation work is typically conducted by the private utility, and that costs for such work are typically borne by the private utility. Reimbursements are provided in some cases, depending on the specific scope, funding sources, and purpose of the project.

Public Utility Variance Based on Labor Cost Differentials

This estimate assumes that contractors would perform the majority utility work, as advised by LADWP. Utility costs would be increased if LADWP forces conducted all utility relocation work. The power systems scope would increase less because the base cost estimate already assumes that LADWP forces would perform much of that work. However, the utility relocation costs associated with water, sewer, and storm portions of work would almost double. On average, having LADWP forces conduct all utility relocation work would result in a 43% cost increase compared to the cost of having contractors do a portion of the work. The table below details how costs would change if LADWP forces conducted all utility relocation work.

TABLE 16: PUBLIC UTILITIES VARIANCE- LADWP FORCES VS. HYBRID LADWP/CONTRACTOR

	PUBLIC	DIILI	IIES VARIA	NC	E- DWP FOR	CES VS. HYI	SKID DA	/P/C	CONTRACTO	K			
					BYD- 2014 COST		-	1			Y0E- 2018 COS		
ITEM NO.	DESCRIPTION	DWP ,	CONTRACTOR		DWP ONLY	VARIANCE	VARIANCE	DWP	/ CONTRACTOR	H.	DWP ONLY	VARIANCE	VARIANCE
40.02.01	POWER- Including design contingency		\$19,650,916		\$21,937,621	\$2,286,705	12%	-	\$23,082, 639		\$25,768,681	\$2,686,042	129
40.02.02	WATER- Including design contingency		\$8,627,570		\$16,124,961	\$7,497,391	87%		\$10,134,239		\$18,940,932	\$8,806,693	879
40.02.03	SANITARY SEWER- Including design contingency		\$3,744,676		\$7,147,851	\$3,403,176	91%		\$4,398,624		\$8,396,111	\$3,997,487	919
40.02.04	STORM DRAIN- including design contingency		\$3,063,479		\$5,906,577	\$2,843,098	93%		\$3,598,468		\$6,938,068	\$3,339,601	939
40.02.05	TRAFFIC CONTROL- Including design contingency		\$1,928,952		\$1,928,952	\$0	0%		\$2,265,814		\$2,265,814	\$0	09
A	Construction Subtotal (10 - 50)	\$	37.015,593	\$	53,045,964	\$16,030,370	43%	\$	43,479,783	\$	62,309,605	\$18,829,822	439
80	PROFESSIONAL SERVICES	-	\$12,585,302		\$18,035,628	\$5,450,326	43%		\$14,783,126		\$21,185,266	\$6,402,140	439
В	Subtotal (60-80)	\$	12,585,302	\$	18,035,628	\$ 5,450,326	43%	\$	14,783,126	\$	21,185,266	\$ 6,402,140	439
С	Subtotal (10 - 80)	\$	49,600,895	\$	71,081,591	\$21,480,696	43%	\$	58,262,910	\$	83,494,871	\$25,231,962	439
90	UNALLOCATED CONTINGENCY (10%)		\$4,960,089		\$7,108,159	\$2,148,070	43%		\$5,826,291		\$8,349,487	\$2,523,196	439
D	TOTAL PUBLIC UTILITIES COST	5.150	554,560,984	nuite	\$78,189,751	\$23,628,766	43%	4.2	\$64,089,201		\$91,844,358	\$27,755,158	439

6.4.3 Hazardous materials, contaminated soil (SCC 40.03)

Detailed Scope of Work:

This category includes the capital costs for hazardous demolition and abatement that will occur during the construction process.

Assumptions:

- It is assumed that approximately 10% of excavated soils will be contaminated with oil or other products and will need to be excavated and disposed by a certified Hazmat team.
- Any modifications to electrical vaults will require asbestos abatement by a hazmat team
- No buildings will be demolished that will require hazmat abatement

Pricing and Measurement:

The contaminated soils allowance is calculated as a percentage of excavation required for guideway construction. The disposal fee is based on actual unit costs for hazardous soil disposal from researched sources.

6.4.4 Pedestrian / bike access and accommodation, landscaping (SCC 40.06)

Detailed Scope of Work:

This category includes the capital costs for pedestrian and bike related streetscape improvement that have specifically to do with the streetcar construction.

Assumptions:

- It is assumed that pedestrian and bike improvements will only be required around station area stops.
- It is assumed that all site improvement costs associated with the Broadway Streetscape project and the My Figueroa are not a part of this contract.
- It is assumed that the 7th Street Bike lane will need to be upgraded to a separated cycle-track to facilitate the streetcar. However, this cost has not been included in the cost estimate. The nearby Wilshire-Grand Development contract includes a special fund for 7th street infrastructure improvements, which may include such improvements.

Pricing and Measurement:

Site improvement costs are itemized by a square foot or linear foot basis. Pricing is parametric: a statistical average, based on in-house cost information and similar transit and streetcar projects adjusted to the location and escalated to current day.

6.4.5 Automobile, bus, van accessways including roads, parking lots (SCC 40.07)

Detailed Scope of Work:

This category includes the capital costs for street reconstruction scope having to do with the streetcar guideway.

Assumptions:

- It is assumed that the street will be reconstructed approximately 6' beyond the track slab on both sides for the entire alignment.
- This section does not include street patching for utility relocations. That scope is included within the utility costs.
- It is assumed that all lanes will be re-striped as part of this project.
- The My Figueroa and Broadway Streetscape projects should share these costs as these improvements are also a part of that project's scope.

Pricing and Measurement:

Site improvement costs are itemized by a square foot or linear foot basis. Pricing is parametric: a statistical average, based on in-house cost information and similar transit and streetcar projects adjusted to the location and escalated to current day.

6.4.6 Temporary Facilities and other indirect costs during construction (SCC 40.08)

Detailed Scope of Work:

This category includes the capital costs for temporary costs for temporary facilities during construction, such as traffic control, field lighting, temporary electricity, and other general requirement items. This section does not include General Conditions, such as contractor staff, field offices, and other costs to support the contractor, subcontractor crews, construction manager.

Assumptions:

- It is assumed that traffic control will be required for the vast majority of all construction activity for this project.
- Traffic control will require closed lanes, electronic signage, barriers, flag persons during working hours, cones, and signage.

Pricing and Measurement:

Site improvement costs are itemized by a square foot or linear foot basis. Pricing is parametric: a statistical average, based on in-house cost information and similar transit and streetcar projects adjusted to the location and escalated to current day.

6.5 Systems (SCC 50)

6.5.1 Train Control and Signals

Detailed Scope of Work:

This section includes special train controls and signaling separate from typical traffic signaling.

Assumptions:

• It is assumed that the streetcar will not have priority signaling along the route. It will obey and operate with the standard traffic signals.

• It is assumed that train signaling will only be required in a few locations, including the single track at the 1st and Grand Terminus, the non-revenue service on 7th between Hill and Broadway.

Pricing and Measurement:

Special train signaling is itemized at each location and priced with a lump sum allowance, based on allowances concurrent with other traffic signaling. Pricing is parametric: a statistical average, based on in-house cost information and similar transit and streetcar projects adjusted to the location and escalated to current day.

6.5.2 Traffic Signals

Detailed Scope of Work:

This category includes capital costs for the traffic signal modifications and replacements required to accommodate the streetcar and interface with the transit signal priority system. This includes traffic signal poles and heads, cabinets, conduit, wayside train detection equipment, and controllers.

Assumptions:

- It is assumed that all traffic signals at all intersections along the alignment will need to be adjusted.
- The estimate assumes that one third of the traffic signals will be replaced and the remainder will be modified to increase height or location, which will include a new foundation.
- It is assumed that Traffic Signal Loop Detectors will be replaced at all intersections.

Pricing and Measurement:

Traffic signals are quantified per each traffic signal, allowing four each per intersection and two each at pedestrian crossings. Traffic loop detectors are counted per each intersection. Pricing is parametric: a statistical average, based on in-house cost information and similar transit and streetcar projects adjusted to the location and escalated to current day.

6.5.3 Traction Power Supply

Detailed Scope of Work:

This category includes capital costs to supply traction power to transit system. This category includes traction power substations and associated system equipment.

Assumptions:

- It is assumed that there will be a total of five substations, consistent with the EIR project description.
- The cost for the substations includes the substation electrical equipment, structure, enclosure, foundations, and connection to existing electrical service.
- It is assumed that power supply is available for the substations near the substation and that no significant electrical service improvements will be required to bring power to the substations.

- It is assumed that the substations will be located within ½ block of the tracks, either inside a private development or outside in a surface parking lot.
- The locations of substation will be based on available property and lease options.
- It is assumed that any easements or leases acquired for the substations will be for the life of the improvement. Associated costs are included under ROW, Land Section SCC 60.

Pricing and Measurement:

A total of five substations are assumed, consistent with the EIR project description. Pricing is parametric: a statistical average, based on in-house cost information and similar transit and streetcar projects adjusted to the location and escalated to current day.

6.5.4 Traction Power Distribution

Detailed Scope of Work:

This category includes capital costs of the overhead catenary system (OCS) for distribution of traction power to vehicles. This category includes installation of OCS poles and foundations, guy wires, anchors, contact wire, conduit, and feeder cables.

Assumptions:

- This estimate assumes that an overhead catenary system will be supported by poles and foundations along the entire alignment route.
- It is assumed that there is adequate room and agreements with the City for placing poles and foundations within the sidewalk right of way.
- It is expected that the wireless system technology will be explored and used if desired along sections of Broadway and other historically significant areas.
- It is assumed that pole foundations along Broadway, 7th, and Hill may need special considerations due to adjacent underground basement vaults. This estimate includes an allowance to account for premium costs due to underground vault coordination.
- It is assumed that pole foundations near existing and planned subterranean Metro stations may need special considerations. This estimate includes an allowance to account for premium costs due to underground Metro station structures.

Pricing and Measurement:

Measurement is by the track foot. Additional premium costs for unique pole foundations are itemized and shown separately. Pricing is parametric: a statistical average, based on inhouse cost information and similar transit and streetcar projects adjusted to the location and escalated to current day.

6.5.5 Communications

Detailed Scope of Work:

This category includes capital costs for the communication system for the streetcar system.

Assumptions:

 The communication system will include all services required for communications between train operators, maintenance facility/depots, and other personnel. The system is assumed to be fiber optic data for carrying video and audio.

Pricing and Measurement:

Measurement is by the track foot. Pricing is parametric: a statistical average, based on inhouse cost information and similar transit and streetcar projects adjusted to the location and escalated to current day.

6.5.6 Fare Collection

Detailed Scope of Work:

This category includes capital costs for a self-service, proof-of-payment fare collection system. This system can be on board the vehicle or at each stop.

Assumptions:

- It is assumed that the fare collection system will be an on-board fare collection system integrated into the design of the streetcar vehicles.
- Due to this fact, there are no capital construction costs included for the fare collection system.

Pricing and Measurement:

The cost for this system will be included in the estimate for the vehicles.

6.6 Right-of-Way, Land, Existing Improvements (SCC 60)

Detailed Scope of Work:

This category includes the capital costs for securing and purchasing all the real property rights required for the maintenance and storage facility. This section also includes the real estate and legal consulting fees for acquiring the land. The site acquisition for the maintenance facility will require an area of approximately 40,000 to 60,000 square feet in the middle of the densest urban development in Los Angeles County. From the research performed, the following options are available for acquiring the real estate property:

- 1. Option 1: Purchase the land from an owner
- 2. Option 2: Enter into a joint development agreement with a developer designing a mixed-used development at or near the project alignment
- 3. Option 3: Locate city-owned land along or near the route and donate to the project use.
- 4. Option 4: Use eminent domain to acquire property.

Assumptions:

- Option 1: Full Land Acquisition
 - It is assumed that the operations and maintenance facility will be purchased for the sole purpose of the maintenance facility/depot.
 - Multiple sites have been identified in the EIR/EA; these sites may, or may not, be available for acquisition.

- The three sites used in the EIR may or may not be available for purchase as the operations and maintenance facility.
- This estimate assumes that a lot of approximately 55,000 SF will be available for purchase at or near the project alignment.
- It is assumed that land acquisition will be required for substations in the form of a lease agreement in a private or public lot.

Option 2: Joint Development

- Considering the development potential of sites near the alignment, there
 is potential for the project to enter into a joint development agreement
 with a developer for the operations and maintenance facility.
- o Joint development is a land development option supported by FTA.
- The estimate value of this land could be significantly lower than full site acquisition as identified in Option 1.
- o The average Floor-Area-Ratio of buildings in the project areas is approximately 6 to 1. It is assumed that the storage and maintenance building will only occupy the 1st floor, leaving approximately 5 additional floors to be developed. Therefore, using an allowance of ½ of the full value is assumed to be a generous allowance.
- This option is also dependent the ability to tie the schedule of the streetcar with the schedule of a building developer.

Option 3: Use of City-owned Land

- If a municipally owned site on or near the project alignment is available for partial use for the operations and maintenance facility, there could be potential for additional savings over the Joint Development option.
- This option also opens up the possibility for shared facilities for other City projects.

Option 4: Eminent domain

- It is assumed that this option would result in an increased cost over the full purchase price.
- Pursuing eminent domain could increase the project schedule and involve costly litigation.
- This is an often used option for project sponsors.
- The FTA supports eminent domain if the agency has tried to negotiate a reasonable price and the owner will not cooperate.

Power Substation Locations

- It is assumed that any easements or leases acquired for the substations will be for the life of the improvement.
- It is assumed that the area required for each substation will be approximately 200 Square feet.
- It is assumed that the lease required for the substation will be capitalized into an up-front capital cost.

o It is assumed that the capitalized lease cost for the life of the project will be approximately the same as the cost of the full purchase price of the land. This estimate includes approximately \$500/SF.

Pricing and Measurement:

From the research performed, it has been determined that the property value within the project area is between \$300-\$500 per square foot (refer to Appendix 9.6 for Independent Land Appraisal Report). The estimate uses an average price of \$500, including15% contingency. An allowance of near the higher end of the range of 55,000 SF is used. The total cost for Option 1 could range up to \$30 Million. Option 2 would cost the project nothing and would be a large cost savings. Option 3 would be a significant cost reduction from purchasing the land in option 1. Option 4 would be a significant cost increase over Option 1.

6.7 Vehicles (SCC 70)

Detailed Scope of Work:

This category includes capital costs for manufacturing and procuring the streetcars vehicles, including spare parts and non-reoccurring costs. This section also includes the costs for engineering, commissioning, shipping, delivery, and storage.

Assumptions:

- Vehicle year of expenditure (YOE) is assumed to be early 2017,
- The vehicles will be modern compliant with current California Public Utilities Commission (CPUC) requirements.
- A representative would be the Siemens Vehicle S70 (Short), a low-floor light rail vehicle. These vehicles have been used in the Salt Lake City's TRAX system and the San Diego Trolley. This assumption provides flexibility to choose among a variety of streetcar vehicle manufacturers.
- The vehicle costs included in the cost estimate assumes a standard, non-battery system. However, the final design may propose a hybrid system, which adds costs due to batteries.
- It is assumed that fare collection equipment is on-board the vehicles and not at the station stops.

Pricing and Measurement:

The estimate includes 8 streetcar vehicles and 2 maintenance vehicles, including spare parts. The vehicles are priced as a lump sum cost. The vehicle pricing is based on similar streetcar systems in other US cities, adjusting for inflation.

6.8 Professional Services (SCC 80)

Detailed Scope of Work:

This category includes all non-construction professional fees required for the project. This includes all engineering, management, consulting fees, agency fees, legal and insurance

fees, and all other project costs not carried by the General Contractor. Professional services are estimated as a 34% mark-up on construction costs. The following services are included in this section:

- 1. Project Development: This mark-up includes both advanced conceptual design to 30% and the CMGC contractor's design efforts from 30% to 100% design.
- Project Management for Design and Construction: This mark-up includes all project management fees and services provided by the project manager and all related third party consulting fees.
- 3. Construction Administration and Construction Management: This mark-up includes the engineer's and other relevant designer's review and administrative fees during the construction duration. This also includes the CMGC's construction management fees. This is over and above the overhead carried within the unit costs of the estimate.
- 4. Professional Liability and other Non-Construction Insurance: This mark-up includes the owner's professional liability and insurances. This does not include the contractor's, project managers, or any other insurances. It is assumed that the other parties' respective insurances are captured within their fees and costs.
- 5. Legal Permits, reviews by other agencies, cities, etc.: This mark-up includes all agency fees associated with the project, including LADOT, BOE, LADWP, Metro, and any other agency that are required to review and provide permits to the project. This also includes the owner's legal fees and legal permits.
- 6. Surveys, Testing, Investigation, and Inspection: This section includes the owner's third-party survey's testing, investigation, inspection, and commissioning. This section does not include these services by the contractor.

Assumptions:

- It is assumed that the contract procurement method will be CMGC.
- It is assumed that a design engineer will be contracted to perform the preliminary design from present 5% design to 30% design.
- It is assumed that the CMGC firm will contract with the designer and will be responsible for design from 30% design to completion.
- Los Angeles Department of Transportation and Bureau of Engineering costs to administer FTA grants are included within the percentages carried for Project Development, Project Management, and Construction Administration.

Pricing and Measurement:

Costs for these services are carried by applying percentages of the total construction cost, without vehicles and right-of-way costs. The percentages are typical for other transit contracts with similar contract procurement as the assumed type in the basis of estimate. The percentages are applied individually and not cumulatively, resulting in a total of 34%

professional services cost applied to the total construction cost. The 34% professional services mark-up breaks down as follows:

TABLE 17: PROFESSIONAL SERVICES- PERCENTAGE MARK-UPS APPLIED TO CONSTRUCTION COST

Service	Percentage Mark-Up
Project Development	10%
Engineering (not applicable to Small Starts)	g.
Project Management for Design and Construction	6%
Construction Administration and Management	9%
Professional Liability and other Non-Construction Insurance	2%
Legal; Permits: Review Fees by other agencies, cities, etc.	3%
Surveys, Testing, Investigation, Inspection	3%
Startup	1%

6.9 Contingency (SCC 90)

FTA Standards prescribe estimates at the Preliminary Design Stage to carry at least 20%+ for contingency. This estimate includes an overall average contingency of 30% (which includes the weighted average 20% allocated contingency and 10% unallocated contingency) consistent with FTA guidance, depending on the risk involved and the estimator's understanding of where the element is in the design phase. This estimate includes both Allocated and Unallocated Contingency. Allocated contingency is carried within the detail of the estimate to account for design development that will likely occur throughout the design phase. Unallocated contingency is carried at the summary level for changes that are likely to occur at the construction stage. Due to the early stage of the project, this estimate includes a weighted average allocated contingency of 20%, as well as unallocated contingencies of 10% on all project components, for an overall average contingency of 30%, per Federal Transit Administration (FTA) guidance. The following is a further description of the two. As the design level increases, the design contingency carried in the construction estimate should decrease. The cost estimate at the final design level should include little to no allocated contingency.

Allocated Contingency (or Pre-Construction Design Development)

Allocated contingency represents a percentage of unknown or undeveloped scope that has not been implemented into the design documents. Since the current design is in conceptual phase, design refinement and some changes are expected following these documents. This estimate included a varying allowance from 15-30% of direct costs, based on the risk of the element. The total weighted average contingency for the project is 20%. Components such as guideway, stations, systems, stations, right-of-way, and vehicles have either already been conservatively priced in the estimate detail or sufficient information is known so that these items are less risky. Therefore, a contingency of 15-20% has been allowed for these sections. A higher conservative contingency of 30% is applied to all sitework components,

due to their relatively unknown conditions, except for site utilities, of which a 20% contingency has been applied. A slightly lower contingency has been applied to the site utilities due to the magnitude of site utility coordination and research that has already been performed at this level of design.

Unallocated Contingency (or Change Order Contingency) is included at the bottom line at 10% of the subtotal of the estimate. Unallocated contingency represents costs above and beyond in the project budget, for such changes that are likely to occur during the construction. The construction contingency allowance carried by the owner in the project budget should remain constant throughout the design process.

Total Contingency

The total contingency carried within the estimate is 30.51%. This is consistent with FTA guidelines, which stipulates using a total contingency of approximately 30% at this stage of design.

6.10 Finance Charges (SCC 100)

This category includes finance charges expected to be incurred to complete the project. These costs are not applicable for the purposes of this cost estimate and are, therefore, excluded from the project costs.

INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

SECTION 7: SEPARATE RELATED STREETSCAPE & TRANSIT PROJECTS

7. SEPARATE RELATED STREETSCAPE & TRANSIT PROJECTS

7.1 Broadway Streetscape Project

The Broadway Streetscape project is intended to implement pedestrian-oriented, traffic-calming design changes along Broadway in Downtown Los Angeles, including widened sidewalks and curb extensions; enhanced crosswalk treatments; lane reconfiguration; 24-hour curbside parking; transit stations; enhanced lighting and trees; wayfinding signage; stormwater retention and recycling; and bike racks. The Broadway Streetscape project overlaps with the Downtown LA Streetcar alignment on Broadway. The current construction schedule for the Broadway Streetscape project is set to occur after the LA Streetcar project has completed. Therefore, it is assumed that the Broadway streetscape project will not have a financial impact on the streetcar project. Completing the streetcar project prior to the streetscape project will adversely affect the construction cost of the Broadway Streetscape project. It is highly suggested that the schedules and funding of both projects be coordinated so that the construction occurs at the same time.

7.2 My Figueroa Streetscape Project

The Figueroa Corridor Streetscape Project (My Figueroa) is redesigning the Figueroa corridor into a multimodal street by adding better signalization and signage; high-visibility crosswalks; transit platforms; street trees and public art; a three-mile bikeway; and separated cycle tracks. My Figueroa overlaps with the Downtown LA Streetcar alignment on Figueroa Street and 11th Street. My Figueroa is anticipated to begin and end construction during 2015. For purposes of this estimate, it is assumed that construction of this project will be complete prior to or during construction of the Downtown LA Streetcar project. It is assumed that the streetscape improvements performed under the My Figueroa project will not add significant costs to the streetcar project. Cost economies can be realized if construction activities are coordinated between the projects.

7.3 Regional Connector Transit Project

Metro Regional Connector project will allow passengers to transfer to the Blue, Expo, Red and Purple Lines by bypassing Union Station. The 1.9-mile alignment will extend from the Metro Gold Line Little Tokyo/Arts District Station to the 7th Street/Metro Center Station in Downtown Los Angeles. The Regional Connector includes a station at 2nd Street and Broadway, which intersects the Downtown LA Streetcar alignment. The Regional Connector is anticipated to open in 2020, with construction beginning in 2014. For purposes of this estimate, it is assumed that construction of the station box and decking at 2nd Street associated with this project will be complete prior to construction of the Downtown LA Streetcar project. It is crucial for the project managers of both projects to coordinate their schedules and work plan closely in order for this to occur. A delay in the completion of the decking of the subterranean station at 2nd & Broadway may delay the schedule of the streetcar.

7.4 Summary and Suggestions for Associated Projects

Several other infrastructure and streetscape projects shared project construction boundaries with the proposed streetcar alignment. Some scope of work could be considered shared scope with both the streetcar project and the streetscape project. The streetcar alignment is integrated in the design of these streetscape projects. It is highly recommended that the streetscape project improvements be conducted at the same time as the streetcar project. If the projects are performed in a phased manner, the combined cost of both projects will be higher than necessary.

There are many shared costs that could be coordinated should the projects be performed concurrently rather than phased or non-concurrently. Shared scope could consist of temporary traffic control, paving of street surfaces, modifications to curbs, bike lanes, sidewalks, pedestrian lighting, traffic signals, and utility relocations. The following are some examples of redundant or inefficient construction if the streetscape projects are performed non-concurrently with the streetcar project:

- The area immediately adjacent to the streetcar guideway along Broadway is within the extended curb and parking area of the streetscape project. If these projects are coordinated, this area will be demolished and repaved once rather than two times.
- If a utility manhole is moved from the guideway alignment to the streetscape project area under the streetcar area of impact, the manhole may need to be adjusted a second time during the streetscape construction.
- Light poles and traffic signals may be modified both as part of the streetcar project and the streetscape project. If the projects are performed nonconcurrently, these modifications will happen twice.
- Light poles and traffic signals may be modified both as part of the streetcar project and the streetscape project. If the projects are performed nonconcurrently, these modifications will happen twice.
- Traffic control and temporary utilities, such as project site power and lighting would occur twice if the projects are not performed at the same time.
- Reconstructing the street on Broadway as a part of the Regional Connector project could include laying streetcar tracks and catenary poles. If construction is not coordinated, these modifications will happen twice.

INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

SECTION 8: COMPARISON WITH STREETCAR ESTIMATES FROM OTHER US CITIES

8. COMPARISON WITH STREETCAR ESTIMATES FROM OTHER US CITIES

8.1 Summary of Findings

The estimate for the Los Angeles Streetcar 7th Street Alignment Alternative was compared to several other US streetcar estimates and bids. In general, the cost per mile for the Los Angeles Streetcar for guideway and track elements; stations, stops and terminals; yards, shops, and administrative buildings; and systems are all within the range of minimum and maximum and are slightly higher than the average cost per mile for other streetcar systems. Costs related to utilities, however, are significantly above the maximum cost per mile of other US streetcar estimates. Streets in downtown Los Angeles present a unique condition as they contain older and more complex utility systems, which results in the relatively higher cost for this scope element.

The main factors contribute to the higher than average construction cost estimate include:

- Early Stage of Design Conservative Estimate vs. Bid Numbers. The Los Angeles unit cost (Million \$ per mile) represents URS's preliminary estimate and is a conservative allowance. This is not meant to be an anticipated bid amount. Many of the compared costs are actual bid results, which are based on a final design. It is appropriate for the cost to be on the conservative high-end at this pre-design stage. It is assumed that value engineering and strategic design will be performed during the design process which may result in a reduced cost.
- Utilities- Conservative Costs for the Utility Relocations vs. Refined Engineering Design. The largest cost discrepancy in the cost estimate when compared to other streetcar estimates is the utility relocation scope. Downtown Los Angeles, particularly historic streets such as Broadway and 7th, have much older and more complex utility systems than other cities in which streetcars have been constructed, and therefore have higher associated utility costs. Nevertheless, this estimate is based on conservative allowances with input from all utility companies prior to any strategic engineering or cost sharing agreements that will likely occur during the design process.

The current estimate for the Los Angeles Streetcar 7th Street Alignment is at the higher end of the estimated range when compared to streetcar systems in other US cities. While most of the project scope elements are within the range of costs for other streetcar systems, the sitework and utilities costs are higher than the maximum cost per mile and drive the total construction cost for the Los Angeles Streetcar higher than the average for other streetcar systems. The following table compares the estimate construction costs normalized in Dollar per Mile by SCC division.

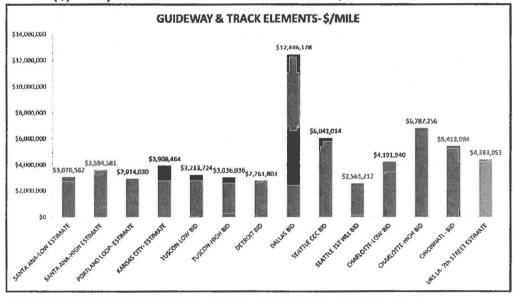
TABLE 18: 7™ STREET ALIGNMENT COMPARISON OF CONSTRUCTION COST PER MILE

ITEM NO.	DESCRIPTION		MIN	AVERAGE	MAX L	JRS LA- 7th STREET ESTIMATE \$/MILE	VARIANCE FROM MEAN
10	GUIDEWAY & TRACK ELEMENTS		\$2,561,212	\$4,610,760	\$12,446,178	\$4,383,053	-5%
20	STATIONS, STOPS, TERMINALS		\$179,626	\$529,584	\$879,710	\$655,236	24%
30	YARDS, SHOPS, ADMIN. BLDGS	,	\$38,839	\$1,234,495	\$4,038,681	\$2,366,907	92%
40	SITEWORK		\$2,576,713	\$4,755,224	\$7,692,625	\$4,801,834	1%
	UTILITIES		\$254,251	\$1,528,532	\$3,079,956	\$10,104,797	561%
50	SYSTEMS		\$2,369,945	\$4,915,704	\$7,615,377	\$5,744,396	17%
Α	ALL OTHER CONSTRUCTION COSTS	- 13	જાલમાં જાણ	Karthari ya i	-22/2:00/25/10/5	234050722	64%

The unit costs (\$/Track Mile) for all sections of the 7th Street Alignment estimate are at the higher end or maximum of the statistical cost range of other recent streetcars. At this early stage of design, it is expected for the estimate to be in the conservative higher end range. The expectation is that the estimate will reduce in cost or remain the same as the design develops and allowances are replaced with specified design standards. The following bar graphs show how the normalized dollar per mile of the 7th Street Alignment estimate compares to estimates and bid results of Streetcar systems in other US cities.

Guideway and Track (Standard Cost Code 10): Guideway and track elements include construction of track slab and rail and track. The estimated costs for the 7th Street Alignment in \$/Track Mile for the Guideway and Track elements are between the average and maximum statistical range when compared to other cities. The costs are closest to Cincinnati and Charlotte Streetcar systems. This comparison confirms that the estimate is conservative and within a reasonable range for budgeting purposes.

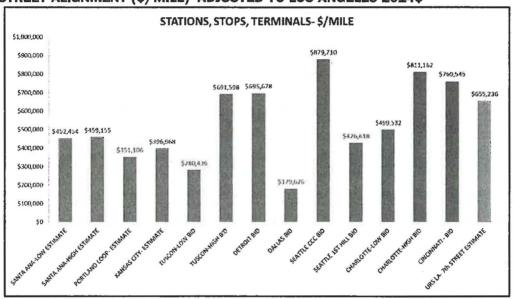
FIGURE 13: COMPARISON OF STREETCAR GUIDEWAY & TRACK COSTS WITH 7TH STREET ALIGNMENT (\$/MILE)- ADJUSTED TO LOS ANGELES 2014\$



Note: The Dallas guideway cost per mile can be considered a statistical outlier due to additional bridge construction requirements.

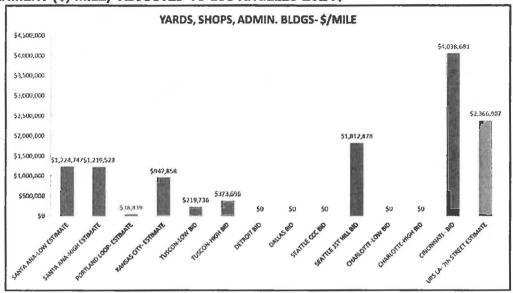
Station Stops (Standard Cost Code 20): Station stops include streetcar transit stops, shelters, furnishings, lighting, and signage. The estimated costs for the 7th Street Alignment in \$/Track Mile for the Streetcar Stops are between the average and maximum statistical range when compared to station stop estimates from other cities. The costs are closest to Tuscon, Detroit, which are towards the higher end of the cost range. However, due to the fact that five other cities have seen higher costs, these stops should be monitored throughout the design phase to ensure the design is kept cost effective. This comparison confirms that the estimate is conservative and within a reasonable range for budgeting purposes.

FIGURE 14: COMPARISON OF STREETCAR STATION, STOPS, & TERMINALS COSTS WITH 7TH STREET ALIGNMENT (\$/MILE)- ADJUSTED TO LOS ANGELES 2014\$



Yard & Shop (Operations & Maintenance Facility) (Standard Cost Code 30): Yard and Shop costs include costs for facilities and equipment needed to support operation of the streetcar. The estimated costs for the 7th Street Alignment in \$/Track Mile for the Operations and Maintenance facility are the highest when compared to other streetcar estimates, with the exception of Cincinnati. Some of the compared systems did not require a maintenance site due to the fact that they are extensions to existing lines. This comparison confirms that the estimate is conservative and within a reasonable range for budgeting purposes.

FIGURE 15: COMPARISON OF STREETCAR YARD & SHOP COSTS WITH 7TH STREET ALIGNMENT (\$/MILE)-ADJUSTED TO LOS ANGELES 2014\$



Sitework and Utilities (Standard Cost Code 40): Sitework and utilities includes costs for demolition, relocation, and reconstruction of streetscape above that required for guideway construction and utilities. The estimated costs for the 7th Street Alignment in \$/Track Mile for Sitework and Utilities are far greater than any other city's estimate. (54% higher than any other known high bidder and 122% higher than the next closest actual project cost.) This comparison confirms that the estimate is highly conservative in this section and reflects the unique conditions in downtown Los Angeles, including older and more complex utility systems. There is great potential for value engineering and strategic design to reduce the utility impacts and reduce the costs in this section.

FIGURE 16: COMPARISON OF STREETCAR SITEWORK COSTS WITH 7TH STREET ALIGNMENT (\$/MILE)- ADJUSTED TO LOS ANGELES 2014\$

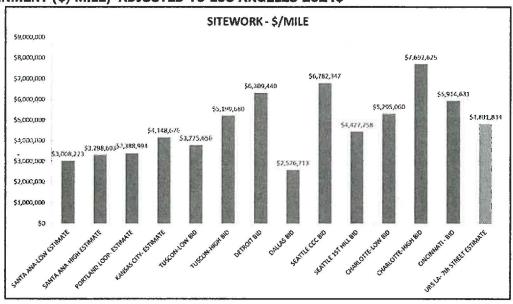
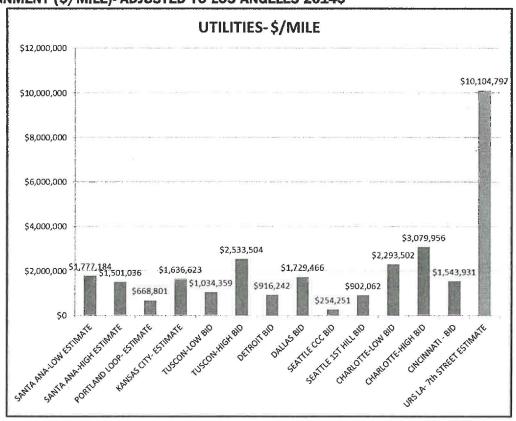
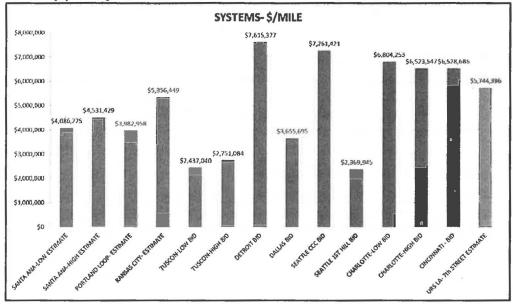


FIGURE 17: COMPARISON OF STREETCAR UTILITIES COSTS WITH 7TH STREET ALIGNMENT (\$/MILE)- ADJUSTED TO LOS ANGELES 2014\$



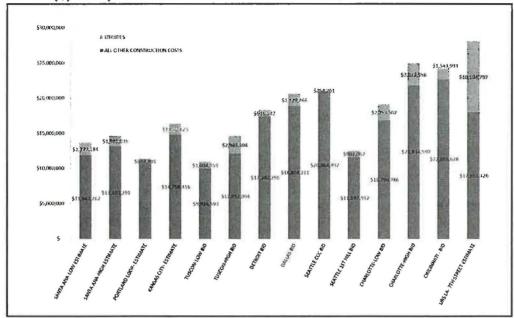
Systems (Standard Cost Code 50): Signals include costs for signaling separate from traffic signals, traffic signal modifications, traction power substations, overhead catenary systems, communications, and payment systems. The estimated costs for the 7th Street Alignment in \$/Track Mile for Systems are between the average and the maximum of the statistical range when comparing to other streetcar estimates. Some of the compared systems did not require a maintenance site due to the fact that they are extensions to existing lines. This comparison confirms that the estimate is conservative and within a reasonable range for budgeting purposes. However, due to the fact that 5 other cities have seen higher costs, this section should be monitored throughout the design phase to ensure the design is kept cost effective.

FIGURE 18: COMPARISON OF STREETCAR SYSTEMS COSTS WITH 7TH STREET ALIGNMENT (\$/MILE)-ADJUSTED TO LOS ANGELES 2014\$



Construction Cost Total: The overall estimated costs in \$/Track Mile for the LA System are higher than all other cities compared in this study, largely due to the significantly conservative utility relocations estimate in the current estimate. This comparison confirms that the estimate is conservative and within a reasonable range for budgeting purposes. Value engineering and strategic design should be used throughout the design process to drive down sitework and utility costs and control costs of other sections.

FIGURE 19: COMPARISON OF STREETCAR CONSTRUCTION COSTS WITH 7TH STREET ALIGNMENT (\$/MILE)- ADJUSTED TO LOS ANGELES 2014\$



 This chart compares construction costs only. (Excludes vehicles, land acquisition, professional services, and unallocated contingency.

8.2 Estimate Comparison Methodology

All referenced estimates have been adjusted to be comparable to Los Angeles dollars in the current year. The estimates have been adjusted by the appropriate escalation factors from the date of the estimate or bid result to present day value. (See the escalation section in the Basis of Estimate section of this report.) The estimates have also been adjusted for location by applying a city index factor as published in RS Means. The following adjustment factors have been used to the various estimates.

TABLE 19: ADJUSTMENT FACTORS TO COMPARISON ESTIMATES

ESTIMATE / CITY	Year of Estimate	Escalation Adjustment	Location Adjustment	Overall Adjustment	Explaination
TUSCON-LOW	2012	107%	125%	134%	Increased by 34% for date and location.
PORTLAND LOOP	2009	115%	107%	123%	Increased by 23% for date and location.
SEATTLE FIRST HILL	2017	92%	104%	96%	Estimate prices were escalated to 2017. The cost was reduced to 2014.
SANTA ANA-LOW	2015	96%	106%	102%	Estimate prices were escalated to 2015. The cost was reduced to 2014.
TUSCON-HIGH	2012	107%	125%	134%	Increased by 34% for date and location.
SANTA ANA-HIGH	2015	96%	106%	102%	Estimate prices were escalated to 2015. The cost was reduced to 2014.
KANSAS CITY	2014	100%	106%	106%	Increased 6% for locaton.
DETROIT	2011	111%	105%	117%	Increased by 17% for date and location.
CHARLOTTE-LOW	2014	100%	135%	135%	Increased 35% for locaton.
SEATTLE CCC	2017	92%	104%	96%	Estimate prices were escalated to 2017. The cost was reduced to 2014.
DALLAS	2012	108%	127%	137%	Increased by 37% for date and location.
CHARLOTTE-HIGH	2014	100%	135%	135%	Increased 35% for locaton.
CINCINNATTI	2013	104%	117%	122%	Increase 4% for 1 year of escalation plus 17% for

The sources for the Cost Estimates from all cities are as follows:

- Tuscon Low: Lowest bid result from a competitive bid.
- Portland Loop: URS estimate, based on bid results from Prior Portland Streetcar bid results
- Seattle First Hill: Negotiated estimate with CMGC contractor.
- Santa Ana: Order-of-Magnitude low Estimate, based on local condition, prepared by URS.
- Tuscon High: Highest bid result of three from competitive bid.
- Santa Ana: Order-of-Magnitude high Estimate based on local condition, prepared by URS.
- Kansas City: Order of Magnitude cost estimate, prepared by HDR.
- Detroit: Negotiated Guaranteed Maximum Price with CMGC contractor.
- Charlotte Low: Lowest bid result from a competitive bid.
- Seattle CCC: Order of Magnitude Estimate prepared by URS.

- Dallas: Preliminary Engineering Estimate prepared by Engineer.
- Charlotte-High: Highest bid result of three from a competitive bid.
- URS-LA: Estimate within this document prepared by URS.
- Cincinnati: Cincinnati Streetcar Monthly Report, April/May, 2014, page 23. Total Contract amount with Contractor.

INDEPENDENT COST ESTIMATE & COST METHODOLOGY REPORT Class C Cost Estimate

SECTION 9: APPENDICES

APPENDIX 9.1 Detailed Estimate of Streetcar Costs 7th Street Alignment

Owner:

Los Angeles Department of Transportation

Estimator

Project: Phase:

Los Angeles Streetcar Class C Cost Estimate



DIVISION COST SUMMARY 1 - STREETCAR EXCLUDING UTILITIES- PREFERRED ALIGNMENT-7TH

В		C DESCRI	DDI	D = C / LENGTH	- Arriver	E STREET ALICANAGENT	F = E / LENGTH
DESCRIPTION		45193019501			/ I.H.		018
		THE RESIDENCE OF THE PARTY OF T		THE RESERVE OF THE PERSON OF T			\$/MILE
TRACK LENGTH		3.86				3.86	· ,,
CHIEFINAN O TRACK ELEMENTS		******		4		4	4
							\$5,148,484
				200			\$769,663
				· · · · · · · · · · · · · · · · · · ·		3 6 6	\$2,780,250
SITEWORK, TRAFFIC CONTROL, TEMP		\$18,536,172		\$4,801,834		\$21,773,222	\$5,640,399
SYSTEMS		\$22,174,672		\$5,744,396		\$26,047,129	\$6,747,564
Construction Subtotal (10 - 50)	\$	69,296,586	\$.	17,951,426	\$	81,398,143 \$	The second of th
ROW, LAND, EXISTING IMPROVEMENTS		\$31,362,800		\$8,124,599		\$35,296,172	\$9,143,548
VEHICLES		\$38,776,000		\$10,045,004		\$43,639,100	\$11,304,801
PROFESSIONAL SERVICES		\$23,560,839		\$6,103,485		\$27,675,368	\$7,169,362
Subtotal (60-80)	\$	93,699,639	\$	24,273,089	\$	106,610,641 \$	27,617,711
Subtotal (10 - 90)	ċ	162 006 225	ċ	12 224 E1E	ċ	199 009 794 6	48,704,071
	-		Ą	42,224,313	4	100,000,704 \$	40,704,071
UNALLOCATED CONTINGENCY (10%)	NDU N	\$16,299,622		\$4,222,452		\$18,800,878	\$4,870,407
TOTAL PROJECT COST		\$179.295.847		\$46,446,967		\$206,809,662	\$53,574,478
	TRACK LENGTH GUIDEWAY & TRACK ELEMENTS STATIONS, STOPS, TERMINALS YARDS, SHOPS, ADMIN. BLDGS SITEWORK, TRAFFIC CONTROL, TEMP SYSTEMS Construction Subtotal (10 - 50) ROW, LAND, EXISTING IMPROVEMENTS VEHICLES PROFESSIONAL SERVICES Subtotal (60-80) Subtotal (10 - 80) ALLOCATED CONTINGENCY (INCLUDED A UNALLOCATED CONTINGENCY (10%)	TRACK LENGTH GUIDEWAY & TRACK ELEMENTS STATIONS, STOPS, TERMINALS YARDS, SHOPS, ADMIN. BLDGS SITEWORK, TRAFFIC CONTROL, TEMP SYSTEMS Construction Subtotal (10 - 50) \$ ROW, LAND, EXISTING IMPROVEMENTS VEHICLES PROFESSIONAL SERVICES Subtotal (60-80) \$ ALLOCATED CONTINGENCY (INCLUDED ABOVE UNALLOCATED CONTINGENCY (10%)	DESCRIPTION	DESCRIPTION	DESCRIPTION URS - BYD - 2014	DESCRIPTION URS - BYD - 2014	DESCRIPTION URS - BYD - 2014 URS - YOE - 2

Notes

- 1. 10 Guideway & Track: Estimate of construction costs for the track, track slab, and earthwork required for the track and guideway construction
- 2. 20 Stations: Estimate of construction costs for the streetcar platform stops. # of Stops varies by option.
- 3. 30 Yard & Shop: Estimate of construction costs for 1 light maintenance facility and 1 maintenance yard.
- 4. 40 Site & Utilities: Estimate of construction costs for utility relocations, demolition, earthwork, street improvements, landscaping, and other site improvements.
- 5. 50 Systems: Estimate of construction costs for train control, power supply, power distribution, communications, traffic signalling, and other electrical related sco
- 6. Total Construction: Complete estimate of construction costs for the streetcar project, including allocated contingency and escalation.
- 7. Allocated contingency: (Design contingency)- Allowance for expected design development and unknowns at the time of the estimate is included within Division:
- 8. Escalation: Labor & commodity increases from report date to mid-point of construction (2018) is included within the costs for divisions 10-50.
- 9. Unallocated contingency is included at the Executive Summary Level. This summary does not include unallocated contingency.
- 10. See detailed estimate for back-up to the summary data.

Owner: Estimator: Project: Phase:

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate



DETAILED COST ESTIMATE - LA STREETCAR (WITHOUT UTILITIES) PREFERRED ALIGNMENT 7TH STREET ALIGNMENT

		QUANTITY	UNIT	COST		LIGNMENT: 7TH ST. WITH GI	
SECTION DESCRIPTION	TINU	7TH INCL 1ST & GRAND	GC COST NO ENTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
	Total William	20,383			20,382	20,382	
10.03 Guideway: At-grade in mixed traffic				,	=		
10.03.01 Demolition	TF						(\$43/T
10.03.02 Sawcut, demolish & remove pavement for guideway, allow 12' wide	SF	244,584	\$3.00	\$3.59	\$733,752	\$876,834	
10.03.03 Earthwork for Track Slab	TF						(\$58 / T
10.03.04 Excavation (Cut), for guideway, 10' wide x 2'-6" deep	CY	18,872	\$14.40	\$17.21	\$271,760	\$324,753	
.0.03.05 Export & disposal	LCY	23,590	\$24.00	\$28.68	\$566,167	\$676,569	
10.03.06 Fine grade sub-surface, 10' wide	SF	203,820	\$0.72	\$0.86	\$146,750	\$175,367	
10.03.07 Concrete Track Slab	TF						(\$361/7
0.03.08 Import, place, compact 10" aggregate base x 8' wide	CY	5,033	\$78.00	\$93,21	\$392,542	\$469,088	
0.03.09 Geomembrane, 8' wide	SF	163,056	\$1.56	\$1.86	\$254,367	\$303,969	
0.03.10 Formwork, each side	LF	40,764	\$4.80	\$5.74	\$195,667	\$233,822	
0.03.11 Reinforcement, epoxy coated	TON	711	\$3,000.00	\$3,585.00	\$2,131,625	\$2,547,292	
0.03.12 Concrete slab, 8' Wide x 19" thick, including placement, finishing, & curing	CY	9,474	\$336.00	\$401.52	\$3,183,226	\$3,803,956	
DTAL 10.03 GUIDEWAY: AT-GRADE IN MIXED TRAFFIC		20,382			\$7,875,857	\$9,411,649	(\$462/T
	<u> </u>	20,502			<i>ψ1,013,037</i>	\$2) 122 013	(4102)11
10.10 Track: Embedded	T.						
10.10.1 Embedded trackwork							
10.10.2 Two each - 115 LB Rails, rail boot, and formed concrete flangeway (does not include track slab)	TF	20,382	\$198.77	\$237.53	\$4,051,329	\$4,841,338	ž.
DTAL 10.1 TRACK: EMBEDDED		20,383			\$4,051,329	\$4,841,338	(\$238/1
				,	, , , , , , , , , , , , , , , , , , , 	, ,,,,,,,,	,,,
10.12 Track: Special (switches, turnouts)	p/-	<u> </u>					7
10.12.1 Special trackwork, complete assemblies							er e
10.12.2 Turn-Out	EA	4	\$300,000.00	\$358,500.00	\$1,200,000	\$1,434,000	
10.12.4 Crossover	EA	1	\$420,000.00	\$501,900.00	\$420,000	\$501,900	©
10.12.6 Diamond Crossover (4ea #10)	EA	ļ	\$721,680.60	\$862,408.32			
10.12.7 Equilateral TO	EA		\$374,087.11	\$447,034.09			
10.12.8 Single Rail Overlap	EA		\$50,922.48	\$60,852.36			
10.12.9 Bumping Post	EA		\$23,747.20	\$28,377.90			
OTAL 10.12 TRACK: SPECIAL (SWITCHES, TURNOUTS)		. 5			\$1,620,000	\$1,935,900	(\$387,180/E
10.13 Track: Vibration and noise dampening							
10.13.1 Track: Vibration and noise dampening, allowance	TF	20,382	\$30.00	\$35.85	\$611,460	\$730,695	
TOTAL 10.13 TRACK: VIBRATION AND NOISE DAMPENING		20,382			\$611,460	\$730,695	(\$35/T
20.01 At-grade station, stop, shelter, mall, terminal, platform				M			

Los Angelas Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate



			QUANTITY	UNIT	COST	BASE	BASE ALIGNMENT: 7TH ST. WITH GRA		
SECTION DESCRIPTION	是一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个	UNIT	7TH INCL 15T &	GC COST NO	GC COST INCL	EXCLUDES ALLOCATED	INCLUDING ALLOCATED	ASSEMBLY & DIVISION	
	型 医形式 加热 电影 电流 化加基基化学设施		GRAND	CNTGCY	CNTGCY	CONTINGENCY	CONTINGENCY	UNIT COSTS	
			20,383			20,382	20,382		
in the control of the						The state of the s			
20.01.1 Street car stop- 70' platform		EA	17					(\$78,768/EA)	
20.01.2 Demolition, 15' x 80' space		SF	20,400	\$7.20	\$8.64	\$146,880	\$176,256	(477)	
20.01.3 Earthwork, 15' x 80' space		SF	20,400	\$3.00	\$3.60	\$61,200	\$73,440		
20.01.4 Concrete platform, 10'x70' pad		SF	11,900	\$30.00	\$36.00	\$357,000	\$428,400		
20.01.5 Streetcar stop shelter	711111	EA	17	\$12,000.00	\$14,400.00	\$204,000	\$244,800		
20.01.6 Site improvements- landscaping, street	furnishings, etc. 20' x 100'	SF	34,000	\$7.20	\$8.64	\$244,800	\$293,760		
20.01.7 Patch paving to match existing		LS	8,500	\$12.00	\$14.40	\$102,000	\$122,400		
20.01.1 Street car stop - 120' platform		EA	6					(\$125,388/EA)	
20.01.2 Demolition, 15' x 130' space		SF	11,700	\$7.20	\$8.64	\$84,240	\$101,088	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
20.01.3 Earthwork, 15' x 130' space		SF	11,700	\$3.00	\$3.60	\$35,100	\$42,120		
20.01.4 Concrete platform, 10'x120' pad		SF	7,200	\$30.00	\$36.00	\$216,000	\$259,200		
20.01.5 Streetcar stop shelter		EA	6	\$18,000.00	\$21,600.00	\$108,000	\$129,600		
20.01.6 Site improvements- landscaping, street	t furnishings, etc., 20' x 150'	LS	18,000	\$7.20	\$8.64	\$129,600	\$155,520		
20.01.7 Patch paving to match existing		LŠ	4,500	\$12.00	\$14.40	\$54,000	\$64,800		
20,01.1 Street car stop - iconic station @ LA Live an	nd Concert Hall	EA	2					(\$218,988/EA	
20.01.2 Demolition, 10' x 120' space		SF	3,900	\$7.20	\$8.64	\$28,080	\$33,696	(7210,500) EA,	
20.01.3 Earthwork, 10' x 120' space		SF	3,900	\$3.00	\$3.60	\$11,700	\$14,040		
20.01.4 Concrete platform, 10'x120' pad		SF	2,400	\$30.00	\$36.00	\$72,000	\$86,400		
20.01.5 Streetcar stop shelter		EA	2	\$96,000.00	\$115,200.00	\$192,000	\$230,400		
20.01.6 Site improvements- landscaping, street	furnishings, etc., 20' x 150'	LS	6,000	\$7.20	\$8.64	\$43,200	\$51,840		
20.01.7 Patch paving to match existing		LS	1,500	\$12.00	\$14.40	\$18,000	\$21,600		
TOTAL 20.01 AT-GRADE STATION, STOP, SHEL	TER, MALL, TERMINAL, PLATFORM		25			\$2,107,800	\$2,529,360	(\$101,174/EA)	
30.02 Light Maintenance Facility							*		
30.02.1 Light maintenance facility		EA	1				,	(\$4,780,800/LS	
30.02.2 Demolition	19741- 197111- 198111-1	SF	10,000	\$9.60	\$11.52	\$96,000	\$115,200		
30.02.3 Earthwork	**************************************	SF	10,000	\$7.20	\$8.64	\$72,000	\$86,400		
30.02.4 Systems		SF	10,000	\$60.00	\$72.00	\$600,000	\$720,000		
30.02.5 Buildings		SF	10,000	\$300.00	\$360.00	\$3,000,000	\$3,600,000		
30.02.6 Site electrical & lighting		5F	10,000	\$9.60	\$11.52	\$96,000	\$115,200		
30.02.7 Site improvement		SF	10,000	\$12.00	\$14.40	\$120,000	\$144,000		
TOTAL 30.02 LIGHT MAINTENANCE FACILITY			1			\$3,984,000	\$4,780,800	(\$4,780,800/LS)	
TOTAL 30.02 LIGHT WANTENANCE PACILITY						45,364,000	y-1,7 30,800	(3-1/100/000/103/	
30.05 Yard and Yard Track	والمراوعة الموارعة المراوعة المراوعة والموارعة والمراوعة								
30.02.1 Yard & Yard track, complete		LS	1					(\$79/SF)	
30.02.2 Demolition		SF	55,000	\$4.80	\$5.76	\$264,000	\$316,800		
30.02.3 Earthwork		SF	55,000	\$7.20	\$8.64	\$396,000	\$475,200		

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C. Cost Estimate

Owner: Estimator: Project: Phase:



		QUANTITY	UNIT	COST	BASE A	LIGNMENT: 7TH ST. WITH GRA	
SECTION DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
	TESTAN STATE	20,383		A TOTAL	20,382	20,382	
20004	SF	FF 000	\$12.00	\$14.40	\$660,000	\$792,000	
30.02.4 Trackwork 30.02.5 Systems	SF	55,000 55,000	\$12.00	\$21.60	\$990,000	\$1,188,000	
30.02.7 Site electrical & lighting	SF	55,000	\$12,00	\$14.40	\$660,000	\$792,000	
30.02.8 Site improvement	SF	55,000	\$12.00	\$14.40	\$660,000	\$792,000	
OTAL 30.05 YARD AND YARD TRACK		1			\$3,630,000	\$4,356,000	(\$4,356,000/LS
40.01 Demolition, Clearing, Earthwork	3					÷	
30.02.1 DEMOLITION							
30.02.6 MISC. SCOPE							(\$59/TF
30.02.7 Demolition at major intersection retrofit, including sawcut, remove paving, and minor appurtenances	SF	67,835	\$3.00	\$3.90	\$203,505	\$264,557	
30.02.7 Demolition at minor intersection retrofit, including sawcut, remove paving, and minor appurtenances	SF	167,750	\$3.00	\$3.90	\$503,250	\$654,225	
30.02.8 Remove existing historic streetcar tracks buried under street paving, assumed to be found during excavation	TF	18,240	\$12.00	\$15.60	\$218,880	\$284,544	
30.02.9 OTHERS SECTIONS							
30.02.10 Facilities - SEE SECTION 30							
30.02.11 Public utilities - see section 40.02							
30.02.12 Private utilities - see section 40.02							
30.02.13 EARTHWORK							
30.02.14 GUIDEWAY							
30.02.15 Guideway - SEE SECTION 10	<u> </u>						
30.02.16 MISC. SCOPE							(\$10/TF
30.02.17 Grading at major intersection retrofit	SF	67,835	\$0.66	\$0.86	\$44,771	\$58,202	
30.02.18 Grading at minor intersection retrofit	SF	167,750	\$0.66	\$0.86	\$110,715	\$143,930	34
30.02.19 OTHERS SECTIONS							
30.02.20 Facilities - SEE SECTION 30							
30.02.21 Public utilities - see section 40.02							
30.02.22 Private utilities - see section 40.02							
OTAL 40.01 DEMOLITION, CLEARING, EARTHWORK		20,383			\$1,081,121	\$1,405,457	(\$69/TF
						130%	
40.02 Site Utilities, Utility Relocation (Public)							
SEE PUBLIC UTILITIES ESTIMATE							
TOTAL 40.02 SITE UTILITIES, UTILITY RELOCATION (PUBLIC)		20,382					
TOTAL 40.02 SITE OTILITIES, OTILITY RELOCATION (POBLIC)		20,382					
40.02 Site Utilities, Utility Relocation (Private)							
SEE PRIVATE UTILITIES ESTIMATE							
	<u> </u>						

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate



		QUANTITY	UNIT	COST	BASE A	LIGNMENT: 7TH ST. WITH G	AND
SECTION DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
		20,383			20,382	20,382	ALCES STREET, THE STREET, THE
OTAL 40.02 SITE UTILITIES, UTILITY RELOCATION (PRIVATE)		20,382					
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		_		(de			
40.03.1 Hazardous soils							
40.03.2 Excavate and dispose contaminated soils, allow 10% of excavated materials, allowance	СУ	1,887	\$190.91	\$248.18	\$360,288	\$468,374	
TOTAL 40.03 HAZ, MAT'L, CONTAM'D SOIL REMOVAL/MITIGATION, GROUND WATER TREATMENTS		20,382			\$360,288	\$468,374	(\$23/TF
40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks						130%	
40.04.1 EIR Mitigation requirements							
40.04.2 MM-CR-1: Paleontological monitoring for excavations greater than 5' deep, allow for new vault and manhole excavations - SEE PUBLIC UTILITY ESTIMATE							
40.04.3 MM-NV-12: Preconstruction survey along alignment, including existing building foundations and pre-existing conditions		20,382	\$8.00	\$10.40	\$163,056	\$211,973	
40.04.4 MM-NV-18: Noise mitigation for 15 units	EA	15	\$12,000.00	\$15,600.00	\$180,000	\$234,000	
40.04.5 MM-NV-19: Noise mitigation for 9 Units	EA	9	\$12,000.00	\$15,600.00	\$108,000	\$140,400	
40.04.6 MM-NV-20: Noise mitigation for 16 units	EA	16	\$12,000.00	\$15,600.00	\$192,000	\$249,600	
40.04.7 MM-NV-21: Noise mitigation, sound wall allowance	LS	1	\$36,000.00	\$46,800.00	\$36,000	\$46,800	
40.04.8 MM-NV-23: Vibration tests for historical theaters	EA	3	\$60,000.00	\$78,000.00	\$180,000	\$234,000	
40.04.9 MM-TRAF-1: Vehicle trip reduction measures (pedestrian & bkcycle improvement projects) at significantly affected intersection, allowance per intersection	EA	4	\$90,000.00	\$117,000.00	\$360,000	\$468,000	
TOTAL 40.04 ENVIRONMENTAL MITIGATION, E.G. WETLANDS, HISTORIC/ARCHEOLOGIC, PARKS		20,382			\$1,219,056	\$1,584,773	(\$78/TF
40.06 Pedestrian / bike access and accommodation, landscaping						130%	
40.06.1 Pedestrian & bike infrastructure							
40.06.4 Miscellaneous bike & ped signage and repairs as pertains specifically to Streetcar construction, allowance	TF	20,382	\$6.00	\$7.80	\$122,292	\$158,980	
40.06.5 Streetscape projects							
40.06.6 Broadway streetscape bike/ped improvements - under separate contract							Separate contract
40.06.7 My Figueroa bike/ped improvements along 11th & Fig - under separate contract						-	Separate contract
40.06.8 Public Art Allowance							
40.06.9 1% Public Art Allowance	1%				\$560,574	\$728,746	
TOTAL 40.06 PEDESTRIAN / BIKE ACCESS AND ACCOMMODATION, LANDSCAPING		20,382			\$682,866	\$887,725	(\$44/TF
40.07 Automobile, bus, van accessways Including roads, parking lots		į.					
40.07.1 Street reconstruction - FOR GUIDEWAY, 12' wide							(\$281/TF

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate



		QUANTITY	UNIT	cost	BASE A	LIGNMENT: 7TH ST. WITH C	CONTRACT TO THE PARTY OF THE PA
SECTION DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
	E CONTRACTOR DE	20,383			20,382	20,382	
40.07.2 Roadway reconstruction, asphalt paving, allow 50% AC / 50% PCC, guideway construction	SF	244,584	\$18.00	\$23.40	\$4,402,512	\$5,723,266	5
40.07.3 Street reconstruction - OTHER							(\$238/TF)
40.07.4 Roadway reconstruction at major intersection	SF	67,835	\$14.40	\$18.72	\$976,824	\$1,269,87	1
40.07.5 Roadway reconstruction at minor intersection	SF	167,750	\$14.40	\$18.72	\$2,415,600	\$3,140,280	5
40.07.6 Roadway reconstruction at pedestrian crossing	EA	6,500	\$14.40	\$18.72	\$93,600	\$121,680	5
40.07.7 Miscellaneous street striping, signage, and repairs as pertains specifically to Streetcar construction	TF	20,382	\$12.00	\$15.60	\$244,584	\$317,959	9
40.07.8 Streetscape projects							1
40.07.9 Broadway streetscape roadway Improvements - under separate contract							Separate contract
40.07.10 My Figueroa roadway improvements along 11th & Fig - under separate contract							Separate contract
TOTAL 40.07 AUTOMOBILE, BUS, VAN ACCESSWAYS INCLUDING ROADS, PARKING LOTS		20,383			\$8,133,120	\$10,573,056	(\$519/TF
40.08 Temporary Facilities and other indirect costs during construction							
40.08.1 Temporary Traffic Control	TF	20.382	\$117.00	\$152.10	\$2,384,694	\$3,100,10	1
40.08.2 Construction Lighting Allowance	TF	20,382	\$19.50	\$25.35	\$397,449	\$516,684	-
40.05.2 Constitution agriculturalise	<u></u>	20,362	\$15.50	725.55	4337,443	7720,00	3
TOTAL 40.08 TEMPORARY FACILITIES AND OTHER INDIRECT COSTS DURING CONSTRUCTION		20,383			\$2,782,143	\$3,616,786	(\$177/TF
50.01 Train control and signals				20			1
50.01.2 Train control & signaling at non-revenue track on 7th between Hill & Broadway	FA	1	\$180,000.00	\$216,000.00	\$180,000	\$216,000	5
50.01.3 Train control & signaling at 1st & Grand Terminus	EA	1	\$180,000.00	\$216,000.00	\$180,000	\$216,000	
TOTAL 50 TRAIN CONTROL AND SIGNALS		20,382			\$360,000	\$432,000	-) (\$21/TF
50.02 Traffic signals and crossing protection							
50.02.1 Traffic Signals - New (or full Replacement), allow 1/3 of poles, per traffic pole	EA	48	\$60,000.00	\$72,000.00	\$2,900,000	\$3,480,00	
50.02.2 Traffic Signals - Modify Existing signal / pole, allow 2/3 of poles, per traffic pole	EA	85	\$26,400.00	\$31,680.00	\$2,244,000	\$2,692,800	
50.02.3 Traffic Signals - Pedestrian signal / mid-block crossing	EA	13	\$30,000.00	\$36,000.00	\$390,000	\$468,000	5
50.02.4 Traffic Signals- at bike crossing	EA	2	\$120,000.00	\$144,000.00	\$240,000	\$288,000	5
50.02.5 Traffic Signals- Modify existing at bike crossing	EA	36	\$6,000.00	\$7,200.00	\$216,000	\$259,200	<u> </u>
TOTAL 50 TRAFFIC SIGNALS AND CROSSING PROTECTION		20,382			\$5,990,000	\$7,188,000	(\$353/TF
		20,362			73,330,000	\$7,100,000	(\$353/18
50.03 Traction power supply: substations]
50.03.1 Traction Power Substation, 5 total consistent with EIR project description	FA	5.	\$850,000.00	\$1,020,000.00	\$4,250,000	\$5,100,00	
50.03.5 Signal/Substation Buildings- shelter for housing substation	EA	5	\$20,000.00	\$24,000.00	\$100,000	\$120,000	0
CONTRACTOR OF THE PARTY THE SECOND STATE OF TH		 					-{

Los Angeles Department of Transportation URS Los Angeles Streettar Class C Cost Estimate



		QUANTITY	UNIT	COST	DASEA	E ALIGNMENT: 7TH ST. WITH G	AND
SECTION DESCRIPTION	UNIT	7TH INCL 15T &	GC COST NO	GC COST INCL	EXCLUDES ALLOCATED	INCLUDING ALLOCATED	ASSEMBLY & DIVISION
		GRAND	CNTGCY	CNTGCY	CONTINGENCY	CONTINGENCY	UNIT COSTS
		20,383			20,382	20,382	
TOTAL 50 TRACTION POWER SUPPLY: SUBSTATIONS		10			\$4,350,000	\$5,220,000	(\$522,000/TF)
50.04 Traction power distribution: catenary and third rail			,				
50.04.1 Overhead Catenary System - Single Track, including poles, foundations, and wires	TF	20,382	\$264.00	\$316.80	\$5,380,848	\$6,457,018	
50.04.2 Premium for unique OCS pole foundations at Metro Stations	EA	4	\$250,000.00	\$300,000.00	\$1,000,000	\$1,200,000	
50.04.3 Premium for unique OCS pole foundations at underground basements on Broadway, Hill, & 7th	TF	14,718	\$33.00	\$39.60	\$485,694	\$582,833	
TOTAL 50 TRACTION POWER DISTRIBUTION: CATENARY AND THIRD RAIL		20,383			\$6,866,542	\$8,239,850	(\$404/TF)
50.05 Communications							
50.05.1 Communications	MILE	4	\$69,314.49	\$83,177.39	\$267,570	\$321,084	
50.05.2 Radios	RF	20,382	\$31.63	\$37.96	\$644,782	\$773,738	
TOTAL 50 COMMUNICATIONS		20,383			\$912,351	\$1,094,822	(\$54/TF
50.06 Fare collection system and equipment				×			
50.06.1 Fare collection system- inside vehicles							
TOTAL 50 FARE COLLECTION SYSTEM AND EQUIPMENT		1					
TOTAL ESTIMATED CONSTRUCTION COST - STREETCAR		20,382	56 (2-20) (10)		\$56,617,933	\$69,296,586	(\$3,400/TF
60.01 Purchase or lease of real estate							
60.01.1 Real-estate							(\$560/SF
60.01.2 Purchase of Real Estate, Yard & Shop, assumes 100% purchase price for a lot within the preferred alignment corridor	SF	55,000	\$487.00	\$560.05	\$26,785,000	\$30,802,750	
60.01.3 Leased price for Substations, assumes a negotiated lease within an existing surface lot	SF	5	\$97,400.00	\$112,010.00	\$487,000	\$560,050	
TOTAL 60 PURCHASE OR LEASE OF REAL ESTATE		55,005			\$27,272,000	\$31,362,800	(\$570/SF
70.01 Light Rail					9		
70.01.1 Streetcar vehicles- manufacturing & shipping	EA	8	\$3,381,355.93	\$3,990,000.00	\$27,050,847	\$31,920,000	
70.01.2 Engineering, testing, & commissioning, 10%	EA	8	\$338,135.59	\$399,000.00	\$2,705,085	\$3,192,000	
70.01.3 Spare parts, 10%	EA	8	\$338,135.59	\$399,000.00	\$2,705,085	\$3,192,000	
TOTAL 70 LIGHT RAIL		8			\$32,461,017	\$38,304,000	(\$4,788,000/EA
70.05 Other Vehicles							

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate



		QUANTITY	UNIT	COST	BASE ALIGNMENT: 7TH ST, WITH GRAND		
SECTION DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
	70 100.55	20,383		de la familia	20,382	20,382	ALL STOCKS
70.05.1 Purchase & acquire maintenance vehicles	EA	2	\$200,000.00	\$236,000.00	\$400,000	\$472,000	÷
TOTAL 70 OTHER VEHICLES		2			\$400,000	\$472,000	(\$236,000/EA)
80.00 80 PROFESSIONAL SERVICES (applies to Cats. 10-50)					,		
80.00.1 Project Development - Engineering & Design to 100% Design	10.00%				\$5,661,793	\$6,929,659	
80.00.3 Project Management for Design and Construction - (URS, City Agencies, Third Party)	6.00%	†			\$3,397,076	\$4,157,795	
80.00.4 Engineer's Construction Administration & Construction Management Fees	9.00%	***************************************		****************	\$5,095,614	\$6,236,693	2
80.00.5 Professional Liability and other Non-Construction Insurance	2.00%				\$1,132,359	\$1,385,932	
80.00.6 Legal; Permits; Review Fees by other agencies, cities, etc.	3.00%				\$1,698,538	\$2,078,898	
80.00.7 Surveys, Testing, Investigation, Inspection	3.00%				\$1,698,538	\$2,078,898	
80.00.8 Start up - Owner Start-up Fees (Separate from Contractor Mobilization)	1.00%				\$566,179	\$692,966	9
TOTAL 80 80 PROFESSIONAL SERVICES (APPLIES TO CATS. 10-50)		20,382			\$19,250,097	\$23,560,839	(\$1,156/TF
TOTAL NON-CONSTRUCTION PROJECT COSTS - STREETCAR		20,382	s Tarisant	ST. = 4 T. S	\$79,383,114	\$93,699,639	(\$4,597/TF
90.00 UNALLOCATED CONTINGENCY	25.0		-		· ·		+
90.00.1 UNALLOCATED CONTINGENCY - CONSTRUCTION CONTINGENCY- ALLOWANCE FOR CHANGE ORDER & UNFORSEEN CONDITIONS DURING CONSTRUCTION - STANDARD 10% FOR TRANSIT PROJECTS	10%				\$13,600,105	\$16,299,622	
	194						
TOTAL 90 UNALLOCATED CONTINGENCY		20,382			\$13,600,105	\$16,299,622	(\$800/TF)
ESTIMATED STREETCAR COST - PREF. ALIGNMENT- 7TH W/ GRAND		20,382			\$149,601,152	\$179,295,847	(\$8,797/TF

APPENDIX 9.2 Detailed Estimate of Public Utility Costs 7th Street Alignment

Los Angeles Department of Transportation

Los Angeles Streetcar Class C Cost Estimate



PUBLIC UTILITIES SUMMARY - PREFERRED ALIGNMENT- 7TH STREET

			(cign) Edition in mayor = P	REFERRED ALIGNI	MENT	7TH STREET	
ITEM NO.	DESCRIPTION	ВҮ	D 2014 COSTS	COST PER MILE	YO	E 2018 COSTS	COST PER MILE
40.02.01	POWER- Including design contingency		\$19,650,916			\$23,082,639	
40.02.02	WATER- Including design contingency		\$8,627,570			\$10,134,239	
40.02.03	SANITARY SEWER- Including design contingency		\$3,744,676			\$4,398,624	
40.02.04	STORM DRAIN- Including design contingency		\$3,063,479			\$3,598,468	
40.02.05	TRAFFIC CONTROL- Including design contingency	property and the second	\$1,928,952			\$2,265,814	
Α	Construction Subtotal (10 - 50)	\$	37,015,593	\$9,588,967	\$	43,479,783	\$11,263,529
80	PROFESSIONAL SERVICES		\$12,585,302			\$14,783,126	
В	Subtotal (60-80)	\$	12,585,302	\$3,260,249	\$	14,783,126	\$3,829,600
C	Subtotal (10 - 80) UNALLOCATED CONTINGENCY (10%)	\$	49,600,895	\$12,849,216	\$	58,262,910	\$15,093,129
90	UNALLOCATED CONTINGENCY (10%)		\$4,960,089			\$5,826,291	
D	TOTAL PUBLIC UTILITIES COST	Ś	54,560,984	\$14,134,138	\$	64,089,201	\$16,602,442

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate



			QUANTITY	UNIT	COST	PR	PREFRRED ALIGNMENT: 7TH ST.		
SECTION	DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS	
	TRACK ALIGNMENT LENGTH		20,383			20,382	20,382	Mile Jacques Mile (MI)	
40.02.01	LADWP POWER SERVICE						÷		
40.02.01.01	VAULTS & ASSSOCIATED DUCT BANK								
40.02.01.02	Tier 1, replace, relocate vault and new ductbank								
40.02.01.03	Vault 1- 10'x9'4"x6'							(\$198,385/EA)	
40.02.01.04	Concrete Vault Construction- Contractor, including excavation, installation of vault, slurry backfill	EA	31	\$35,282.40	\$42,338.88	\$1,093,754	\$1,312,505		
40.02.01.05	Conduit And Encasement (6-6" pvc, 4-5" pvc, 2-4" pvc), allow 120 LF per vault - performed by contractor	LF	3,720	\$473.80	\$568.57	\$1,762,552	\$2,115,062		
40.02.01.06	Wiring/Cabling- allow cabling for 1/3 of the conduit lengths, 480 LF per vault - performed by DWP	LF	14,880	\$152.46	\$182.95	\$2,268,641	\$2,722,369		
40.02.01.07									
40.02.01.08	Vault 2- 15'x9'4"x6'							(\$215,984/EA)	
40.02.01.09	Concrete Vault Construction-Contractor, including excavation, installation of vault, slurry backfill	EA	37	\$49,947.83	\$59,937.39	\$1,848,070	\$2,217,683		
40.02.01.10	Conduit And Encasement (6-6" pvc, 4-5" pvc, 2-4" pvc), allow 120 LF per vault - performed by contractor	LF	4,440	\$473.80	\$568.57	\$2,103,691	\$2,524,429		
40.02.01.11	Wiring/Cabling- allow cabling for 1/3 of the conduit lengths, 480 LF per yault - performed by DWP	LF	17,760	\$152.46	\$182.95	\$2,707,733	\$3,249,279		
40.02.01.12	TABLE PERFORMANCE OF PARTY AND AND AND AND AND AND AND AND AND AND								
40.02.01.13	Tier 3, Vault Lid replacement - this assumes that the City of LA will approve Vault Lid replacement							(\$24,396/EA)	
40.02.01.14	Vault, 23'-10"x9'-7"		1	\$23,076.92	\$27,692.31	\$23,077	\$27,692	***************************************	
40.02.01.15	Vault, 26'-6"x9'-6"		1	\$23,076.92	\$27,692.31	\$23,077	\$27,692		
40.02.01.16	Vault, 16'x10'		1	\$23,076.92	\$27,692.31	\$23,077	\$27,692		
40.02.01.17	Vault, 8'x6'		1	\$15,384.62	\$18,461.54	\$15,385	\$18,462		
40.02.01.18	Vault, 26'-6"x9'-6"		1	\$23,076.92	\$27,692.31	\$23,077	\$27,692		
40.02.01.19	Vault, 17'-6"x9'-6"		1	\$23,076.92	\$27,692.31	\$23,077	\$27,692		
40.02.01.20	Vault, 27'-6"x9'-6"		1	\$23,076.92	\$27,692.31	\$23,077	\$27,692		
40.02.01.21	Vault, 24x9'-6"		1	\$23,076.92	\$27,692.31	\$23,077	\$27,692		
40.02.01.22	Vault, 10'x8'		1	\$15,384.62	\$18,461.54	\$15,385	\$18,462		
40.02.01.23	Vault, 17'x9'-6"		1	\$23,076.92	\$27,692.31	\$23,077	\$27,692		
40.02.01.24	Vault, 9'x9'		1	\$15,384.62	\$18,461.54	\$15,385	\$18,462		
40.02.01.25	Vault, 8'x8'	·	1	\$15,384.62	\$18,461.54	\$15,385	\$18,462		
40.02.01.26	Vault, 24'x9'-6"		1	\$23,076.92	\$27,692.31	\$23,077	\$27,692		
40.02.01.27	Vault, 9'x8'-5"		1	\$15,384.62	\$18,461.54	\$15,385	\$18,462		
40.02.01.28		l	1					(\$720/EA)	
40.02.01.29	Tier 4, access to vault is clear, allowance for coordination only	EA	34	\$600.00	\$720.00	\$20,400	\$24,480	(1,, 1	
40.02.01.30	Tier 5, abandoned vault, allowance for coordination only	EA	11	\$600.00	\$720.00	\$5,600	\$7,920		
40.02.01.31									
40.02.01.32	Special conditions		†				1 0 10 10 10 10 10 10 10 10 10 10 10 10		
40.02.01.33	Vault premiums for Methane Zone South of 7th Street, allow zebron coating, casting restraint system, 4 vents per structure, and standpipe to the nearest sidewalk	EA	8	\$30,000.00	\$36,000.00	\$240,000	\$288,000		
40.02.01.34	Intercept work at tying into existing structures, allow	EA	31	\$54,900.00	\$65,880.00	\$1,701,900	\$2,042,280		
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Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate



SECTION	DESCRIPTION	UNIT	7TH INCL 1ST &	GC COST NO	GC COST INCL	EXCLUDES ALLOCATED	INCLUDING ALLOCATED	ASSEMBLY & DIVISION
	TRACK ALIGNMENT LENGTH		GRAND	CNTGCY	CNTGCY	CONTINGENCY	CONTINGENCY	UNIT COSTS
	TRACK ALIGNMENT LENGTH		20,383			20,382	20,382	
40.02.01.35			 					
40.02.01.36	Hazmat Abatement							(\$84,462/EA)
40.02.01.37	Asbestos abatement to existing vaults, allowance	EA	24	\$70,384.62	\$84,461.54	\$1,689,231	\$2,027,077	(304,402/124)
40.02.01.38			 				, , , , , , , , , , , , , , , , , , , ,	
40.02.01.39	Utility investigation		<u> </u>					(\$16/LF)
40.02.01.40	Potholing, utility investigation, all ductbank within 10' of center line - incuded	LF	23,648	\$9.00	\$10.80	\$212,833	\$255,399	
40.02.01.41	EIR mitigation requirement- paleontological monitoring during vault excavations, allowance per new vaults	EA	68	\$1,440.00	\$1,728.00	\$97,920	\$117,504	
40.02.01.42								
40.02.01.43	ROADWAY DEMO & PATCH							(\$19.89/TF)
40.02.01.44	Demolish & remove pavement for guideway, allow 3' x LF of relocated line	SF	24,480	\$3.00	\$3.60	\$73,440	\$88,128	
40.02.01.45	Roadway reconstruction, asphalt paving, allow 50% AC / 50% PCC, allow 3' x LF of relocated line	SF	24,480	\$10.80	\$12.96	\$264,384	\$317,261	
TOTAL 40.02	01 LADWP POWER SERVICE		20,382	************		\$16,375,763	\$19,650,916	(\$964/TF)
101712-10.02.	SA MINITELL OFFICE OF THE STATE	-	20,302			\$20,073,703		(\$201)117
40.02.02	LADWP WATER SERVICE					a	*	,
40.02.02.01	Main lines, replace existing in relocated trench, including ex. & backfill							(\$372/LF)
40.02.02.02	20" DI Pipe	LF	771	\$469.57	\$563.48	\$361,894	\$434,273	
40.02.02.03	12" DI Pipe	LF	2,645	\$313.04	\$375.65	\$828,149	\$993,778	
40.02.02.04	10" DI Pipe	LF	2,408	\$292.17	\$350.61	\$703,453	\$844,143	
40.02.02.05	8" DI Pipe	LF	711	\$186.00	\$223.20	\$132,218	\$158,662	
40.02.02.06								
40.02.02.07	Broadway Main lines, replace existing in relocated trench, including ex. & backfill				e se	×	v	(\$367/LF)
40.02.02.08	18" DI Pipe	LF	608	\$383.48	\$460.17	\$233,136	\$279,763	
40.02.02.09	16" DI Pipe	LF	4,782	\$313.04	\$375.65	\$1,496,880	\$1,796,256	
40.02.02.10	12" DI Pipe	LF	134	\$313.04	\$375.65	\$41,909	\$50,290	
40.02.02.11	8" DI Pipe	LF	707	\$186.00	\$223.20	\$131,437	\$157,724	
40.02.02.12								
40.02.02.13	Main line crossings, replace existing in lowered trench		 					gg on monores
40.02.02.14	Main line crossing	EA	33		61.007.30	APO =45	A-7. 4-4	(\$17,727/EA)
40.02.02.15	24" Steel Pipe with 28" Steel Pipe Sleevé at crossing 20" Steel Pipe with 24" Steel Pipe Sleeve at crossing	LF LF	64 32	\$914.40 \$794.88	\$1,097.28 \$953.86	\$58,522 \$25,436	\$70,226 \$30,523	
40.02.02.17	18" Steel Pipe With 24" Steel Pipe Sleeve at crossing	LF	32	\$662.40	\$794.88	\$25,436	\$25,436	
40.02.02.17	16" Steel Pipe with 20" Steel Pipe Sleeve at crossing	LF	32	\$567.60	\$681.12	\$18,163	\$23,430	
40.02.02.19	12" Steel Pipe with 16" Steel Pipe Sleeve at crossing	LF	478	\$450.00	\$540.00	\$715,100	\$258,120	
40.02.02.20	10" Steel Pipe with 14" Steel Pipe Sleeve at crossing	LF	240	\$360.00	\$432.00	\$86,400	\$103,680	
40.02.02.21	8" Steel Pipe with 12" Steel Pipe Sleeve at crossing	LF	192	\$288.00	\$345.60	\$55,296	\$66,355	
40.02.02.22	6" Steel Pipe with 10" Steel Pipe Sleeve at crossing	LF	32	\$230.40	\$276.48	\$7,373	\$8,847	

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate



			QUANTITY UNIT COS			PR	REFRRED ALIGNMENT: 7TH ST.	
SECTION (DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
SHIP SEE	TRACK ALIGNMENT LENGTH	AD THE	20,383			20,382	20,382	
40.02.02.24	Large services, 3"-8", including trenching & backfill							
40.02.02.25	Large service crossing	EA	104					(\$11,980/E
40.02.02.26	8" Steel Pipe with 12" Steel Pipe Sleeve at crossing	LF	260	\$288.00	\$345.60	\$74,880	\$89,856	-
40.02.02.27	8" DI Pipe	LF	43	\$186.00	\$223.20	\$8,041	\$9,649	
40.02.02.28	8" DI Pipe, extension to main, bette rmen t	LF	86	\$186.00	\$223.20	\$15,959	\$19,151	
40.02.02.29	6" Steel pipe with 10" pipe sleeve at crossing	LF	1,844	\$258.00	\$309.60	\$475,752	\$570,902	
40.02.02.30	6" DI Pipe	LF	382	\$156.00	\$187.20	\$59,631	\$71,557	
40.02.02.31	6" Di Pipe, extension to main, betterment	LF	254	\$156.00	\$187.20	\$39,640	\$47,568	
40.02.02.32	4" Steel Fire with 8" Steel Pipe Sleeve at crossings	LF	1,281	\$228.00	\$273.60	\$292,068	\$350,482	
40.02.02.33	4" DI Pipe	LF	298	\$144.00	\$172.80	\$42,847	\$51,417	
40.02.02.34	4" DI Pipe, extension to main, betterment	LF	205	\$144.00	\$172.80	\$29,462	\$35,355	
40.02.02.35								
40.02.02.36	Small services, < 4"							
40.02.02.37	Small service crossing	EA	43					(\$8,929/
40.02.02.38	2" Copper with 6" PVC sleeve at crossing	LF	890	\$148.80	\$178.56	\$132,432	\$158,918	
40.02.02.39	2" Copper Pipe extension to main	LF	199	\$140.40	\$168.48	\$27,954	\$33,544	
40.02.02.40	2" Copper Pipe, extension to main, betterment	LF	185	\$140.40	\$168.48	\$25,946	\$31,135	
40.02.02.41	1-1/2" Copper Pipe with 4" PVC sleeve at crossing	LF	402	\$136.80	\$164.16	\$54,994	\$65,992	
40.02.02.42	1-1/2" Copper Pipe extension to main	LF	72	\$128.40	\$154.08	\$9,181	\$11,017	
40.02.02.43	1-1/2" Copper Pipe, extension to main, betterment	LF	112	\$128.40	\$154.08	\$14,406	\$17,288	
40.02.02.44	1" Copper with 4" PVC sleeve at crossing	LF	243	\$133.20	\$159.84	\$32,368	\$38,841	
40.02.02.45	1" Copper Pipe extension to main	LF	53	\$124.80	\$149.76	\$6,589	\$7,907	
40.02.02.46	3/4" Copper with 4" PVC sleeve at crossing	LF	96	\$121.20	\$145.44	\$11,635	\$13,962	
40.02.02.47	3/4" Copper Pipe extension to main	LF	40	\$112.80	\$135.36	\$4,467	\$5,360	
40.02.02.48	2 (2000) 2 2 2 2 4 3 5 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5							
40.02.02.49	Fire hydrants & connections, contractor costs						4 400 00 3 2 2 20 3 2 4 1 2 4 1 3 1 3 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
40.02.02.50	Fire hydrant crossings, QTY only	ĒA	39				2	(\$18,430/
40.02.02.51	New fire hydrant, including wet tap connection	EA	8	\$10,200.00	\$12,240.00	\$81,600	\$97,920	
40.02.02.52	Wet tap into existing hydrant	EA	54	\$1,200.00	\$1,440.00	\$64,800	\$77,760	
40.02.02.53	Demolish existing fire hydrant	EA	8	\$1,200.00	\$1,440.00	\$9,600	\$11,520	
40.02.02.54	6" DI Pipe, extension to main	LF	656	\$156.00	\$187.20	\$102,352	\$122,822	
40.02.02.55	6" Steel pipe with 10" steel sleeve at crossing	LF	1,156	\$258.00	\$309.60	\$298,248	\$357,898	
40.02.02.56	6" DI Pipe, extension to main, betterment	LF	272	\$156.00	\$187.20	\$42,370	\$50,844	
40.02.02.57	\$							
40.02.02.58	Utility investigation		 					(\$11/
40.02.02.59	Potholing, utility investigation	LF	16,188	\$9.00	\$10.80	\$145,689	\$174,827	
40.02.02.60		***************************************	<u> </u>	****				
40.02.02.61	ROADWAY DEMO & PATCH					·	***************************************	(\$16.56/
40.02.02.62	Demolish & remove pavement for guideway, allow 3' x LF of relocated line	SF	48,563	\$3.00	\$3.60	\$145,689	\$174,827	1.
40.02.02.63	Roadway reconstruction, asphalt paving, allow 50% AC / 50% PCC, allow 3' x LF of relocated line	SF	48,563	\$10.80	\$12.96	\$524,482	\$629,378	

Owner: Fstimator: Project:

Los Angeles Department of Transportation URS

Los Angeles Streetcar Class C Cost Estimate



	Second Control of the		QUANTITY	UNIT	COST	PRE	"但在苏冕是"的	
SECTION	DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
	TRACK ALIGNMENT LENGTH		20,383			20,382	20,382	
TOTAL 40.0	2.02 LADWP WATER SERVICE		20,383			\$7,189,642	\$8,627,570	(\$423/TF)
40.02.03	SANITARY SEWER			10	10			
40.02.03.01	SANITARY SEWER MANHOLES & ASSOCIATED PIPING							(\$42,615/EA)
40.02.03.02	Manhole, relocate	EA	53					
40.02.03.03	Excavation & backfill pit for new MH	CY	15,900	\$84.00	\$100.80	\$1,335,600	\$1,602,720	
40.02.03.04	Pit shoring	SF	10,176	\$8.40	\$10.08	\$85,478	\$102,574	
40.02.03.05	Precast concrete manhole	EA	53	\$7,800.00	\$9,360.00	\$413,400	\$496,080	
40.02.03.06	Cast iron cover and lid	EA	53	\$900.00	\$1,080.00	\$47,700	\$57,240	
40.02.03.07							8	
40.02.03.08	Piping re-route to new Manhole locations	EA	53		9			(\$423/LF)
40.02.03.09	Connect to existing service, 2 x each MH	EA	106	\$600.00	\$720.00	\$63,600	\$76,320	
40.02.03.10	Piping connection to new manhole, allow 25' from each end	LF	2,650	\$72.00	\$86.40	\$190,800	\$228,960	
40.02.03.11	Trenching, & backfill for piping	CY	3,926	\$84.00	\$100.80	\$329,778	\$395,733	
40.02.03.12	Trench shoring	SF	42,400	\$6.00	\$7.20	\$254,400	\$305,280	
40.02.03.13	Abandon existing MH	EA	53	\$1,800.00	\$2,160.00	\$95,400	\$114,480	
40.02.03.14			T					
40.02.03.15	Utility investigation		T					(\$23/TF)
40.02.03.16	Potholing, utility investigation, etc.	CY	7,423	\$9.00	\$10.80	\$66,807	\$80,168	
40.02.03.17	EIR mitigation requirement- paleontological monitoring during vault excavations, allowance per vault tiers 1 & 2	EA	53	\$1,440.00	\$1,728.00	\$76,320	\$91,584	
40.02.03.18								
40.02.03.19	ROADWAY DEMO & PATCH						**************************************	(\$9/TF)
40.02.03.20	Demolish & remove pavement for guideway, allow 3' x LF of relocated line	EA	56	\$480.00	\$576.00	\$26,880	\$32,256	
40.02.03.21	Roadway reconstruction, asphalt paving, allow 50% AC / 50% PCC, allow 3' x LF of relocated line	EA	56	\$2,400.00	\$2,880.00	\$134,400	\$161,280	
TOTAL 40 0	2.03 SANITARY SEWER		20,383			\$3,120,563	\$3,744,676	(\$184/TF)
101AL 40.0	2.03 SAINTANT SEWER		20,363			\$3,120,303	\$3,744,676	(3104/17)
40.02.04	STORM DRAINAGE							
40.02.04.01	STORM DRAIN MANHOLES & ASSOCIATED PIPING							(\$46,935/EA)
40.02.04.02	Manhole, relocate	EA	7					· · · · · · · · · · · · · · · · · · ·
40.02.04.03	Excavation & backfill pit for new MH	CY	2,100	\$84.00	\$100.80	\$176,400	\$211,680	
40.02.04.04	Pit shoring	SF	1,344	\$8.40	\$10.08	\$11,290	\$13,548	
40.02.04.05	Precast concrete manhole	EΑ	7	\$10,200.00	\$12,240.00	\$71,400	\$85,680	
40.02.04.06	Connect to existing service, 2 x each MH	EA	14	\$600.00	\$720.00	\$8,400	\$10,080	
40.02.04.07	Cast iron cover and lid	EA	7	\$900.00	\$1,080.00	\$6,300	\$7,560	
40.02.04.08						*****	77,000	
40.02.04.09	Piping & casing	EA	† <u>-</u>					(\$251/LF)
40.02.04.10	24" Storm Drain	LF	2,000	\$144.00	\$172.80	\$288,000	\$345,600	(72,51) [1]
40.02.04.11	18" Storm Drain	LF	1,900	\$120.00	\$144.00	\$228,000	\$273,600	

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate



		QUANTITY	UNIT	COST	PR	EFRRED ALIGNMENT: 7TH ST.	以图1000000000000000000000000000000000000
SECTION DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
TRACK ALIGNMENT LENGTH		20,383	Trest fat		20,382	20,382	
40.02.04.12 Replace storm drain lateral crossing tracks	EA	810	\$72.00	\$86.40	\$58,320	\$69,984	
40.02.04.13 Concrete encasment for storm drain main line	EA	3,800	\$240.00	\$288.00	\$912,000	\$1,094,400	
40.02.04.14 Trenching, & backfill for piping	CY	3,309	\$84.00	\$100.80	\$277,993	\$333,592	
40.02.04.15 Abandon existing MH	EA	7	\$1,800.00	\$2,160.00	\$12,600	\$15,120	
40.02.04.16		·					
40.02.04.17 Catch basins	1						(\$14,884/EA
40.02.04.18 Concrete curb inlet catch basin, 2 per station stop	EA	27	\$12,403.20	\$14,883.84	\$334,886	\$401,864	(, , , , , , , , , , , , , , , , , , ,
40.02.04.19							
40.02.04.20 Utility investigation							(\$12/LF
40.02.04.21 Potholing, Jack-support existing utilities, etc., allowance	LF	8,510	\$9.00	\$10.80	\$76,590	\$91,908	(4-171
40.02.04.22 EIR mitigation requirement- paleontological monitoring during vault excavations, allowance per vault tiers 1 & 2	EA	7	\$1,440.00	\$1,728.00	\$10,080	\$12,096	
40.02.04.23							
40.02.04.24 ROADWAY DEMO & PATCH							(\$4.75/TF
40.02.04.25 Demolish & remove pavement for guideway, allow 3' x LF of relocated line	EA	28	\$480.00	\$576.00	\$13,440	\$16,128	
40.02.04.26 Roadway reconstruction, asphalt paving, allow 50% AC / 50% PCC, allow 3' x LF of relocated line	EA	28	\$2,400.00	\$2,880.00	\$67,200	\$80,640	
TOTAL 40.02.04 STORM DRAINAGE		20,383			\$2,552,899	\$3,063,479	(\$150/TF
40.08 TEMP FACILITIES / TRAFFIC CONTROL			,				
40.08.01 Temporary Traffic Control- Included in Public Utilities estimate	ΤF	20,382	\$65.00	\$84.50	\$1,324,830	\$1,722,279	
40.08.02 Construction Lighting Allowance- Included in Public Utilities estimate	TF	20,382	\$7.80	\$10.14	\$158,980	\$206,673	
TOTAL 40.08 TEMP FACILITIES / TRAFFIC CONTROL		20,382			\$1,483,810	\$1,928,952	(\$95/TI
TOTAL ESTIMATED CONSTRUCTION COST - PUBLIC UTILITIES	ECT LA	20,382		BA B-ALF-AL	\$30,722,677	\$37,015,593	(\$1,816/TF
80 80 PROFESSIONAL SERVICES (applies to Cats. 10-50)							
80.01 Project Development	10.00%				\$3,072,268	\$3,701,559	
80.02 Engineering (not applicable to Small Starts)							
80.03 Project Management for Design and Construction	6.00%				\$1,843,361	\$2,220,936	
80.04 Construction Administration & Management	9.00%				\$2,765,041	\$3,331,403	
80.05 Professional Liability and other Non-Construction Insurance	2.00%				\$614,454	\$740,312	
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.	3.00%				\$921,680	\$1,110,468	
80.07 Surveys, Testing, Investigation, Inspection	3.00%				\$921,680	\$1,110,468	
80.08 Start up	1.00%				\$307,227	\$370,156	
		20.202					ièran tri
TOTAL 80 80 PROFESSIONAL SERVICES (APPLIES TO CATS. 10-50)		20,382			\$10,445,710	\$12,585,302	(\$617/TF

Los Angeles Department of Transportation URS Los Angeles Streeţcar Class C Cost Estimate



		QUANTITY	UNIT	COST	PR	EFRRED ALIGNMENT: 7TH ST.	
SECTION DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
TRACK ALIGNMENT LENGTH		20,383			20,382	20,382	Call and the Call And the Call
TOTAL NON-CONSTRUCTION PROJECT COSTS - PUBLIC UTILITIES	- E - T - N	20,382	261 J-1868		\$10,445,710	\$12,585,302	(\$617/TF)
90.00 UNALLOCATED CONTINGENCY					e		
90.01 UNALLOCATION CONTINGENCY - CONSTRUCTION CONTINGENCY - ALLOWANCE FOR CHANGE ORDER & UNFORSEEN CONDITIONS DURING CONSTRUCTION - STANDARD 10% FOR TRANSIT PROJECTS	10%				\$4,116,839	\$4,960,089	
TOTAL 90 UNALLOCATED CONTINGENCY		20,382			\$4,116,839	\$4,960,089	(\$243/TF)
		а				*	
ESTIMATED PUBLIC UTILITIES COST - PREF. ALIGNMENT- 7TH W/ GRAND	MHAES.	20,382			\$45,285,226	\$54,560,984	(\$2,677/TF)

APPENDIX 9.3 Detailed Estimate of Private Utility Costs 7th Street Alignment

Owner:

Los Angeles Department of Transportation

Estimator

Project: Lo Phase: C

Los Angeles Streetcar Class C Cost Estimate



PRIVATE UTILITIES SUMMARY- PREFERRED ALIGNMENT- 7TH STREET

			Payments, the P	REFERRED ALIG	NMENT: 7	TH STREET	
ITEM NO.	DESCRIPTION	ВУГ	D 2014 COSTS	COST PER MILE	YOE 2	2018 COSTS	COST PER MILE
	TRACK LENGTH		3.86	MILE		3.86	MILE
1	AT&T Telecom		\$4,728,679			\$5,554,468	,
2	FIBER OPTIC		\$1,317,677			\$1,547,789	
2	CABLE TC		\$37,670			\$44,249	
1	GAS		\$1,467,504			\$1,723,780	
5	TRAFFIC CONTROL						
A	Construction Subtotal (10 - 50)	\$	\$413,347 7,964,877	\$2,063,318	è	\$485,531 9,355,818	\$2,423,644
	Constituction Subtotal (10 - 30)		1,304,61)	72,003,318	9	2,333,010	72,423,044
80	PROFESSIONAL SERVICES		\$2,708,058			\$3,180,978	
В	Subtotal (60-80)	\$	2,708,058	\$701,528	\$	3,180,978	\$824,039
С	Subtotal (10 - 80)	\$	10,672,936	\$2,764,846	\$	12,536,796	\$3,247,683
90	UNALLOCATED CONTINGENCY (10%)		\$1,067,294			\$1,253,680	
D -	TOTAL PRIVATE UTILITIES COST - 100%		\$11,740,7229	\$3,041,331		\$13,790,47/5	\$3,572,452
E	PRIVATE UTILITIES COST AT 25% OF TOTAL		\$2,92,5,057.	\$760,333		\$3,447,619	\$893,113

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate

Owner: Estimator: Project: Phase:

09/10/14

DETAILED COST ESTIMATE - PRIVATE UTILITIES - PREFERRED ALIGNMENT - 7TH ST.

UNIT	7TH INCL 1ST &	GC COST NO	GC COST INCL	EXCLUDES ALLOCATED		
	GRAND	CNTGCY	CNTGCY	CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
NO SECTION AND ADDRESS OF THE PARTY OF THE P	20,383			20,382	20,382	
					*	
<u> </u>				-0-		(\$22,859.39/LF)
EA	55	\$60,000.00	\$72,000.00	\$3,300,000	\$3,960,000	(722,033.33/ 11 /
LF	167	\$3,456.00	\$4,147.20	\$578,508	\$694,209	
EA	207	\$300.00	\$360.00	\$62,058	\$74,469	
	20,382			\$3,940,565	\$4,728,679	(\$232/TF)
Ē	ļ					(\$18,050.38/LF)
EA	16	\$60.000.00	\$72.000.00	\$960.000	\$1.152.000	(\$10,000.30/ LP)
LF	34	\$3,456.00	\$4,147.20	\$116,164		
LF	73	\$300.00	\$360.00	\$21,900	\$26,280	
	20,383			\$1,098,064	\$1,317,677	(\$65/TF
					P	
	ļ					
	<u> </u>			*****		(\$1,569.60/LF
Lr	24	\$300.00	\$360.00	\$7,200	\$8,640	
	20.383			¢21 202	¢27 670	(\$2/TF
	20,303			731,332	337,070	(42) 11
<u> </u>						1670.004.5
TF	20,382	\$60,00	\$72.00	\$1,222,920	\$1,467,504	(\$72.00/LF
+	20,383			\$1,222,920	\$1,467,504	(\$72/TF
TF	20,382	\$13.00	\$16.90	\$264,966	\$344,456	
TF	20,382	\$2,60	\$3.38	\$52,993	\$68,891	
	20,382			\$317,959	\$413,347	(\$20/TF
	EA LF LF LF TF	EA 55 LF 167 EA 207 EA 20,382 EA 16 LF 34 LF 73 20,383 TF 20,382 TF 20,382 TF 20,382	EA 55 \$60,000.00 LF 167 \$3,456.00 EA 207 \$300.00 20,382 EA 16 \$60,000.00 LF 34 \$3,456.00 LF 73 \$300.00 LF 73 \$300.00 TF 20,383 TF 20,382 \$13.00 TF 20,382 \$13.00 TF 20,382 \$2.60	EA 55 \$60,000.00 \$72,000.00 LF 167 \$3,456.00 \$4,147.20 EA 207 \$300.00 \$360.00 20,382 EA 16 \$60,000.00 \$72,000.00 LF 34 \$3,456.00 \$4,147.20 LF 73 \$300.00 \$360.00 20,383 LF 7 \$3,456.00 \$4,147.20 LF 24 \$300.00 \$360.00 TF 20,383 TF 20,382 \$60.00 \$72.00 TF 20,383 TF 20,382 \$13.00 \$16.90 TF 20,382 \$2.60 \$3.38	EA 55 \$60,000.00 \$72,000.00 \$3,300,000 LF 167 \$3,456.00 \$4,147.20 \$578,508 EA 207 \$300.00 \$360.00 \$62,058 20,382 \$3,940,565 EA 16 \$60,000.00 \$72,000.00 \$960,000 LF 34 \$3,456.00 \$4,147.20 \$116,164 LF 73 \$300.00 \$360.00 \$21,900 20,383 \$1,098,064 LF 7 \$3,456.00 \$4,147.20 \$24,192 LF 24 \$300.00 \$360.00 \$77,200 TF 20,383 \$51,222,920 20,383 \$1,222,920 TF 20,383 \$1,222,920	EA 55 \$60,000.00 \$72,000.00 \$3,300,000 \$3,960,000 LF 167 \$3,456.00 \$4,147.20 \$578,508 \$684,209 EA 207 \$500.00 \$360.00 \$62,058 \$74,469 20,382 \$3,940,565 \$4,728,679 EA 16 \$60,000.00 \$72,000.00 \$960,000 \$1,152,000 LF 34 \$3,456.00 \$4,147.20 \$16,64 \$1339,397 LF 73 \$300.00 \$360.00 \$21,900 \$26,280 20,383 \$1,098,064 \$1,317,677 LF 7 \$5,456.00 \$4,147.20 \$524,192 \$29,030 LF 24 \$500.00 \$360.00 \$77,000 \$8,640 TF 20,383 \$\$1,222,920 \$1,467,504 TF 20,383 \$\$1,222,920 \$1,467,504 TF 20,383 \$\$1,500 \$16.50 \$264,966 \$344,456 TF 20,382 \$52.60 \$3.38 \$52,933 \$568,891

Los Angeles Department of Transportation URS

Los Angeles Streetcar Class C Cost Estimate

09/10/14

DETAILED COST ESTIMATE - PRIVATE UTILITIES - PREFERRED ALIGNMENT - 7TH ST.

		QUANTITY	UNIT	COST	PRE	FERRED ALIGNMENT: 7TH ST.	运动机器
SECTION DESCRIPTION	UNIT	7TH INCL 1ST & GRAND	GC COST NO CNTGCY	GC COST INCL CNTGCY	EXCLUDES ALLOCATED CONTINGENCY	INCLUDING ALLOCATED CONTINGENCY	ASSEMBLY & DIVISION UNIT COSTS
TRACK ALIGNMENT LENGTH		20,383			20,382	20,382	
TOTAL ESTIMATED CONSTRUCTION COST - PUBLIC UTILITIES	= W-UE,	20,382			\$6,610,901	\$7,964,877	(\$391/TF
80 80 PROFESSIONAL SERVICES (applies to Cats. 10-50)			55			×	
80.01 Project Development	10.00%				\$661,090	\$796,488	
80.02 Engineering (not applicable to Small Starts)	***************************************						
80.03 Project Management for Design and Construction	6.00%	T		I	\$396,654	\$477,893	
80.04 Construction Administration & Management	9.00%				\$594,981	\$716,839	
80.05 Professional Liability and other Non-Construction Insurance	2.00%				\$132,218	\$159,298	
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.	3.00%				\$198,327	\$238,946	
80.07 Surveys, Testing, Investigation, Inspection	3.00%				\$198,327	\$238,946	
80.08 Start up	1.00%				\$66,109	\$79,649	
TOTAL 80 80 PROFESSIONAL SERVICES (APPLIES TO CATS. 10-50)		20,382			\$2,247,706	\$2,708,058	(\$133/TF
TOTAL NON-CONSTRUCTION PROJECT COSTS - PUBLIC UTILITIES	- X (7)	20,382	gunzi eta		\$2,247,706	\$2,708,058	(\$133/TF
90.00 UNALLOCATED CONTINGENCY							
90.01 UNALLOCATION CONTINGENCY - CONSTRUCTION CONTINGENCY - ALLOWANCE FOR CHANGE ORDER & UNFORSEEN CONDITIONS DURING CONSTRUCTION - STANDARD 10% FOR TRANSIT PROJECTS	10%				\$885,861	\$1,067,294	
andrane armen valender to the same as a fine of the same could also that our vertex assessment by a second as a							
TOTAL 90 UNALLOCATED CONTINGENCY		20,382			\$885,861	\$1,067,294	(\$52/TF
		00.555					(\$576/TF
ESTIMATED PRIVATE UTILITIES COST - PREF. ALIGNMENT- 7TH W/ GRAND	11-11-11	20,382	JUL 1974 /2		\$9,744,468	\$11,740,229	

APPENDIX 9.4 Back-up Unit Price Calculations for Power Vault Replacement

Los Angeles Historic Streetcar

LADWP Vault Relocation - Tiers 1

			Total E	stimate
Description	Qty,	Unit	Trade Cost	Unit Cost Including GC Mark-ups
		,		
<u>Tier 1</u> New LADWP Vault And Electrical Power - 10'x9'4"x6' - Including				
ductbanks	1	EA	\$149,964	\$165,321
New LADWP Vault And Electrical Power - 15'x9'4"x7'- Including ductbanks	1	EA	\$162,186	\$179,986
Excludes: traffic control, roadway demo/repave, engineering & professional services, and agency costs. (These costs are included elsewhere in the Streetcar estimate.)				

Los Angeles Historic Streetcar New LADWP Vault And Electrical Power - 10'x9'4"x6'

					LA	BOR		MATER	AL	EQUIPMENT	LUMP SUM			EXTENDED C	OST		Tre	ie Cost	GC Cost
	Description	Qty,	Unit	Labor Prod Rate	DLTA Adj. Factor	Labor Rate	Total Hours	Mat ⁱ l Unit Cost	Indirects & Buy America Factor	Equipment Unit Cost	Sub Unit Cost	Labor Cost	Labor Cost incl. MU (From Contract)		Equipment Cost	Subonetractor Cost	Trade Unit Cost	Total Trade cost	Total Co Including
_	Example Vault Estimate By Elemental Cost																		
_	Exemple votal Estatistic by Elemento Cost		-		F		_												
	Contractor's Cost- Adjustments per URS Standards		-					· · · · · · · · · · · · · · · · · · ·											
	Excavation & hauling, & backfill	48	CY	0.83		\$73.37	40			\$44.88	\$30.00	\$2,923	_		52,154	\$1,440	\$135.78	\$6,517	
	Shoring	32D	SF								\$20.00					\$6,400		\$6,400	
	Precast concrete vault, including install & equipment, 10'x9'4"x6'	1	LS	40.00		\$73.37	40	\$12,500.00		\$1,050.00		\$2,935		\$12,500	\$1,050		\$16,484.80	\$16,485	
	TOTAL CONTRACTOR COST	1	EA				80					\$5,858		\$12,500	\$3,204	\$7,840	\$29,402.10	\$29,402	
	Contractor Cost-Ductbank (165' x 6' x 6')					-													
	Trenching	160	CY	0.57		\$73.37	125			\$21.05		\$6,670			\$3,368		\$62.74	\$10,038	
	Backfill Slurry	53	CY	0.36		\$73.37	19	\$85.00				\$1,416		\$4,513			\$111.68	\$5,929	
	Export	16	LOAD								\$375.00					\$6,000		\$5,000	
	Conduit And Encasement (6-6" pvc, 4-5" pvc, 2-4" pvc)	120	LF	1.08		\$73.37	130	\$102.33				\$13,133		\$12,280			\$211.78	\$25,413	
	TOTAL CONTRACTOR COST	120	IF.				274					\$21,220		\$16,793	\$3,368	\$6,000	5394.84	\$47,380	
	DWP Electrical Estimate - Adjustments per DWP Standards																		
	Remove Existing Cable	1	LS	42.50		\$183.00	64			\$1,000.00		\$11,666			\$1,000		\$12,666.25	\$12,566	
	Install New 3C MCM 35KV Cable (660 LF)	480	LF	0.10		\$183.00	70			\$1.25		\$12,781					\$78.28	\$37,573	
	Splice And Terminate	1	1.5	32.00		\$183.00	48	4-401-010-0		\$1,000.00		\$8,784					\$14,918.50	\$14,919	
	HI Pot Testing	1	LS	21.00	50%	\$183.00	-	STATE OF THE PERSON NAMED IN	26%	\$1,000.00		\$5,765	Charles and the Party of the Pa	THE R. P. LEWIS CO., Lawrence, etc., in such districts.	THE RESIDENCE PROPERTY.	ATTACL TO SECURE	\$8,024.50	\$8,025	-
	TOTAL DWP COST	480	LF.		ii .		213			M.		\$38,995	\$38,995	\$30,587	\$3,600		\$152.46	\$73,182	
	TOTAL COST	-	EA	L	L.,		567			1		\$66,073	\$38,995	559,879	\$10,172		\$149,964,49	\$149,964	

Los Angeles Historic Streetcar New LADWP Vault And Electrical Power - 15'x9'4"x7'

					LA	BOR		MATERI	AL	EQUIPMENT	LUMP SUM			EXTENDED C	OST		Trac	le Cost	GC Cost
et	Description	Qty,	Unit	Labor Prod Rate	DLTA Adj. Factor	Labor Rate	Total Hours	Mat'l Unit Cost	Indirects & Buy America Factor	Equipment Unit Cost	Sub Unit Cost		Labor Cost Incl. MU (From Contract)	Material Cost	Equipment Cost	Subonetractor Cost	Trade Unit Cost	Total Trade cost	Total Co. Including OH&P
	Example Vault Estimate By Flemental Cost																	**************************************	
	Contractor's Cost - Adjustments per URS Standards											-							
	Excavation & haufing, & backfill	72	CY	0.70		\$73.37	50			\$29.92	\$20.00	\$3,698			\$2,154	\$1,440	\$101.28	\$7,292	\$
	Shoring	554	5F			7					\$20.00					\$11,080	\$20.00		\$1
	Precast concrete vault, including install & egulpment, 15'x9'4"x7'	1	LS	30.00		\$73.37	30	\$20,000.00		\$1,050.00		\$2,201		\$20,000	\$1,050		\$23,251.10	\$23,251	\$2
	TOTAL CONTRACTOR COST	1	EA		•	1000	80			Addresia de la constitución de l		\$5,899		\$20,000	\$3,204	\$12,520	\$41,623.19	\$41,623	\$4
	Contractor Cost- Ductbank (165' x 6' x 6')		-												_				
	Trenching	160	CY	0.57		\$73.37	125			\$21.05		\$6,670			\$3,368		\$62.74	\$10,038	\$1
	Backfill Sturry	53	CY	0.36		\$73.37	19	\$85.00				\$1,416		\$4,513			\$111.68	\$5,929	\$7
	Export	16	LOAD								\$375.00					\$6,000	\$375.00	\$6,000	\$7
	Conduit And Encasement (6-6" pvc, 4-5" pvc, 2-4" pvc)	120	LF	1,08		\$73.37	130	\$102.33				\$13,133		\$12,280			\$211.78	. \$25,413	\$30
	TOTAL CONTRACTOR COST	120	LF				274					\$21,220		\$16,793	\$3,368	\$6,000	\$394.84	\$47,380	\$56
	DWP Electrical Estimate - Adjustments per DWP Standards														-				
	Remove Existing Cable	1	LS	42.50	50%	\$183.00	64	7500.00	26%	\$1,000.00		\$11,666			\$1,000		\$12,666.25	\$12,666	\$12 \$37 \$14
	Install New 3C MCM 35KV Cable (660 LF)	480	LF	0.10	50%	\$183.00	70	\$40.00	26%	\$1.25		\$12,781	\$12,781				\$78.28	\$37,573	\$3
	Splice And Terminate	1	LS	32.00		\$183.00	48	\$4,075.00	26%	\$1,000.00		\$8,784			\$1,000		\$14,918.50		\$14
	Hi Pot Testing	1	LS	21,00	50%	\$183.00	37	\$1,000.00	26%	\$1,000.00		\$5,765	\$5,765	\$1,260	\$1,000		\$8,024,50	\$8,025	\$8
	TOTAL DWP COST	480	UF .		1		213					\$38,995	\$38,995	\$30,587	\$3,600		\$152.46	\$73,182	\$7.
	TOTAL COST	400	<u> </u>											667	610.170		422		\$17
	TOTAL COST	480	EA			and the second second second second	568				1990	\$66,114	\$38,995	\$67,379	\$10,172	\$18,520	\$337.89	\$162,186	

APPENDIX 9.5 Escalation Calculations

Owner: Estimator:

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate

Proiect: Phase:



ESCALATION CALCULATION - FOR CONSTRUCTION COST MID-POINT OF CONSTRUCTION

START CONSTRUCTION CONSTRUCTION PERIOD MID-POINT: END CONSTRUCTION		7/4/2017 26 8/3/2018 9/2/2019					
ESCALATION PER YEAR =		2014 2015 2016 2017 2018	4.00% 4.00% 4.00%				
Years	2014 2015 2016 2017 2018	12/31/2014 12/31/2015 12/31/2016 12/31/2017 8/3/2018	6.0 12.0 12.0 12.0	mo mo mo	2.01% 4.00% 4.01% 4.00% 2.36%	or	1.0201 1.0400 1.0401 1.0400 1.0236
				ESCAL/	ATION:		<u>17.46%</u>

Owner:

Los Angeles Department of Transportation URS Los Angeles Streetcar Class C Cost Estimate

Estimator: Project:

Phase:



ESCALATION CALCULATION - VEHICLES & LAND ACQUISITION DATE OF ACQUISITION

PURCHASE DATE		7/1/2017					
ESCALATION PER YEAR =		2014	4.00%				
		2015	4.00%				
		2016	4.00%				
		2017	4.00%	i i			
		2018	4.00%				
Years	2014	12/31/2014	6.0	mo	2.01%	or	1.0201
	2015	12/31/2015	12.0	mo	4.00%		1.0400
	2016	12/31/2016	12.0	mo	4.01%		1.0401
	2017	7/1/2017	6.0	mo	1.99%		1.0199
	2018		0.0	mo	0.00%		1.0000
				ESCALA	TION:		12.54%

APPENDIX 9.6 Independent Land Appraisal Report by CBRE

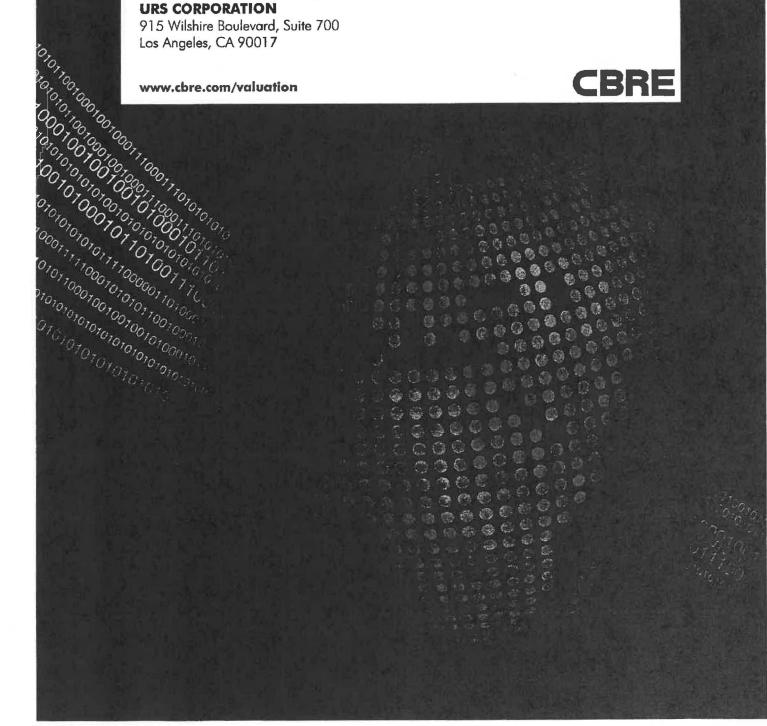


LA STREETCAR

Consultation – Downtown Los Angeles Land Value Range & Related Information 200 Master Subcontract Los Angeles, CA

CBRE File No. 14-251LA-1508

Mr. Steve Ortmann Vice President Mr. John Swartz, CPE Senior Estimator/Project Manager **URS CORPORATION**



CBRE, Inc. 400 S. Hope Street, 25th Floor Los Angeles, CA 90071 www.cbre.com

July 8, 2014

Mr. Steve Ortmann
Vice President
Mr. John Swartz, CPE
Senior Estimator/Project Manager
URS CORPORATION
915 Wilshire Boulevard, Suite 700
Los Angeles, CA 90017

Phone: (213) 996-2207 E-mail: steve.ortmann@urs.com

john.swartz@urs.com

RE: LA Streetcar

Consultation - Downtown Los Angeles Land Value Range & Related Information

200 Master Subcontract

Los Angeles, CA

CBRE File No. 14-251LA-1508

Dear Mr. Ortmann and Mr. Swartz:

At your request, we are providing a range of value for large development sites, located in Downtown Los Angeles, for potential use as layover facilities for the proposed LA Streetcar. Three sites (the S.W. corner of 11^{th} and Olive, the N.W. corner of Hill and 5^{th} , and the east side of the 200 block of South Broadway through to Hill Street) have been considered for this use. This appraisal is intended to provide an indication of the probable value of these or similar sites, on a per square foot (of land area) basis. It is not a specific appraisal of any of those three actual sites.

This assignment is for the use of URS Corporation, and assignees, to assist in estimating the potential cost of the proposed LA Streetcar project.

The date of value was July 1, 2014. The legal rights appraised were the fee simple. The definition of market value used is as follows:

Definition of Market Value

The term "market value", as used in this report, is defined as follows:

a) The fair market value of the property taken is the highest price on the date of valuation that would be agreed to by a seller, being willing to sell but under no particular or urgent necessity for so doing, nor obliged to sell, and a buyer, being ready, willing and able to buy but under no particular necessity for so doing, each dealing with the other with full knowledge of all the uses and purposes for which the property is reasonable adaptable and available.

b) The fair market value of a property taken for which there is no relevant market is its value on the date of valuation as determined by any method of valuation that is just and equitable.

Source: Code of Civil Procedure, Section 1263.321.

Analysis/Methodology, Scope of the Assignment

Shown on the following page is a chart of sales and sales negotiations for large development sites, located in Downtown Los Angeles, purchased or negotiated since January 1, 2013. Additional data on each comparable is contained in the Addenda to this report. In analyzing these sales, key factors are as follows:

- We have concentrated on comparables in proximity to the Historic Core area of Downtown Los Angeles. We have specifically excluded several (highly publicized) recent sales on the west side of Downtown Los Angeles, at significantly higher prices.
- 2) Values are rising rapidly, the earlier comparables require significant upward adjustment. This is particularly true of sites in the Historic Core. This effect is accentuated when the (often lengthy) escrow periods are considered.
- 3) The comparables include sites selling without entitlements, sites selling with full entitlements, sites contracted for sale without entitlements but with a contract time period allowing the buyer to obtain entitlements (essentially exercised options), and sales of sites entitled but being re-entitled by the buyer. Our analysis assumes an unentitled site, but also assumes that the subject use (a street car layover facility, potentially as part of a larger mixed-use development) is an allowed use under applicable L.A. City zoning.

Land Value Analysis

The comparable sales range from a low of \$287 to a high of \$544 per square foot, averaging \$393.55 per square foot. The most recent, and those located slightly west of the subject area (in the South Park neighborhood) are generally the highest priced. (In particular, Comparables 11, 12 and 13, at \$287 to \$290 per square foot, are 15 to 18-month old recordings. Eliminating these three raises the average price to \$425 per square foot.)

Several of the lower priced sales require upward adjustment for various restrictions, typically retained parking rights.

Note that the time trend factor is somewhat hidden, long escrows are common in this market.

Note also that there are additional transactions now under contract in the Historic Core area, with prices reported as being over \$400 per square foot, but not yet documented or confirmed.

Comparing several of these sales, similar in size and located in immediate proximity over time, gives strong evidence of the rapid appreciation:



Comparable No.	Date	Price/SF	Remarks
2	June 2014	\$544	Same buyer, separated by public alley.
13	Jan. 2013	\$287	
2	June 2014	\$544	Same buyer, neighboring sites.
5	Jan. 2014	\$470	

The buyer (the Hanover Group) is a major developer, both in Downtown Los Angeles and in other cities.

(Comparable 1, Park 5th, at \$401.85 per square foot, is one of the three sites referenced on page one, previously considered for the subject use.)

Value Conclusion

Under these terms and conditions, it is my opinion that the appropriate value is within the range of \$450 to \$525 per square foot of gross land area.

LAND SALE	SUMMARY

Sale No.	Property Location	Trans Type Date	Sales Price	Size (Acres)	Proposed: Use	Price Per Acre	Price PSF of Land Area
1	Park 5th 427 W. 5th Street (NEC 5th & Oliye) Los Angeles, CA 90013	Sale 6/2014	\$38,250,000	2.270	Mid-Rise & High-Rise Apt. w/ Retail	\$17,504,920	\$401.85
2	Hanover at Olympic & Olive 924 S. Olive Street (NEC Olive & Olympic) Los Angeles, CA 80015	Sale 6/2014	\$28,000,000	1.200	263 Apts. w/ Retall	\$23,698,688	\$544.03
3:	Acme Display (Escrow 05/2014) 1045-1057 S. Olive Street (NWC Olive & 11th) Los Angeles, CA 90015	Escrow 5/2014	\$11,500,000	0.520	TBD	\$22,115,385	\$507.70
4	Carmel Partners High-Rise Site 801 S. Olive Street SWC 8th & Olive Los Angeles, CA 90014	Sale 3/2014	\$23,957,186	1.070	363-Unit Apt. w/ Retail	\$22,329,375	\$512.60
5	Hanover at Olympic & Grand 1000 S. Grand Avenue SEC S. Grand Avenue & W. Olympic Boulevard Los Angeles; CA 90015	<u>Sale</u> 1/2014	\$25,300,000	1.390	274-Unit Apt. w/ Retail	\$20,456,016	\$469.61
6	Lennar Assemblage 1001-1027 S. Olive Street SWC W. Olympic Boulevard Los Angeles, CA 90015	<u>Sale</u> 1/2014	\$20,000,000	1.230	Multifamily	\$18,552,876	\$425,93
7	Herald Examiner Lots 1108 S. Hill Street 1201 S. Main Street Los Angeles; CA 90015	Sale 12/2013	\$27,000,000	2.150	Mbred-User	\$12,523,191	\$287.49
8	Mack Urban Sites 1114-1120 S. Grand Avenue 1105-1119, 1155, 1100-1124, 1226 Olive; 218 11th; 1217- 1229 Hill; 203 Pico Los Angeles, CA 90015	Sale 10/2013	\$84,500,000	5.780	Mixed-Use (Residential, Hotel & Retail)	\$14,601,441	\$335.20
9	G12 Site 1216-1236 S. Grand Avenue 1213-1237 S. Olive Street Los Angeles, CA 90015	<u>Sale</u> 9/2013	\$45,000,000	2.720	640-Unit Apartment w/ Retail	\$16,539,253	\$379.69
10	Vibiana Land (Escrow 05/2013) 226 S. Main Street 223 S. Los Angeles Street Los Angeles, CA 90012	Escrow 6/2013	\$15,750,000	1.000	238-Unit Apt. w/ Retail	\$16,785,676	\$385.33



	LAND SALE SUMMARY								
11	NVVC Broadway & Olympic 943-957 S. Broadway Los Angeles, CA 90015	<u>Sale</u> 4/2013	\$6,000,000	0.470	Multifamily Development	\$12,644,889	\$290.28		
12	Broadway Plaza Redevelopment 400-416 S. Broadway Los Angeles, CA 90013	Sale 2/2013	\$10,150,000	0.805	High-Rise Residential	\$12,589,928	\$289.03		
13	Hanover at Olympic & Hill 915-949 S. Hill Street Los Angeles, CA 90015	Sale 1/2013	\$18,400,000	1.470	287-Unit Apt. w/ Retail	\$12,510,199	\$287.19		

Additional Issues

We have also been requested to address two additional issues: 1) the probable escrow costs to purchase such a site; and 2) the analysis or calculation used in the area by the City of Los Angeles in valuing (and selling) additional development rights. These are discussed below.

Escrow Costs

Escrow costs in this market, generally paid by the buyer, are in the range of \$3,500±.

Note that this applies to escrow costs only, other transaction costs (title insurance, legal, etc.) are not included.

Transferable Development Rights

Potentially the subject facility will occupy only the ground floor of a multi-story mixed-use project. We have therefore prepared a summary description of the process of purchasing and valuing transferable development rights, also known as transferable floor area rights (TFARS). A process and pricing mechanism has been established by the City of Los Angeles, allowing the purchase and transfer of additional development rights. Authorized in April of 2007 (L.A. City Ordinance #178592), it allows for the transfer of additional development rights from a "donor" site (primarily the L.A. City owned Convention Center) to "receiver" sites located within most of the subject area.

The formula for pricing these additional development rights is as follows:

- The fee simple value of the receiver site per square foot of land area is established by either recent sale or appraisal;
- The resulting donor site value per square foot is divided by six, the floor area ratio (or permitted building to land ratio, not a height limit) in most of the subject area;
- 3) The resulting dollar amount (price per sq. ft. ÷ 6) per floor area ratio is then multiplied by 40%;
- 4) A "TFAR Transfer Payment" of the greater of 10% or \$5 per square foot is added to the Item 3 result (price per sq. ft. \div 6 x 40%) above.

It is important to note that this analysis treats all development rights the same, whether ground floor or top floor. This obviously is not always true.



A sample calculation (from a presentation to CBRE by the law firm of Munger Tolles) is contained in the Addenda to this report.

Respectfully Submitted,

CB RICHARD ELLIS, INC.
Valuation & Advisory Services

David A. Zoraster, MAI

Director

California State Certification No. AG001735

Phone: (213) 613-3658 Fax: (213) 613-3005 Email: david.zoraster@cbre.com

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CER	RTIFICATION OF THE APPRAISAL	1
A B	DENDA Comparables Sales Sample Pricing Calculation — Transferable Development Rights Statement of Qualifications	



CERTIFICATION OF THE APPRAISAL

I certify to the best of our knowledge and belief:

- 1. The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions and are our personal, impartial and unbiased professional analyses, opinions, and conclusions.
- We have no present or prospective interest in or bias with respect to the property that is the subject of this report and have no personal interest in or bias with respect to the parties involved with this assignment.
- 4. My engagement in this assignment was not contingent upon developing or reporting predetermined results.
- 5. My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- 6. This appraisal assignment was not based upon a requested minimum valuation, a specific valuation, or the approval of a loan.
- My analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice, as well as the requirements of the State of California.
- 8. The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute.
- The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
- 10. As of the date of this report, David A. Zoraster, MAI, has completed the continuing education program of the Appraisal Institute.
- 11. As of the date of this report, David A. Zoraster has completed the Standards and Ethics Education Requirement of the Appraisal Institute for Associate Members.
- 12. No specific property is the subject of this appraisal. David A. Zoraster, MAI, has made a personal inspection of the three sites considered for this use, and of the comparables used in the report.
- 13. No one provided significant real property appraisal assistance to the persons signing this report.
- 14. Valuation & Advisory Services operates as an independent economic entity within CBRE. Although employees of other CBRE divisions may be contacted as a part of our routine market research investigations, absolute client confidentiality and privacy were maintained at all times with regard to this assignment without conflict of interest.
- 15. David A. Zoraster, MAI, has provided real estate services for properties in the area analyzed over the past three years.

David A. Zoraster, MAI

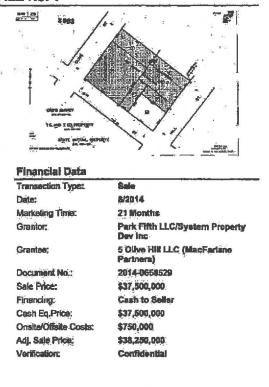
Director

California State Certification No. AG001735

ADDENDA

EXHIBIT A COMPARABLES SALES

LAND 8
427 W. 5th Street (NEC 5th & Olive)
Los Angeles, CA 90013
Los Angeles
5149-028-(3,4,9,11,12,13)
634-F4
Mixed-Use
Gross Usable
2.270 2.180
98,984 95,185
Moderate Slope
L Shaped
To Site:
C2-4D
571,110 SF
5.77
607
NÁ
Olive St 236; Hill St 150; 5th St, - 206;
Parking Lot
Mid-Rice & High-Rice Apt. w/ Retail
\$17,504,920
\$401.85
\$63,015
\$66.97





This is a 2.27-acre site located at the northeast comer of West 5th Street and South Olive Street, extending east to South Hill Street and wrapping eround the Title Guarantee Lofts, at the northwest comer of West St. Street and South Hill Street. The site is at the southeastern boundary of the Historic Core: If has approved entitlements and EIR for 1,286,992 square feet of mixed-use development (13:1 FAR), including 790 residential units, 212 hotel rooms and retail. A substantial public benefits payment is still required in order to complete a TFAR transfer to achieve this density, rather than the 6:1 by right density. It reportedly generates over \$1,000,000 in annual gross income from parking and

denelly, rather than the 6:1 by right density. It reportedly generates over \$1,000,000 in annual gross income from parking and filming.

The site has been listed since approximately June 2012. There have been serious negotiations with several prospective buyers in the mid to high \$30 million range. None of the prospective buyers intended to complete the TFAR transfer and build the entitled project; all prospective buyers intended to revise the entitlements for a maximum of 6:1 FAR.

The property went under contract to MacFarlane Partners in August 2014, with an original purchase price of \$37,500,000. The buyer paid an additional \$750,000 (as an extension (se) to extend the closing from December 2013 to June 2014. The seller is an affiliate of Africa larsel, who invested in the project with a local developer in 2004 and subsequently acquired controlling interest, with a basis in excess of \$70,000,000. The buyer intends to bifurcate the site timb two parcels and develop the majority of the site (Phase I) with a 307-unit mid-rise apartment, with 4,658 square feet of ground floor retail and 200 parking spaces. The remaining 22,750-square-foot second phase, at the northeast corner of 5th and Olive, will be developed with a 300-unit, 24-story spartment, with 11,651 square feet of ground floor retail and 278 parking spaces. The buyer intends to amend the existing entitlements and EIR through administrative proceedings, which it substantially completed by the close of secrow, although this was not a condition of closing. Phase I is expected to begin construction in early 2015 and be completed in 2017.



		LAND SA	LE No. 2	
Hanover at Olym Location Data	pic & Olive		6516	
Location:	(NEC Olive & Olympic) Los Angeles, CA 90015 County: Los Angeles Parcel No: \$139.004-(13,14,15,23)			
Countr	44	113	NY.	
		·		
Atlas Ret	7, 19, 2, 4 AVE. A COLUMN	,	l X	
Physical Data				
Тура:	Mixed-Use			
Land Area:	Group	<u>Usable</u>		
Acres:	1.200	1.180	Financial Data	The state of the s
Square Feet:	52,320	51,468		Sels *
Topography:	Level, At Street Grade	•	Transaction Type:	Sale 6/2014
Shape:	Rectangular		Date:	
Utilities:	To Site		Marketing Time;	NA .
Zoning:	[Q]R5-4D-D		Grantor:	Ruth-Ann Rohman & Stave Needleman, as Trustee of the
Allowable Bldg Area:	289,714 SF			Anjac Trust
Floor Area Ratio:	5.54		Grantee:	Olive Street Developmet Holdings
No. of units:	263		900 U GEO	LLC (Hanover)
Max FAR:	6.00		Document No.:	2014-0629853 & -0629854
Frontage:	S. Olive Street - 340; V		Sale Price:	\$28,000,000
	Boulevard - 154; Midw (alley) - 340;	ay Place	Financing	Cash to Seller
Analysis	(Signal)		Cash Eq.Price: Onsite/Offsite Costs:	\$28,000,000
Use At Sale:	Surface Parking Lot		Adi, Sale Price:	\$28,000,000
Proposed Use or Dev.	263 Apts. w/ Retail		Vertication	Listing Broker
Price Per Acre:	\$23,098,688		A CO. HICKORYTE	
Price Per SF of Land:	3544.03			
Price Per Unit	\$106,464			
Price Per SF of Bido:	298.85			



Comments

This is a rectangular mixed-use development afte located at the northeast corner of South Olive Street and West Olympic Boulevard, in the northeastern portion of the South Park district, in Downtown Los Angeless. A public alley (Midway Place) runs along the east side of the site, bisecting the block. It is four blocks west of LA Live and one block north of the proposed Downtown Streetca route, which would run westbound slicing 11th Street to Figueroa Street. The Ace Hotel is 1.5 blocks east, on Broedway, just north of Olympic Boulevard. Several mixed-use projects are under construction and/or proposed in the immediate vicinity, including 287-unit and 274-unit mixed-use (apertments and retail) projects currently under construction by the buyer of this comparable. The zoning allows high-density residential and mixed-use development, with a maximum "by right" FAR of 6:1 and 13:1 possible through TFAR. After dedications, the net site area is 51,466, however, the city calculates FAR based on gross site area of 52,320 square feet. The site was operated as a surface partially let and was unentitled when the purchase and side agreement was executed.

The June 2014 sale price was \$28,000,000, paid to two separate owners, in a coordinated transaction. Sieve Needleman was the seller of two non-contiguous parcels (APNs 5139-004-015 and 023), including the corner, totaling approximately 36,920 square feet. Ruth-Ann Rohman was the seller of two contiguous mid-block parcels (APNs 5139-004-013 and 014), totaling approximately 15,400 square feet. The buyer is Hanover, a national residential developer with severence in Downtown Los Angeles. Hanover obtained entitlements during the eight-month escrew period. The approved seven-story mixed-use project will have 263 apartments, 14,500 square feet of ground floor retail, 301 single-stail vehicle parking spaces (12 for retail), and 304 blocke parking spaces (15 for retail). The gross building area is 289,714 square feet, indicating an FAR of 5.54:1. Construction commenced shortly aft



Comments

This comparable is a 22,859 equare-foot site, located at the northwest corner of West 11th Street and South Ofive Street, in the South Park district of Downtown Los Angeles. It has additional frontage along a north-south public alley. The property is 3.5 blocks east of LA Live and Staples Center, along the proposed Downtown Streetcar route. Surrounding land uses include surface parking lots, older commercial buildings and the Grand Lofts. It is one block north of the AT&T Center and two blocks west of the former Herald Examiner building. Zoning is [Q] R5-40-Q, a high-density multifamily residential zone that also allows hotels and mixed-use development. The site is unentitled. It is currently improved with three 1911-built, interconnected, single-story, showncom/warehouse buildings totaling 22,350 square feet. There is no on-site parking.

The property has been marketed since early 2011 as aither a redevelopment opportunity or an owner-user building, with virtually all interest from developers. The asking price was initially \$5,700,000, or \$249.35 per square foot of land area. Several offers from developers were received, including two full price offers. The seller is an owner-user that is setting in order to expand and consolidate its operations. Negotiations with prospective buyers did not progress past December 2011 because the seller was unable to identify a suitable riplacement property to acquire.

suitable replacement property to acquire.

The listing broker continued to market the property informally, without an asking price, and in June 2013 went under contract with another developer at approximately \$11,500,000; or \$503.06 per square foot. The seller was granted four months to identify a suitable replacement property or terminate the transaction. The buyer would then have had up to eight months to complete due diligence and close excrow. This transaction was terminated by the seller in late-2013 because he was unable to identify a suitable

replacement property to acquire.

As of May 2014, the property is under contract again, to a large developer, likely for mid-rise apartments. The buyer has a 60-day due diligence pendo, after which the seller can call for a 30-day close at any time. The buyer has agreed to be extremely flexible in facilitating the seller's relocation efforts. The broker-would not reveal the buyer or divulge the sate price, except to say it is between \$500 and \$600 per square foot of land area. We have used the prior excess price of \$11,500,000 in our analysis.

Carmel Partners	High-Rise Site		100 TEST	
Location Data			2012/6 報	5 (
Location: 891 S. Olive Street. SWC 8th & Olive				
	Los Angeles County: Los Angeles			
County:				
Parcel No:	5144-019-(012 to 015	, 018)		
Atlas Ref.			subsequently .	
Physical Data			100	20 X//
Type:	Multi-Family	No. of the state o		m. 6 2 4
Land Area:	Gines	Veable	The second secon	
Acres:	1.070	1.070	Financial Data	
Square Feet:	46,980	48,737	Transaction Type:	Sele
Topography:	Generally Level		Date:	1/2014
Shape:	Rectangular		Marketing Time:	10 Months
Utilities:	Yes		Grantor:	Forthmann Estate Co. (et al)
Zoning:	C2-4D/[Q]R5-4D		Grantee:	Carmel Partners (or affillate)
Allowable Bldg Area:	330,421 SF		Document No.:	Pending
Floor Area Ratio:	7.03		Sale Price:	\$23,050,000
No. of units:	363		Financing:	Cash to Seller
Max FAR:	6.00	V.14 1740	Cash Eq.Price:	\$23,050,000
Frontage:	S. Olive at 296; W.	Bth St 157;	Onsite/Offsite Costs:	\$907:186
Analysis			Adj. Sale Price:	\$23,957,186
Use At Sale:	Surface Parking Lot		Verification:	Listing Broker
Proposed Use or Dev.	363-Unit Apt. w/ Reti	uiJ		
Price Per Acre:	\$22,329,375			
Price Per SF of Land:	\$512.60			
Price Per Unit:	\$65,998			
Price Per SF of Bidg:	\$72.51			

Comments

This comparable is a 45,737-square-foot (riet) rectangular surface perking lot, with approximately 172 spaces, located at the southwest comer of West 8th Street and South Olive Street, in the South Park neighborhood of Downtown Los Angles. Surrounding land uses include a number of surface parking lots, adaptive reuse and ground-up residential, older office buildings and potential conversion buildings. It is across the street from an under-construction (by the buyer of this comparable) 700-unit spartment project that will house a Whole Foods on the ground floor, three blocks northeast of the Ralighs supermarket, three blocks southeast of a smajor Merio station and six blocks northeast of LA Live. The northern portion of the site (approximately 21,380 square feet) is zoned C4-2D, allowing most commercial uses as well as high-density multifamily residential, and the southern portion (approximately 25,600 square feet) is zoned [Q[R5-2D, a high-density multifamily residential zone. The by-right FAR is 5:1; however, higher density of up to 13:1 is possible through the TFAR process. It soid in March 2014 to Carmiel Parliners, a San Francisco based developer, for \$23,056,000. The site was listed for sale through CBRE but never actively marketed because several offers from credible prospective buyers were received prior to the launch of the marketing campaign. The site was unentitled when the contract was negotiated in July-2013 but the buyer completed the entitlement process while in ascrow. The buyer is proposing a 27-story mixed-use development, consisting of 353 apartments, 10,000 square feet of ground floor commercial, 389 car parking spaces and 408 bloycle parking spaces, with a botal gross building eres of 330,421 square feet. The indicated FAR is approximately 7.07:1. The buyer will pay \$807,186 as a public benefit payment for 49,999 square feet of FAR that will be transferred to the site through the TFAR process.



Hanover at Olympic & Grand **Location Data** Location: 1000 S. Grand Avenue SEC S. Grand Avenue & W. **Olympic Boulevard** Los Angeles, CA 90015 Los Angeles County: Parcel No: 5139-009-(8-13); 5139-010-9 Atlas Ref. 834-E5 **Physical Data** Type: Mixed-Use Land Area: Usable Gross **Financial Data** ACTES: 1,390 1,230 Transaction Type: Sale 60,981 53,874 Square Feet 1/2014 Level, At Street Grade Topography: Shape: Marketing Time: NA Rectangular Grantor: Utilities: To Site Development on Grand Avenue LLC Zoning: [Q]R5-4D-0 Grantee: One Thousand Grand Avenue Holdings LLC (Hanover) Allowable Bldg Area: 306,090 SF Floor Area Ratio: 5.02 2013-106799 Document No.: 274 No. of units: Sale Price: \$25,300,000 Max FAR: 6.00 Financing: See Comments Frontage: Grand Ave. - 335; Olympic Blvd. -\$25,300,000 Cash Eq.Price: 175; alley - 331; Onsite/Offsite Costs: **Analysis** Adj. Sale Price: \$25,300,000 Use At Sale: PArking Lot & Vacant Commercial Verification: Public Records; confidential 3rd Proposed Use or Dev. 274-Unit Apt. w/ Retail party Price Per Acre: \$20,456,018 Price Per SF of Land: \$489.61 \$92,336 Price Per Unit:

Comments

Price Per SF of Bidg:

\$82.66

This is a 53,874-equare-foot (net) nearly rectangular site, located at the southeast comer of West Olympic Boulevard and South Grand Avenue, in the South Park neighborhood of Downtown Los Angles. The site backs to a north-south elley. It is three blocks eas of LA Live, three blocks southeast of Ralphs supermarket, and one block north of the proposed Downtown Streetcar route. Zoning is [Q]R5-4D-Q, a high-density multifamily residential zone, with a "by-right" FAR of 6:1 and 13:1 possible through TFAR. The site was

unentitled at the time of the purchase contract.

The sale price was \$25,300,000, or \$469.61 per square foot of tend area. The property was in bankruptcy the price was negotiated and the property was not actively marketed for sale. The grant deed was executed in Jure 2013 but the document was not recorded until January 2014. The buyer is Hanover, a national residential developer with experience in Downtown Los Angeles. In December 2013 the buyer obtained entitlements for a seven story mixed-use project, consisting of 274 contraents, 12,000 square feet of ground floor commercial, 264 vehicle parking spaces and 313 bicycle parking space, with a gross building area of 306,090 square feet.

Verification was through public records and through Celifornia Bank & Trust, who held the first trust deed with the seller.



		LAND SA	LE No. 6					
Lennar Assemblage Location Data		2 003 chines						
Location:	1001-1027 S. Olive Street SWC W. Olympic Boulevard Los Angeles, CA 90015 Los Angeles							
County:								
Parcel No:	5139-009-(1,2,4,14); 5	139-010-9						
Atles Ref.			84	The same of the sa				
Physical Data			9.4	MATHINIA COMES				
Type:	Multi-Family		34 25					
Land Area:	Gross	Usable	The same property	- par very light				
Acres:	1.230	1.070	Financial Data					
Square Feet:	54,012 46,956		Transaction Type:	Sale				
Topography:	Level, At Street Grade	Date:	1/2014					
Shape	Irregular		Marketing Time:	6 Months				
Utilities:	Yes		Grantor:	LR 1001 8 Olive LLC (L&R) &				
Zoning:	[Q]R5-4D-O		Gianioi.	Brykrist Dev Inc. (Urban Village (LMC 1001 Olive Holdings LLC				
Allowable Bldg Area:	186,726 SF		Grantee:					
Floor Area Ratio:	3.46			(Lennar)				
No. of units:	201		Document No.:	2014-110946 & 110944				
Max FAR:	6.00		Sale Price:	\$20,000,000				
Frontage:	S. Olive St 300; W. C - 130;	Hympic Blvd.	Financing:	Cash to Seller				
Analysis	- 100,		Cash Eq.Price:	\$20,000,000				
Use At Sale:	Parking Lot		Onsite/Offsite Costs: Adj. Sale Price:	\$20,000,000				
Processed Use or Day.	Multifamily		Verification:	Salier				
Price Per Acre:	\$18,552,876		had titadionals.	industrial (
Price Per SF of Land:	\$425.93							
Price Per Unit:	\$99,502							
Price Per SF of Bldg:	\$107.11							



Comments

This is the assemblage of two adjacent sites forming a combined 46,955-square-foot (net) nearly rectangular site, located at the southwest corner of West Olympic Boulevard and South Olive Street, in the South Park neighborhood of Downtown Los Angles. The site backs to a north-south sley. It is four blocks east of LA Live, three blocks southeast of Ralphs supermarket, and one block north of the proposed Downtown Streetcar route. Zoning is [QIR5-4D-O, a high-density multifamily residential zone, with a "by-right" FAR of 6:1 and 13:1 possible through TFAR. The majority of the site (34,915 square feet extending south from Olympic Boulevard) was unentitled at the time of the purchase contract. A 15,220-square-foot mid-block portion was entitled for a seven-story, 100-unit (12 two-bedroom, 12 one-bedroom, 72 studies and four live-work units) apartment, with 107 parking spaces in a three-level subterranean entered.

The buyer is Lennar, a national residential developer, who put the 31,736-square-foot comer place under contract in approximately June 2013, at \$12,000,000, or \$378.12 per square foot of land area. This was a direct deal and the property was not actively marketed for eals. The sale was recorded in January 2014. Verification was with the seller, a import Downtown parking operator who will state the sale was recorded in January 2014.

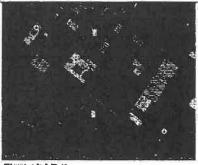
will retain some parking rights but would not elaborate.

While under contract for the corner site, Lennar negotiated to acquire the adjacent 15,220-square-foot site. This transaction closed in January 2014 at \$8,000,000, or \$525.62 per square foot of land area. This was also a direct deal with the seller (Urban Village) Development Company, an Orange County-based developer), who acquired the site in June 2013 for \$4,560,000, or \$299,61 per square foot. Urban Village went under contract in June 2012 and exercised several extensions in order to obtain entitlements prior to the close of escrow.

the close of escrow.

The combined purchase price is \$20,000,000, or \$425.93 per square fool of land area. In December 2013 the buyer obtained crititlements for a seven-story mixed-use project, consisting of 201 apartments, 3,962 square feet of ground floor commercial, 224 vehicle parking spaces and 223 bicycle parking spaces, with a gross building area of 186,726 square feet.

Herald Examiner	LOTS	
Location Data	17 18 18 18 18 18 18	*********
Location	1108 S. Hill Street 1201 S. Main Street	
	Los Angeles, CA 91	0015
County:	Los Angeles	
Parcel No:	5139-019-034 & 513	9-026-011
Atlas Ref:	634-E5	
Physical Data		
Type:	Mixed-Uss:	
Land Area:	Gross	Usable
Acres:	2.150	2.150
Square Feet:	93,916	93,916
Topography:	Level, At Street Gra	de.
Shape:	Rectangular	
Utilities:	To Sites	
Zoning:	C2-4D-O	
Allowable Bldg Area:		
Floor Area Ratio:		
No. of units:	391	
Max FAR:	6.00	
Frontage:		
Analysis		
Use At Sale:	Parking Lot	
Proposed Use or Dev.	Mixed-Use	
Price Per Acre:	\$12,523,191	
Price Per SF of Land:	\$257.49	
Price Per Unit:	\$69,054	
Price Per SF of Bldg:		



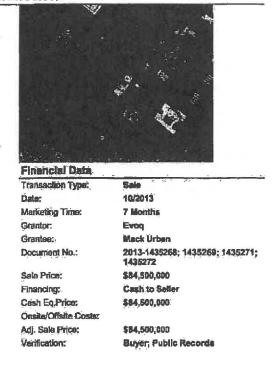
Financial Data	
Transaction Type:	Sale
Date:	12/2013
Marketing Time:	NA
Grantor	Hearst Communications Inc.
Grantee:	FC Broadway & Hill LLC (Forest- City)
Document No.:	2013-1765218 & 1765219
Sale Price:	\$27,000,000
Financing	Cash to Seller
Cash Eq.Price:	\$27,000,000
Onsite/Offsite Costs:	
Adj. Sale Price:	\$27,000,000
Verification:	Listing Broker

Comments

This comparable consists of two sites in the eastern portion of the South Park neighborhood and the southern portion of the Historic Core neighborhood, in Downtown Los Angles. The sites are each located within one block of the historic (long vacant) former Herald Examiner headquarters building, within several blocks of Staples Center and LA Live. Site 1 (APN 5139-019-034) is a 46,219 -square-foot rectangular surface parking lot located at the southeast comer of West 11th Street and South Hill Street. It is adjacent to the west of the historic former Herald Examiner headquarters building and was previously improved with a printing plant. Site 2 (APN 5139-028-011) is a 47,587-square-foot nearly-rectangular surface parking lot, with three-street double-corner frontage, located at the southeast corner of West 12th Street and South Broadway; extending east to South Main Street. It is a half-block south and east of the Herald Examiner building. Zoning for each site is C2-40-0, a general commercial zone that also allows multifamily residential. All of the properties have "by-right" FAR of 6:1 but 13:1 is possible through TFAR. The sites were entitled for high-rise residential development at the time of sale but at the time of sale but at the time of sale but at the time of sale but at the time of sale but at the buyer was in the process of modifying the entitlements for mid-rise residential development.

The December 2013 sale price was \$27,000,000, or \$297.49 per square foot of land area, structured as two separate transactions; however, inclividual allocations were not available. The seller is Hearst Communications, which retains ownership of the Herald Examiner building. The buyer is Forest City, a national developer with extensive experience in Downtown Los Angeles. The buyer has a longstanding relationship with the seller and was involved in this project as a development partner/consultant for over a year prior to the sale. The buyer is modifying existing entitlements and intends to develop 177 apartment units and ground floor retail on Site 1, and 214 apartment units on Site 2. Development of Site 1 requires a number of concessions and compromises, required by the seller, in order to facilitate future redevelopment of the Herald Examiner building including providing 95 particing spaces. The Esting brokers report that negotiating these details extended the escrow period considerably and had a negotive impact on the achievable sale price. The brokers believe that without the concessions and compromises, by the time this sale closed the market value would have been close to \$400 per square foot. They believe the seller could have achieved a higher sale price but was motivated by its relationship with the buyer, which will positively impact its future redevelopment of the Herald Examiner building.

Mack Urban Sites	
Location Data	40 0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
Location:	1114-1120 S. Grand Avenue 1105-1119, 1155, 1100-1124, 1226 Olive; 218 11th; 1217-1229 Hill; 203 Pico
	Los Angeles, CA 90015
County:	Los Arigeles
Parcel No.	See Notes
Atlas Ref.	
Physical Data	3 3. mark 1
Туре:	Mixed-Use
Land Area:	Gross Usable
Acres:	5.780 5.780
Square Feet	252,085 252,085
Topography:	Level, At Street Grade
Shape:	Irregular
Utilities:	To Site
Zoning:	[Q]R5-4D-0 & C2-4D-0
Allowable Bldg Area:	1,512,510 SF
Floor Area Ratio:	6.00
No. of units:	
Max FAR:	6.00
Frontage:	
Analysis	
Use At Sale:	Primerily Surface Parking
Proposed Use or Dev.	Mixed-Use (Residential, Hotel & Retail)
Price Per Acre:	\$14,601,441
Price Per SF of Land:	\$335.20
Price Per Unit:	
Price Per SF of Bldg:	\$55.87





Comments

This comparable consists of four sites (comprised of 13 parcels) in the South Park neighborhood of Downtown Los Angles. The sites are all located within one block of AT&T Center (to the north, south and west), in the southeastern portion of the South Park district, within several blocks of Staples Center and La Live. Site 1 (APNs 5139-020-016, -022 and -024) is a 90,380 square-foot L-shaped surface parking lot; with three-street double-corner frontage, located at the northeast corner of West 12th Street and South Grand Avenue, extending east to South Olive Street (bisected by a north-south aley). Site 2 (APNs 5139-020-006, -007, and -025) is a 35,930-square-foot rectangular site located at the southwest corner of West 11th Street and South Olive Street, which is improved with a surface parking lot and a vacant 15,000-square-foot ber/restaurant. Site 3 (APNs 5139-019-011, -015 and -040) is a 46,397-square-foot rectangular surface parking lot located at the southwest corner of West 11th Street and South Olive Street, adjacent to the north of AT&T Center. Site 4 (APNs 5139-003, -015 and -016) is a 79,378-square-foot L-shaped site, with three-street double-corner frontage, located at the northeast corner of West Ptoo Boulevard and South Olive Street, extending east to South Hill Street (bisected by a north-south elley); which is improved with a surface parking jot, one-story industrial building and three-story parking garage. Zoning for each site is either (QIRS-40-0, a high-density multifamily residential zone, or CZ-40-0, a general commercial zone that also allows multifamily residential. All of the properties have "by-right" FAR of 6:1 but 13:1 is possible through TFAR. Site 1 was partially entitled at the item of sale while the other sites were unentitled.

According to confidential sources within the burying entity, the lotal purchase price was \$44,500,000, or \$335:20 per square foot of land eres; however, this source could not provide additional details of the transactions structure. Based on recorded documen



	LAND SA	ALE No. 9	
G12 Site		100 Jackson 100 Ja	
Location Data		11	
Location	1218-1235 S. Grand Avenue 1213-1237 S. Olive Street		
	Los Angeles, CA 90015		
County:	Los Angeles	17.6	
Parcel No:	5139-923-(024-037)	N. D.	
Atlas Ref:	634-D6	77 50	
Physical Data			
Туре:	Mixed-Use	7 / 7/2	
Land Area:	Gross Lisable		A \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Acres:	2.720 2.720	Financial Data	
Square Feet:	118,518 118,51B		Sala
Topography:	Level, At Street Grade	Transaction Type: Date:	9/2013
Shape:	kregular	Marketing Time:	3/2013 3 Months
Jtilities:	To Site	Grantor:	
Zonling:	R5-4D-O/C2-4D-O		G12 Partners, LLC 1211 S Olive Street Dev LP (Wolf)
Allowable Bldg Area:	501,000 SF	Grantee:	Co.)
Floor Area Ratio:	4.23	Document No.:	1420281
No. of units:	640	Sale Price:	\$45,000,000
Max FAR:	6.00	Financing:	Cash to Seller
Frontage:	Grand Ave403; Olive St	Cash Eq.Price:	\$45,000,000
# MO # 35 # 2	360;Pleo Blvd 150;12th St 159;	Onsite/Offsite Costs:	
Analysis	* **	Adj. Sale Price:	\$45,000,000
Use At Sale:	Parking Lot	Verification;	Listing Broker
Proposed Use or Dev.	640-Unit Apartment w/ Retail		
Price Per Acre:	\$ (6,530,253		
Price Per SF of Land:	\$379.00		
Price Per Unit:	\$70,313		
Price Per SF of Bidg:	\$89.82		

Comments

Comments

This is a 118,518-square-foot double-corner sits, with four-street frontage, occupying the majority of the block bounded by West 12th Street, South Grand Avenue, West Pico Boulevard and South Olive Street, in the southeastern portion of the South Park district of Downtown Los Angeles. It excludes the southwest corner of 12th and Olive streets and the northeast corner of Rico Boulevard and Grand Avenue. The site is zoned R5-4D and C2-4D. The R5 zoning allows high-density multifamily development and the C2 zoning allows most general commercial uses, including office, retail, hotel, multifamily reddential and mixed-use development. The by right FAR is 5:1 but may be increased to 13:1 by purchasing additional development density through the TFAR process; requiring a substantial public benefits payment. At the time of sale was used as a 383-oar surface parking lot but it was entitled for a 640-unit spantment project, with 40,000 square feet of ground floor retail, in two seven-slory buildings, separated by an alley, with a screening room, two pools, and somewhall imited parking (595 spaces). The total gross building area is approximately 501,000 square feet (4.23 FAR). The rentable residential area will be 430,000 square feet, indicating an average unit size of 672 square feet.

The property sold in September 2013 for \$45,000,000, equal to \$379.89 per square foot; or \$70,313 per unit. The buyer is Wolff. Company, an Arizona based private equity company, which is completing construction drawings and anticipates breaking ground in January 2014. The seller is a pertnership between Astani Enterprises and L&R, which acquired the site unentified in November 2012 for \$29,000,000 or \$244,89 per square foot and reportedly spent \$3,000,000 obtaining full entitlements and preliminary plans. This indicates a 10.3% entitlement cost (\$3,000,000 + \$29,000,000 = \$29,000,000 and 45% appreciation (\$45,000,000 - \$3,000,000 entitlement cost = \$42,000,000 + \$29,000,000 = 1.45) over the 11 month between sales. Both figures may

Viblana Land (Es	crow 05/2013)	Spirit (and) in Maria spirit	Zuan o
Location Data	Mark Cont	2010	
Location:	226 S. Main Street 223 S. Los Angeles Street	9/	
	Los Angeles, CA 90012	· let	1//5 // 0
County:	Los Angeles	34. 1	
Parcal No:	5161-026-(034 & 035)		1 / p
Atlas Ref.	634-G4		
Physical Data			421/
Type:	Multi-Family	<u> </u>	3.4.7.8
Land Area:	Gross Usable	A STATE OF THE PARTY OF THE PAR	Marin American
Acres:	1.000 0.930	Financial Data	to the second of
Square Feet:	43,899 40,874		
Topography:	Moderate Slope	Transaction Type:	Escrow 5/2013
Shape:	Irregular	Date: Marketing Time:	12 Months
Utilities:	Yes	-	
Zoning:	C2-4D	Grantor:	La Villa Contenta LLC/228 S Main Street LLC
Allowable Bidg Area:	216,018 SF	Grantee:	
Floor Area Ratio:	4.99	Document No.:	
No. of units:	238	Sale Price:	\$15,750,000
Max FAR:	10.60	Financing:	Cash to Seller
Frontage:	8. Main St 111;S. Los Angeles St 100;	Cash Eq.Price:	\$15,750,000
Analysis	2	Adi. Sale Price:	\$15.750,000
Usa At Sala:	surface parking lot	Verification:	Listing Broker
Proposed Use or Dev.	238-Unit Apt. w/ Retail	A SULLIFICATION	Fatia Biora
Price Per Acre:	\$16,785,676		
Price Per SF of Land:	\$385.33		
Price Per Unit:	\$68,176		
Price Per SF of Bidg:	\$72:24		

Comments

This is a mid-block surface parking lot, extending from the east side of Main Street to the west side of Los Angeles Street, in the Little Tokyo neighborhood of Downtown Los Angeles. The sits area is approximately 43,699 square feet, including a landlocked portion of an alley that will be vacated prior to the close of econow. At the time it was tisted for sale, it was entitled for a 41-story, 300-unit high-rise condominium, with a grass building area of 433,797 square feet (9.9:1 FAR). The entitlements were conditionally approved February 6, 2007 (Vesting Tentative Tract No. 64470-CN), expiring February 6, 2017. The adjacent Little Tokyo branch public library, may require the developer to provide up to 4470-CN), expiring February 6, 2017. The adjacent Little Tokyo branch public library may require the developer to provide up to 4470-CN), expiring February 6, 2017. The adjacent Little Tokyo branch public library may require the developer to provide up to 4470-CN), expiring February 6, 2017. The adjacent Little Tokyo branch public library included 150 excess parting spaces for use by the adjacent Viblana:

Event Center (also owned by the seller); however, the seller was marketing the site with no obligation to provide any parking for Viblana:

The site was listed for sale in January 2015 without an asterior price. Approximately nine offers were received, regular from

Vibraria:
The alte was listed for sale in damainy 2013 without an asking price. Approximately nine offers were received, ranging from \$14,000,000 to \$18,000,000. All of the prospective buyers intended to modify the antifermits for a mid-rise Type III multifamily project. The May 2013 accrow price is \$15,750,000. A non-refundable deposit has reportedly been released and the transaction is expected to close by May 2014, within 30 days of completion of modifications to the entitlements and vacation of the alley, which are being paid for by the saller. The buyer intends to develop a 238-unit mid-rise multifamily project, with 4,200 square leet of ground floor retail space.



NWC Broadway	& Olympic	2902	
Location Data		2002 / - 9-	and and and interimit
Location	Los Angeles, CA 90015		disc notes convoid units
County:			10/1
Parcel No:	MB 5139-003-007, -008,-009	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	
Atlas Ref:		10/0/2/	TEACT HIS TO
Physical Data		my what I	1 1 To 1 1 To 1 1 1 1 1 1 1 1 1 1 1 1 1
Type:	Multi-Family	"""	A JOHN & BOWNEY TRICE
Land Area:	Gross Usable		* 1
Acres:	0.470 8.470	martin later an ordinal a	
Square Feet:	20,670 20,670	Financial Data	
Topography:	Generally Level	Transaction Type:	Sale
Shape:	Rectangular	Date:	4/2013
Utilities:	Yes	Marketing Time:	NA.
Zoning:	LA.C2	Grantor:	L & R Investment Company
Allowable Bldg Area:		Grantee:	Agoura Cake LLC (Bary Shy)
Floor Area Ratio:		Document No.:	13-738635
No. of units;		Sale Price:	\$6,000,000
Max FAR:	6.00	Financing:	Cash to Seller
Frontage:	Broadway - 130;Olympic - 159;	Cash Eq.Price:	\$6,000,000
Analysis	<u> </u>	Onsite/Offsite Costs:	see 65
Use At Sale:	commercial parking lot	Adj. Sale Price:	\$6,000,000
Proposed Use or Dev.	Multifamily Development	Verification:	Seller
Price Per Acre:	\$12,644,889		
Price Per SF of Land:	\$290.28		
Price Per Unit:			
Price Per SF of Bldg:			

Comments

This is the sale of a parking lot at the northwest corner of South Broadway and West Olympic Boulevard, also with rear alley access, in Downlown Los Angeles, it is located near the southern portion of the Historic Core neighborhood and eastern portion of the Bouth Park Neighborhood. The proposed Downlown Streetcar would run south stong Broadway, past this comparable, before turning westbound along 11th Street, one block south of Olympic Boulevard. The site is six blocks east of Stables Center and LA Live. The former United Artist Theater building is located two lots north of this property and is currently being converted into a 180-room Ace Hotel, scheduled to open in 2014.

The sales price equals \$290.26 per square foot. The seller is a major land owner and parking operator in the area. The buyer is a major multifamily residential developer/converter in the area (the Barry Shy-group), and owns an abuilting loft building planned for conversion to residential. The seller retains some unspecified continuing parking operating rights (as operator until development and probably as operator after development).



Broadway Plaza	Redevelopment	200 M F F M M M M M M M	
Location Data			
Location:	480-416 S. Broadway Los Angeles, CA 90013		
County:	Los Angeles	= //	
Parcel No:	5149-024-(019 to 022)	X X	
Atlas Ref.	634-F4		
Physical Data	r		
Туре:	Mixed-Use		
Land Area:	Gross Usable	YAA	11/11/11/11/19
Acres:	0.806		No. of the second
Square Feet:	35,117 35,117	Financial Data	The second of
Topography:	Level, At Street Grade	Transaction Type:	Sale
Shape:	Rectangular	Date:	2/2013
Utilities:	To Sits	Marketing Time:	3 Months
Zoning:	C2-4D	Grantor:	400 Broadway PLaza LLC
Allowable Bidg Area:	204,774 SF		(Jamison)
Floor Area Ratio:	5.63	Grantes:	Grand PAcidic 7-28 LLC (Shomof
No. of units:		Document No.:	231094
Max FAR:	8.00	Sale Price:	\$10,150,000
Frontage:	S. Broadway - 228; W. 4th Street -	Financing:	Cash to Seller
	151;	Cash Eq.Price:	\$10,150,000
Analysis		Oneite/Offsite Costs:	
Use At Sale:	Retail & Perking	Adj. Sale Price:	\$10,150,000
Proposed Use or Dev.	High-Rise Residential	Verification:	Wolfgang Kupka, Vista Realty Advisors, Listing Broker
Price Per Acre:	\$12,589,928		whateous' riemid plottes.
Price Per SF of Land:	\$289.03		
Price Per Unit:	***		
Price Per SF of Bidg:	\$49.57		

Comments

Broadway Plaza is a 14.316-square-foot, 1984-built unanchored strip retail center, togated at the southeast corner of the signalized intersection of South Broadway and West 4th Street, in the Historic Core neighborhood of Downtown Los Angeles, approximately three blocks east of the Financial District. Broadway is a north-south street, accommodating northbound and southbound traffic. Fourth Street only accommodates eastbound traffic. The orie-story retail improvements wrapped around covered ground level parking, with additional open rooflop parking. There are a total of 150 striped parking spaces, including tandem. At the time of sale, the improvements were 76.3% occupied by nine tenants, with lease expirations through September 2017. The improvements are situated on a rectangular site, comprised of four Los Angeles County Assessor's parcels, totaling 35,117 square frest. The February 2013 sale price was \$10,150,000, or \$289.03 per square foot of land area. The buyer is a local investor and developer that intends to redevelop the property with a high-rise residential tower, with ground floor commercial erace. The property was quietly marketed through a broker in late-2012 but was not broadly exposed.

Hanover at Olympic & Hill

Location Data

Location. 915-949 S. HIII Street

Los Angeles, CA 90015

County: Parcel No: Los Angeles 5139-004-(4 to 9,20,24)

Atlas Ref. 634-F5

Physical Data

Land Area:

Type: Mixed-Use

> Gross <u>Usable</u>

1.470 1.470 Arres: Square Feet: 64,068 64,068

Topography: Level, At Street Grade

Shape: Rectangular Utilities: To Site Zoning: [Q]R5-4D Allowable Bldg Area: 314,853 SF Floor Area Ratio: 4.91

No. of units: 287 Mex FAR: 6,00

Hill St. - 430; Olympic Blvd. -149; Midway PL (alley) - 430; Frontage:

Analysis

Use At Sale: Proposed Use or Dev. **Parking Lot**

Price Per Acre:

287-Unit Apt. w/ Retail \$12,510,198

Price Per SF of Land: Price Per Unit

Price Per SF of Bidg:

\$287.19 \$64,111 \$58.48



Financial Data

Transaction Type: Sale 1/2013 Date:

Marketing Time:

Grantor: Meruela Maddux 915-949 S Hill

South Park Residential LLC Grantee:

(Hanover) Document No.: 12932 Sale Price: \$18,000,000

Financing: Cash to Seller \$18,500,000 Cash Eq.Price: Onsite/Offsite Costs:

Adj. Sale Price: Verification:

\$400,000 \$18,400,000 Confidential

Comments

This comparable is a 64,068-square-foot surface parking lot, located at the northwest corner of West Olympic Boulevard and South Hill Street, in the South Park district of Downtown Los Angeles. It has additional frontage along a north-south public alley (Mildway Piace). The property is 4.5 blocks east of LA Live. Surrounding land uses include surface parking lots, older commercial buildings and the new YWCA center. Zoning is [Q] R5-40, a high-deneity residential developer that intends to build a seven-story, 287-unit in approximately July 2012, the property went under contract to a residential developer that intends to build a seven-story, 287-unit (including she live-work units) apartment building, with 15,000 square feet of ground floor retail. The close of escrow was contingent upon approval of the proposed Improvements. The sale price was \$18,000,000. The buyer also paid approximately \$400,000 of various seller costs, including loan extension. The total price of \$18,400,000 equates to \$85,480 per reproced unit, or \$227,19 per square foot of land area, or \$58,480 per proposed unit, or \$227,19 per square foot of land area, or \$58,480 per square foot of FAR. The seller is Evol Properties (formerty Mervelo Maddux Properties). The buyer is Hanover, a Taxas-based developer that previously developed the 717 Olympic residential high-rise at Olympic and Figueroa. The property was not marketed for sale with a broker. During ascrow the seller reportedly received an offer of approximately \$21,500,000 from a national, publicly traded developer.

EXHIBIT B

SAMPLE PRICING CALCULATION - TRANSFERABLE DEVELOPMENT RIGHTS

Pricing Example

- 1,300,000 million square feet of improvements. 100,000 sq. ft. Receiver Site with a \$45 million purchase price - developer wants to build
- Public Benefit Payment
- \$45 million / 100,000 = \$450
- \$450 / 6 = \$75
- \$75 x 40% = \$30 (Public Benefit Payment)
- $$30 \times 700,000$ (desired TFAR) = \$21 million
- TFAR Transfer Payment equal to the greater of
 - 10% of Public Benefit Payment or
- 7
- $$5 \times 700,000 = 3.5 million

2018459.9

Pricing Example (continued)

- Total cost of TFAR = \$24.5 million
- Total cost of entitled land \$69.5 million
- Average cost per sq. ft. of entitlement
- Cost if obtained through land purchase :/luc
- $= ($75 \times 1,300,000) = 97.5 million
- TFAR savings = \$28 million

8484522

APPENDIX 9.7 Project Delivery Method Analysis

Overview of Project Delivery Methods

For purposes of generating this Independent Cost Estimate, it is assumed that the chosen delivery method will be a Construction Manager at Risk method, utilizing a construction firm independent of the designer that will construct the system per an established engineering and specification set of contract documents. Variations in delivery methods offer different options, with corresponding benefits and risks, in the contracting and execution of the project.

There are three primary methods for delivery to consider, with different contracting arrangements and risk shifting dynamics. There are a continuum of variations and hybrids of each of these methods in use, and the specific implementation should be driven by the needs, concerns and risks of the project. The cost impact of the relative methods are not accurately quantifiable as between the options, with schedule, scope and funding being undefined and customizable. Option 3 below may take on of many forms with regard to private contribution to capital cost, and can be more accurately quantified based on specific decision making with regard to the scope.

1. CONSTRUCTION MANAGER/GENERAL CONTRACTOR (CONSTRUCTION MANAGER AT RISK) – This delivery method is characterized by the owner's separate contract with a builder from its contract with a designer. This approach is the most common delivery method for streetcar projects given that it streamlines the design process for challenging items like utilities.

Advantages

- Maximum Control of Design, Quality Requirements, Features, Function by Owner
- Design Phase Delays do not prompt contractor claims
- Industry Familiarity

Disadvantages

- Owner fully at risk for problems, errors and omissions in the design documents
- Can add schedule duration due to reduction in sequencing, additional competition

Best Practices

- Early Involvement of Builder in Design Phase (Design Assist) to review constructability, means and methods implications, logistics, value engineering and cost management
- Prequalification and Best Value selection of Builder
- Constructability review and coordination of design package by 3rd party

Examples

- Portland Streetcar (multiple project phases)
- Seattle Streetcar (multiple project phases)
- Tucson Streetcar
- Cincinnati Streetcar
- 6th Street Bridge

2. **DESIGN BUILD** – This delivery method is characterized by a single contractor between the owner and a Design Build team, consisting of a designer and contractor. This approach is more common in other project types including facilities, light rail and highway, but is typically less common for streetcar projects due to the design risk involved with items such as utilities.

Advantages

- Shifting of design issue risk to party most in control of quality
- Potential schedule compression based on single competition, phasing, logistics innovation

Disadvantages

- Release of some level of control with regard to details of design and materials by Owner
- Design phase delay may have a larger impact on project costs

Best Practices

- Complete and detailed Program Criteria package or bridging documents
- Design Phase involvement by owner, milestones and completeness requirements for deliverables

Examples

- Crenshaw Line
- Expo Line Phase II
- Atlanta Streetcar
- Dallas Streetcar
- 3. **PUBLIC PRIVATE PARTNERSHIP (P3)** P3 delivery methods involve the inclusion of a private interest in the funding of capital projects by including anticipated revenue streams or operational costs to a developer to offset capital cost. These may include operation and maintenance as part of the service, as well as design and construction services. This is known as Design Build Operate Maintain (DBOM) delivery. Financing may also be included in a Design Build Finance Operate Maintain (DBFOM), which may allow the execution of a capital project that may otherwise be lacking funds for construction. There is presently no example of a streetcar project utilizing DBOM or DBFOM, but there are multiple precedents for transit projects.

Advantages

- Infuses private capital into municipal project, creating or supplementing existing funding
- Can result in an operationally efficient facility or system due to incentive
- Can reduce administrative and operational burden on municipality
- Can shift risk of unforeseen changes, costs or efficiencies away from owner

Disadvantages

 Criteria and Requirement Documents must protect the owners interest and function of the system for its intended use Longevity and expected lifecycle of physical product must match the complete life expectancy duration, not merely the DBFOM duration of operation

Best Practices

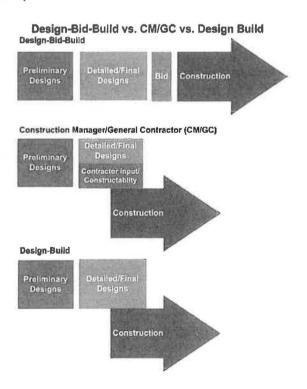
- Explicit requirements regarding longevity, quality, efficiency and operation of system
- Proforma and Financial Viability of underwriting and operating forms on developer team
- Experienced and Qualified Owner's representative

Examples

- Hudson-Bergen Light Rail (DBOM, New Jersey)
- Tren Urbano (DBOM, Puerto Rico)
- Eagle Commuter Rail Project (DBFOM, Denver)

PROCUREMENT COMPARISON

At this stage of project development, a comparison of costs between delivery methods is uncertain. A CM/GC delivery may involve a longer project schedule as opposed to Design Build or P3 (increasing costs), but may result in cost savings in the design itself relative to Design Build or P3 (decreasing costs). The net effect is unknown at this stage. Other considerations beyond cost and schedule may also influence the choice of delivery method, including factors such as risk, owner control, and project financing (as discussed above).



Source: "Accelerating Project Delivery Methods," Federal Highway Administration https://www.fhwa.dot.gov/everydaycounts/projects/methods/intro.cfm APPENDIX 9.8
Utility Correspondence



ERIC GARCETTI

Mayor

Commission

MEL LEVINE, President

WILLIAM W. FUNDERBURK JR., Vice President

JILL BANKS BARAD MICHAEL F. FLEMING

June 26, 2014

CHRISTINA E. NOONAN BARBARA E. MOSCHOS, Secretary MARCIE L. EDWARDS General Manager

Mr. Steve Ortmann, Vice President URS Corporation 915 Wilshire Boulevard, Suite 700 Los Angeles, CA 90017

Dear Mr. Ortmann:

Los Angeles Department of Water and Power, Water Distribution Division (WDD) is in agreement on the scope of work and assumptions that URS Corporation (URS) has applied to developing the Independent Cost Estimate for the Downtown Streetcar Project.

At this stage of the project, it is understood that WDD and URS are operating with certain limitations on data and information and that this information will be refined throughout the design development, which may change the assumptions. However, WDD has provided feedback and direction to URS staff for the purpose of this estimate. WDD will continue to work with URS, City of Los Angeles Department of Transportation, and City of Los Angeles Department of Public Works, Bureau of Engineering to further refine the utility relocation requirements as the project is implemented, to stay engaged as the project develops, and to work with the project team to identify opportunities to reduce utility relocation cost impacts on the overall project.

Please contact me at (213) 367-1064 if you have any questions.

Sincerely,

Steven R. Cole

Manager of Engineering Water Distribution Division

Swartz, John

Subject:

FW: LA Streetcar- Revised Cost Estimate

From: Poosti, Said [mailto:Said.Poosti@ladwp.com]

Sent: Friday, July 11, 2014 8:35 AM

To: Ortmann, Steve

Cc: Magula, James; Estrada, Oscar; Hinkson, Wayne; Moon, Marvin

Subject: RE: LA Streetcar- Revised Cost Estimate

Hi John:

Thank you so much for giving us the opportunity to let you know about our concerns with the different aspects of this project in conjunction with the power facilities along the Street Car project route. LADWP Power is in agreement on the scope of work and assumptions that involved the actual conduit construction and vault replacements considered by USR Corporation to develop their independent cost estimate for the Downtown Street Car Project. Some of the items that involved more than just LDWP work and were common with other construction activities on this project such as traffic control, permit issues and resurfacing were done separately from our portion of the estimate. Also please note that with the time frame given to achieve this estimate a lot of assumptions were loosely made without any input from field crews or any physical investigation of the site facilities. This estimate is based on the understanding that due to field conditions and after a design is prepared some of this scope may change and the estimate will be refined as the project progresses.

LADWP Power will continue to work with URS, City of Los Angeles Department of Transportation and Department of Public Works, Bureau of Engineering to help move this project forward and work with the project team to find the most economical and efficient way to facilitate the project.

Sincerely;

Sa'id Poosti UG Standards LADWP Power

CITY OF LOS ANGELES

BOARD OF PUBLIC WORKS MEMBERS

KEVIN JAMES PRESIDENT

MONICA RODRIGUEZ VICE PRESIDENT

MATT SZABO
PRESIDENT PRO TEMPORE

MICHAEL R. DAVIS COMMISSIONER

BARBARA ROMERO

CALIFORNIA



ERIC GARCETTI MAYOR

July 3, 2014

BUREAU OF SANITATION

ENRIQUE C. ZALDIVAR

TRACI J. MINAMIDE CHIEF OPERATING OFFICER

VAROUJ S. ABKIAN ADEL H. HAGEKHALIL ALEXANDER E. HELOU ASSISTANT DIRECTORS

VACANT CHIEF FINANCIAL OFFICER

WASTEWATER ENGINEERING SERVICES DIV. 2714 MEDIA CENTER DRIVE LOS ANGELES, CA 90065 FAX: (323) 342-4218 OR (323) 342-6211

Steve Ortmann, Vice President URS Corporation 915 Wilshire Boulevard, Suite 700 Los Angeles. CA 90017

Dear Mr. Ortmann:

The Bureau of Sanitation of the City of Los Angeles (LASAN) is in agreement on the scope of work and assumptions that URS Corporation (URS) has applied to developing the Independent Cost Estimate for the Downtown Streetcar Project.

At this stage of the project, it is understood that LASAN and URS are operating with certain limitations on data and information and that this information will be refined throughout the design development, which may change the assumptions. However, LASAN has provided feedback and direction to URS staff for the purpose of this estimate.

LASAN will continue to work with URS, City of Los Angeles Department of Transportation (LADOT), and City of Los Angeles Department of Public Works. Bureau of Engineering (BOE) to further refine the utility relocation requirements as the project is implemented, to stay engaged as the project develops, and to work with the project team to identify opportunities to reduce utility relocation cost impacts on the overall project.

Sii

If you have any questions feel free to contact me at (323) 342-622

Ali Poosti, Division Manager

Wastewater Engineering Services Division

Bureau of Sanitation

AH:FFG:tn



Restoration of Historic Streetcar Service in Los Angeles Private Utility Coordination Summary

This memorandum provides a summary of private utility coordination completed to date for the Los Angeles Streetcar project. As of August 7, 2014 URS has held conference calls with the following private utilities to discuss the project:

- AT&T: July 9, 2014. Spoke with a division of AT&T, Teleport Communications Group.
- Quest-Century Link: July 10, 2014
- Time Warner Cable: July 10, 2014
- XO Communications (Formerly NextLink): July 17, 2014

The purpose of the coordination calls was to provide an overview and background of the project, discuss major private utility infrastructure located along the alignment, discuss potential conflicts, and gain an understanding of the general process for private utility conflicts and relocations related to public betterment projects. Additionally, the coordination calls served to open an early dialogue with private utility providers in order to ensure they are engaged and aware of any potential future conflicts.

In general, private utility providers were aware of the proposed project as well as the process by which conflicts may be resolved, as they had been involved in similar Metro projects. The following general findings were made based on these meetings:

- Costs to relocate private utilities are typically assigned based on individual franchise agreements. However, if a project is a "Rule 20A" project (a project for the public betterment) private utility providers are typically responsible for paying to relocate their own infrastructure.
- Private utility providers will typically try to coordinate utility relocation with one another if they are located in the same trench.
- In order for private utilities to move facilities, the public agency must provide a formal letter requesting them to do so.

URS provided private utility providers with the alignment alternatives map as well as a general project schedule. The project team will continue to coordinate with private utility providers as the project progresses in order to closely coordinate on any potential conflicts and associated relocation.

APPENDIX 9.9 Detailed Project Schedule

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OP.130	*Broadway Streetscape (Concurrent with LASC)	23m 07/04/17	06/03/19	1										streetscape (Concurrent with Leck Removal & Street Restora	
OP.140	Regional Connector - Deck Removal & Street Restoration	6m 07/02/18°	12/31/18			 			-			Regional Cor	nector D	eck Removal & Street Restora	aon
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DE.120	Permitting	10m 09/01/16	07/04/17	11 -		Permitting
DE.130	60% Design	6m 10/03/16	04/04/17			64% Design
DE.140	90% Design	3m 04/04/17	07/04/17			94% Design
DE.150	100% Design - Issue for Construction	2m 07/04/17	09/01/17			
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PC.130	R/W Site Selection	3m 03/31/16	06/30/16	-	R/W Site Se	ction
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PC,150	Construction Staging Plan	3m 06/02/17	09/01/17			Construction Staging Plan
PC.160	Construction Quality Control Plan	3m : 06/02/17	09/01/17		<u> </u>	Construction Quality Control Plan
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Vehicles (8)						
VL.110	Prepare Vehicle Procurement Documents	3m 01/01/16	04/04/16	+	Prepare Vehicle Pr	whiche fild & Award Phase
VL120	Vehicle Bid & Award Phase	6m 09/30/16	04/04/17			Vohicle Bid & Award Phase
VL.130	Vehicle Production & Defivery	24m 04/04/17	04/03/19			Vehicle Production & Delivery
VL140	1st Vehicle Arrives	0m 11/02/18				O Ist Vehicle Arrives
Long Lead Ite	ims	NAME OF STREET				
VL.150	Prepare Advance Procurement Contract Documents	3m 04/04/17	07/04/17	l l		Plapare Advance Procurement Contract Documents
VL.160	Advance Procurement Bid & Award Phase	6m : 07/04/17	01/02/18			Advance Procurement Bid & Award Phase
VL.170	Manufacture/Delivery of Long Lead Items	12m: 01/02/18	01/01/19		1000	Manufacture/Deliver of Long Lead Items
collegate (e)	FIONES IN ENVALUATION		A STATE			
CO.110	Maintenance Facility Construction	15m 07/04/17	10/02/18		· ·	Maintenance Facility Construction
CO.120	Utility Relocation	20m 07/04/17	03/05/19			Utikty Relocation
CO.130	Traffic Signal Modification / Installation	6m : 10/03/17	04/03/18			. Iraffic, Signat Modification / Installation
CO.140	Civil/Track Construction	20m 10/03/17	06/03/19		1_1_11	Clarif rack Construction Communication System (Installation
CO.150	Communication System Installation	8m 04/03/18	12/04/18		*	Communication System Installation
CO.160	Traction Power Substation Installation	12m 06/01/18	06/03/19*	A 1		raction Power Substation Installation
CO,170	OCS Installation	9m: 09/03/18	08/03/19*	1		Communication System Idealization Faction Power Substation Installation OCS Installation Shallon Finish, Landscaping, Signage
CO.180	Station Finish, Landscaping, Signage & Information System	6m 03/05/19	09/03/19			Satilor Finish, Landscaping, Signage
্টাল্লেং গুৱাহাট	E À RECAING DE LINE COMPANY	CATTLE STATE				
OT,110	Operator Procurement	17m 07/05/17	12/04/18		_	Operator Procurement
OT.120	Testing & Training	12m: 12/04/18	12/03/19			Tiesting & Training