

CITY OF LOS ANGELES
INTERDEPARTMENTAL CORRESPONDENCE

Date: October 27, 2022

To: Municipal Facilities Committee

From: Steven Fierce, AIA
Principal Architect, Municipal Facilities Program Manager
Bureau of Engineering



for Al Bazzi
Al Bazzi, PE, ENV SP
Principal Civil Engineer, Engineering Service Division
Bureau of Street Services

for Al Bazzi

DocuSigned by:
Chuck Kwan
CFD428819EDC471...

Subject: **ASPHALT PLANT NO. 1 – PHASE 2 PROJECT STATUS UPDATE AND FUNDING APPROVAL**

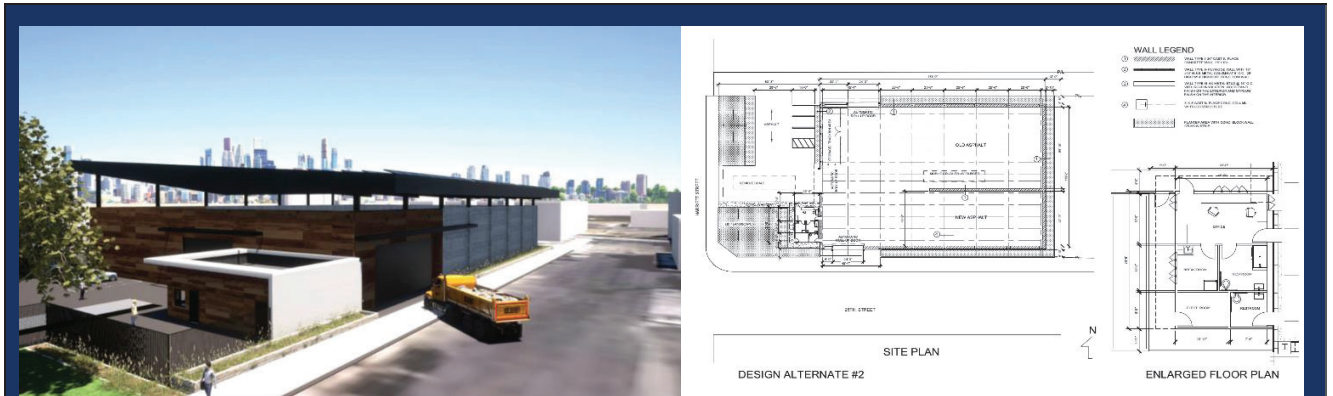
RECOMMENDATIONS:

1. Approve the updated total project budget of \$28.9 million, which reflects a \$10 million increase over the previously authorized budget of \$18.9 million; and,
2. Approve the revised schedule with a construction completion date of December 31, 2025.

Updates: Denoted in bold print

CD 14

Councilmember Kevin de León



Proposed Canopy Structure and Employee Office

1. Background

The City of Los Angeles, Bureau of Street Services (StreetsLA) has operated Asphalt Plant (AP) No. 1 at its current location, 2484 E. Olympic Boulevard, Los Angeles, CA 90021, since 1947. The AP No. 1 site was recently rebuilt, and is approximately 2 acres and is in an industrial area south of downtown Los Angeles.

A project to replace and modernize the plant was awarded to Papich Construction Co., Inc. on June 1, 2016, for \$31,073,000, and has subsequently been completed and operational since 2019. AP No. 1, now with the capacity to produce up to 700,000 tons of asphalt per year, will increase the use of reclaimed asphalt pavement (RAP) from 20% to 50% thus, decreasing the need to purchase virgin asphalt material. Additionally, this change will increase the cost savings of purchasing gravel by approximately 30%.

However, during a functional test performed, it was discovered that in order to produce Hot Mix Asphalt (HMA) efficiently utilizing 50% RAP, additional space along with another crusher and screening unit is required to “process” the material to a consistent gradation size of $\frac{5}{8}$ ” prior to being introduced to the HMA process at AP No. 1.

To maintain the production of HMA with the 50% RAP, BOE had issued a change order to Papich to rent a processing crusher and screener as a temporary measure. RAP material is currently processed and stored at a StreetsLA facility located at the north-east corner of 25th Street and Harriet Street, which is approximately 1.2 miles from the AP No. 1. To enable the plant to economically produce HMA using 50% RAP, it was recommended that the City purchase the crusher and screener rather than renting the equipment. In April 2020, an amount of \$1.0 million of MICLA funding was approved to cover the pre-design and design activities of the Phase II project at 25th and Harriet site under the 2020-21 CIEP Mayor’s Proposed Budget (Attachment 1). The estimated \$10 million project budget is based on the scope of installation of an impactor, screener, utility connection, and other limited site improvements.

During recent project development work on the Phase II project, additional issues have been identified on the 25th and Harriet site. Since the stockpile of unprocessed and processed RAP is not covered, wind-borne debris and dust generated during loading, unloading, and processing, have caused a few complaints from the surrounding neighbors. Furthermore, having the RAP pile exposed to the elements can increase the moisture content of the material which hinders the production rate at the asphalt plant. In order to

maintain a low moisture content, even during inclement weather, and to help reduce nuisance dust plumes, a canopy covering the RAP pile is recommended.

As a result of the programming effort, an Inter-Departmental Correspondence of scope statement was issued on 11/24/2020 (Attachment 2). StreetsLA updated the original scope of work and asked to add a canopy structure to cover the entire operation including stockpiles and equipment, a small office space with restrooms to facilitate document processing and other staff needs, along with supporting equipment and facilities such as truck scales, pavement, and security measures. Additionally, concrete bins to hold the RAP stockpile have been requested in subsequent pre-design meetings with BOE and StreetsLA.

On May 27, 2021, the MFC approved the joint report presented by BOE, as amended, and authorized BOE to move forward with a Task-of-Solicitation (TOS) for a design consultant, instructed BOE and StreetsLA to return back to Committee with the hazard materials investigation results and a cost estimate for the hazard material removal, and to pursue grants and other funding, such as the American Rescue Plan and American Jobs Plan for the infrastructure projects, to augment the project budget.

1.1 Project Status

Following the Committee's instruction, the Environmental Management Group (EMG) of the BOE issued the TOS No. 21-095 to bring ICF Jones and Stokes, Inc on board to provide the Phase I Environmental Site Assessment (ESA) and Hazardous Building Material Survey. The Hazardous Building Material survey was completed on September 3, 2021 and found lead containing paint within the existing steel canopy, which required the mitigation and proper disposal by a licensed Contractor. The Phase I ESA report was completed on September 22, 2021, and its assessment has revealed that the historical use of the site for refuse collection and disposal as well as the presence of historical and current railroad Right-of-Ways were recognized environmental conditions (RECs).

Further field investigation of the soil conditions has been conducted by the Geotechnical Engineering Division (GED) of the BOE. The Phase II Environmental Site Assessment (ESA) was provided by Leighton Consulting Inc and completed on November 11, 2021. The subsurface exploration indicated that the site was underlain by undocumented artificial fill overlaying Quaternary-age alluvial deposits. The results of the laboratory test of the soil samples indicated none of the Title 22 metals, Total Petroleum Hydrocarbons (TPH), Volatile Organic Compounds (VOCs), Chlorinated Herbicides and

Pesticides, and a few other substances were detected above laboratory reporting limit; however, only soluble and leachable lead were detected at spot locations that exceed the hazardous waste criteria and needs mitigation measures.

The Geotechnical Engineering Report was completed on December 9th, 2021. The report presented the results of the geotechnical investigation in terms of the data review, geophysical survey, field exploration, laboratory testing, and structural design considerations. The report considered the site was feasible for the proposed project on the condition that all these listed recommendations, of which the most significant is the removal and replacement of the top layer of the existing artificial fill with a total volume close to 10,000 cubic yards, to be satisfied.

Based on these findings and recommendations, BOE and StreetsLA worked together to adjust the construction cost estimate. On one hand, the cost estimate for hazardous material mitigation can be reduced significantly (\$650,000 approximately) compared with the original anticipation (\$1.2 million) based on the findings and recommendation of the Phase II ESA report; on the other hand, the cost of the grading work has to be increased significantly (\$1.4 million) due to the requirement of the Geotechnical Engineering Report. The current construction market continues its upward trends due to the impact of the Covid-19 pandemic. In the last two years, commodities have seen noticeable price increases, with ballooned inflation rates, and a sharp uptick of the Consumer Price Index. After the adjustment, based on the BOE recently reported construction inflation rate, the overall project budget is approximately \$28.9 million, which is \$10.0 million more than the budget reported in May of 2021. The detailed budget summary is updated and presented in Section 3.

Since the Environmental Site Assessments and Geotechnical Investigation, as well as subsequent revisions to the concept design took more time than original timeframe projected, the next step forward to bring the design consultant on board for the Design/Build Bridging Document also had a delayed start.

A Task Order Solicitation (TOS) No. 78 has been issued to all consultants on the Pre-Qualified On-Call (PQOC) Architectural and Related Professional Service List on June 28, 2022 to prepare a 20% architectural and engineering design bridging document. The submission deadline July 28, 2022 was subsequently extended to August 18, 2022 in order to give consultants sufficient time to prepare and bid on the project. However, there was only one proposal received from IBI Group with a total cost of \$523,134.94 by the due date.

Staff is working with the IBI Group to negotiate down the fee while this report is being prepared. The project schedule is adjusted to reflect this change and the updated schedule is presented in Section 4.

Based on the update of the grant group of the StreetsLA, the search of the additional federal grant was not successful up to the date, but they will continue their efforts for additional funding sources.

2. Scope of Work As we stated in the previous report of May 2021, the project budget has been increased from \$10 million to \$18.9 million due to the added scope as outlined below:

- Demolition of the existing concrete platform to expand the working area;
- Purchase and install a set of RAP processing equipment;
- Construction of a new canopy structure to cover the stockpile of the RAP and the RAP operation along with the processing equipment;
- Construction of an office with restrooms and provide utility connections;
- Purchase and installation of truck scales;
- Provide utility connections of water, power, sewer, and communication;
- Concrete bins to hold the unprocessed and processed RAP stockpile;
- Pavement for the new driveways, a truck route, parking, and an operation area;
- Security measures such as the fence, gate, camera, and lighting; and,
- Drainage, landscaping, and irrigation.

3. Budget Based on the BOE MFC report dated 07/28/2022 and the construction cost inflation data of the California Department of General Services, the construction cost has been adjusted with an inflation rate of 13% from January 2020 to July 2021, and another 15.22% from June 2021 to June 2022; the construction escalation was also projected using the suggested inflation rate 15%, 12%, and 9% for the FY 2022-23, 2023-24, and 2024-25 to the middle of construction.

The following table has summarized the project budget change from the project initiation (2019), the updated scope (2021), and the adjustment due to inflation (2022).

<u>Phase</u>	<u>Original Cost Estimate</u>	<u>Updated Cost Estimate</u>	<u>Final Adjusted Cost Estimate</u>
Pre-Design Costs	\$100,000	\$560,000	\$753,000

100% Design/Bid & Award Cost	\$940,000	\$510,000	\$523,000
Construction & Equipment Costs	\$6,400,000	\$14,248,000	\$19,631,000
Construction Contingency	\$2,240,000	\$2,492,000	\$2,723,000
Subtotal	\$9,680,000	\$17,810,000	23,630,000
Construction Escalation	\$320,000	\$1,090,000	\$5,234,000
Budget Total	\$10,000,000	\$18,900,000	\$28,864,000

Note:

1. For clarification, a detailed cost breakdown and comparison is provided as attachment 04.

Funding Availability

In the Mayor's Budget for Fiscal Year (FY) 2020-21, FY 2021-22, and FY 2022-23, BOE/Streets LA was approved the following MICLA funding:

Approved MICLA Funding		
Fiscal Year	Amount	Account Number
FY 2020-21	\$1,000,000	298/50/50TAP1
FY 2021-22	\$1,200,000	298/50/50VP1H
FY 2022-23	\$8,629,774	TBD

Funding Shortfall:

Based on the revised scope of work, the project is anticipating a potential funding shortfall of \$18,034,226 beginning Fiscal Year 2023-24.

Project Total	\$28,864,000
Total Available Funding	\$10,829,774
Project Shortfall	\$18,034,226

Note:

1. This project budget estimate does not include the cost of relocation of current onsite operation to an interim site and the cost of leasing of the interim site for the duration of the construction. The action and cost of relocation and interim site leasing will be addressed by the StreetsLA separately.

Funding Shortfall (Projected Cash Flow Needs)

Based on the updated funding availability and the updated schedule, the funding shortfall of \$18 million shall be identified and/or made available in the Fiscal Year 2023-24. The \$18 million can be awarded over 2 of fiscal years (FY 2024-25 and FY 2025-26) as shown in the table below:

Fiscal Year	Available Funding anticipated spending	Funding Shortfall Needed	Project Phases
Prior FY	\$753,000		Pre-Design
2022-23	\$760,000		20% Bridging Document, Art Fees, Permits and other direct costs
2023-24	\$5,553,000		Bid & Award, Final Design, Demolition
2024-25	\$3,764,000	\$13,864,000	Construction
2025-26		\$4,170,000	Construction and Post construction
Total	\$10,830,000	\$18,034,000	

4. Schedule

The project schedule has to be adjusted to reflect the delayed start of the 20% Bridging Documents due to the unanticipated long duration of site investigation and subsequent conceptual design alterations. The project schedule has been adjusted as follows:

<u>Phases</u>	<u>Original Start Date</u>	<u>Original Finish Date</u>	<u>Revised Start Date</u>	<u>Revised Finish Date</u>
Pre-Design	12/30/2020	12/31/2021	12/30/2020	06/01/2022
20% Bridging Documents	01/01/2022	04/30/2022	06/02/2022	06/30/2023
Bid & Award	05/01/2022	10/31/2022	07/01/2023	12/30/2023
Final Design & construction	11/01/2022	11/01/2024	12/31/2023	12/31/2025

Post Construction	11/02/2024	05/02/2025	01/01/2026	06/30/2026
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Note:

01. The current project schedule is based a Design-Build Delivery process.

02. The 20% Bridging Document Phase also include 6 months of the required Request For Proposal (RFP) and Contract award for the Task Order Solicitation (TOS) No. 78.

03. The actual starting date of the construction will also depend on the progress of the relocation of onsite operation.

5. Key Issues

To mitigate negative impact on the neighboring property, increase the production rate of RAP, and help reduce operation costs to StreetsLA, BOE/StreetsLA decided develop a covered facility. The 25 th and Harriet site is strategically located 1.2 miles away from AP No. 1 and is within the heavy industrial zone, thus, it is the ideal place as a satellite site for AP No. 1. With the proposal of a covered facility, it will guarantee the uninterrupted supply of RAP and help AP No. 1 reach its full design capacity. As a result, the updated scope of work has several costly items compared to the original scope of work:

1. Hazardous Material Abatement.

Though the geotechnical and environmental investigation are still in process, the preliminary record research has returned with a result of potentially risky soil conditions.

Zoning information has indicated the subject lots were used as a landfill site, so there is a great risk of soil contamination. The anticipated cost for the hazardous material abatement is included in the revised construction budget.

The Phase I ESA report identified the site had the Recognized Environmental Conditions (RECs) such as the refuse collection and railroad ROW, The Phase II ESA report surprisingly reported only a few spot locations that had the soluble and leachable lead that has a concentration level that require mitigation measures. The Hazardous Building Material Survey found lead paint within the existing steel canopy over the concrete platform but found no asbestos either in the storage room or the concrete platform. The geophysical survey did find the buried abandon railroad tracks, concrete pavement, and unknown utility pipes. With those findings and recommendations, the project can save a great amount of anticipated hazardous material mitigation cost, which will be reduced to \$650,000 from the original estimate of \$1.2 million.

2. The Canopy Structure.

In order to mitigate the water content and dust control issue, a canopy structure was proposed to cover and enclose the entire operation and the operating equipment. The proposed canopy will be approximately 145 ft (width) x 200 ft (length) x 40 ft (height) to accommodate the minimum size of the stockpile of daily production. The current construction cost estimate is based on a pre-engineered sprung structure made of fabric and steel framing. The cost to construct a canopy could be higher if a different type of canopy construction material is chosen, and additional subsurface construction costs considering the high probability of un-ideal soil conditions.

Due to the highway dedication requirement (3 ft along both the 25th and Harriet Street, the size of the proposed canopy structure has been adjusted to approximately 120' x 180' to observe the new property line. Two design options with different roofing design were provided to the client. Option No. 1 with fabric arched roof and Option No. 2 with steel flat roof were compared and analyzed both with respect to the design and construction cost, product maintenance and life expectancy, as well as future development opportunity related to the solar power. Option No. 2 with a steel flat roof is recommended based on its long product life, lesser need of maintenance, and great benefit to be solar ready.

3. *The Office Space with Restrooms.*

An office with restroom facilities is necessary to maintain basic sanitary and hygienic conditions for employees working at the facility. The proposed small office with restrooms is only big enough to accommodate the on-site crew's daily activity such as document processing and short breaks; however, the cost to connect with water, power, sewer, and communication adds to the budget.

4. *Demolition of Existing Concrete Structure and Existing Steel Canopy.*

At the east side of the subject lot, there exists a concrete platform (145 ft x 90 ft) with a steel canopy, which might have been the loading platform of railway operations in previous years. The 90 ft x 30 ft steel canopy is situated on the top of a platform next to the alley. A 160 ft long driveway ramp extends from the corner of Harriet Street along the south property line to the top of the concrete platform, which is 12 ft to 15 ft above the grade. The concrete platform and steel canopy need to be demolished because they occupy a large portion of the lot, and do not allow for efficient utilization of the site.

5. *The Concrete Bins to Hold the RAP Stockpiles.*

After receiving the scope statement, it was made clear to the design team that concrete bins were needed to hold as much RAP as possible to avoid the cost of dumping the excess unprocessed RAP as trash. Based on the size limit of the canopy, the proposed concrete bins will hold twelve (12) days production volume (24,000 tons of RAP). The construction cost for the bins includes a 25 ft high retaining wall around the bins, with a thickened lower portion of the wall to resist impact loads.

A detailed comparison of overall project cost and construction cost are provided in Attachment 3. The delta analysis table provides an overview comparison between each phase of the project cost including predesign, design, bid & award, construction, and other miscellaneous costs; and provides a cost breakdown comparison of each line item of construction cost, along with a simple cost benefit analysis. Per the cost benefit analysis, the cost recovery will take about six (6) years.

The cost recovery has been revised from six (6) years to nine (9) years for the adjusted overall project budget of \$28.9 million.

Associated Risks with the Unresolved Issues if No Action Is Taken at the AP No. 1 – Phase 2:

1. Possible shut down of the facility at 25th and Harriet site due to AQMD permit violations;
2. Fines from AQMD due to significant amounts of particulate matter and dust;
3. Reduced RAP utilization from 50% to 20% at AP No. 1. This will increase the production costs of HMA because StreetsLA will be forced to purchase the more costly virgin material to produce asphalt. The disposal cost of excess RAP will also increase.

6. Attachments:

Attachment 1: 2021 BlueBookVol2 388

Attachment 2: 25th & Harriet Memo with Scope Statement

Attachment 3: Cost Delta Analysis and Cost Benefit Analysis

Attachment 4: Updated Delta Analysis and Cost Benefit Analysis

SZ/NM/SF/AB/IJ/CK:cd

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cc: eng.execsignature@lacity.org

Ted Allen, BOE

Keith Mozee, StreetsLA

Shirley Lau, StreetsLA

Deborah Weintraub, BOE

Nur Malhis, BOE

Ohaji Abdallah, BOE

Shun Yu Zhang, BOE

Bernyce Hollins, CAO
Daisy Bonilla, CAO
David Hirano, CAO
Nichole Trujillo, CAO
Linda Johnson, CAO
Robert Sewell, StreetsLA
Ioana June, StreetsLA
Chuck Kwan, StreetsLA

MICLA-ISSUED FINANCING

Proceeds from the issuance of MICLA lease obligations or other types of debt will be used to finance the projects listed below. The debt service payments associated with these types of financing will be funded by the City through an annual appropriation of General Fund or Special Fund monies. The issuance of MICLA debt for the projects listed below would cause the City to borrow \$88,303,034 at an approximate 5.5 percent interest rate over 20 years. The total estimated debt service is \$147,780,000, including interest of approximately \$59,477,000. During the life of the bonds, the estimated average annual debt service is \$7,389,000 over 20 years. Actual interest rates may differ as rates are dependent on market conditions at the time of issuance.

The following Municipal Facilities projects have been proposed for MICLA-issued financing.

CATEGORY	PROJECT TITLE	ACTIVITY*	2020-21 AMOUNT
3	Alpine Recreation Center Expansion	C	\$ 686,034
Funding is provided to offset a remaining funding shortfall for this Proposition K specified project that is in active construction.			
1	Asphalt Plant I (Phase II) 25th and Harriet Site Improvements	D	\$ 1,000,000
Funding is provided for pre-design and design activities for the installation of an impactor, screener, and utility connections.			
1	Barnsdall Art Park	C	\$ 500,000
Funding is provided for the restoration, seismic retrofit, and hazardous materials abatement for Residence A located in Barnsdall Art Park.			
1	Building Equipment Lifecycle Replacement	C	\$ 2,500,000
Funding is provided for the lifecycle replacement of aging and obsolete building equipment at the City's highest priority sites in order to achieve more efficient operations and associated cost savings.			
1	Capital Program - Bureau of Street Services	C	\$ 500,000
Funding is provided to address safety hazards and regulatory compliance issues at yards and shops facilities operated by the Bureau of Street Services (BSS) as part of a multi-year program. This will enable BSS to prioritize use of this funding to address the most critical safety hazards and regulatory compliance.			
1	Capital Program - El Pueblo	C	\$ 200,000
Funding is provided for capital repairs and infrastructure improvements at El Pueblo de Los Angeles Historical Monument.			
1	Capital Program - Van Nuys Civic Center (Formerly Marvin Braude Building)	C	\$ 225,000
Funding is provided for capital repairs and infrastructure improvements at Van Nuys City Hall complex, which serves as a City hub in the Van Nuys area.			
1	Capital Program - Zoo	C	\$ 250,000

Funding is provided for capital repairs and infrastructure improvements at the Los Angeles Zoo facilities.


* "PP" indicates preliminary study. "D" indicates design. "C" indicates construction work. "R/W" indicates land or building acquisition.

CITY OF LOS ANGELES

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: November 10, 2020

TO: Deborah Weintraub, AIA
Chief Deputy City Engineer City Engineer
Bureau of Engineering
Attention: Steven Fierce

FROM: Keith Mozee 
Chief Operations Officer
Bureau of Streets Services (StreetsLA)

SUBJECT: REQUEST FOR DESIGN WORK FOR ASPHALT PLANT 1 (PHASE II) AT 25TH ST. AND HARRIET ST. YARD

The Bureau of Street Services (StreetsLA) requests the Bureau of Engineering (BOE) to incorporate specific items and essential features within the pre-design and design efforts for Asphalt Plant 1 (AP1) Phase II at the 25th Street and Harriet Street yard. Attached is the Project Scope Statement to outline the project's deliverables and identify the constraints.

AP1 services the metro region and portions of the valley region with the production of hot mix asphalt (HMA) for various Street Renewal Programs. StreetsLA requests that BOE include, but not limited to, the following items in its pre-design and design phases to make the 25th St. and Harriet St. yard a more functional work environment for reclaimed asphalt pavement (RAP) production for AP1: 1) canopy, 2) utility connections, 3) an office space with restroom facilities, 4) RAP processing equipment, 5) truck weight scales, 6) concrete pavement, and 7) remove concrete structure.

The placement of a canopy is crucial for the protection of RAP processing equipment and supplies as well as moisture and dust abatement. Additionally, utilities such as water, sewer and electricity as well as an office with restroom facility are necessary to maintain basic sanitary and hygienic conditions for employees working at the facility. StreetsLA also requests that BOE include the construction of concrete pavement for vehicles entering and existing the facility along with a weight scale to measure the loads on the trucks.

With these various features added to the yard, AP1 and its staff can more efficiently produce the HMA to resurface streets and would result in a significant savings in cost to the City. These basic requests will help ensure that AP1 is a sustainable and safe plant for many years to come.

Should you require additional information regarding this request, you may contact Al Bazzi, Division Manager of the Engineering Services Division, at (213) 847-0962.

Attachment

cc:	Keith Mozee, StreetsLA	Neil Drucker, BOE
	Al Bazzi, StreetsLA	Neel Mistry, BOE
	John Sapone, StreetsLA	Paul Tseng, BOE
	Nick Lopez, Streets LA	Shun Yu Zhang, BOE
	Ioana June, StreetsLA	Chelsea Li, BOE

25th & Harriet Street Project Scope Statement			
Project Name	25th Street and Harriet Street Project		
Project Sponsor	Nick Lopez	Project Manager	Ioana June
Approval Date	10/26/2020	Revision Date	
Scope Description & Project Deliverables	<p>Demolish existing concrete structure to maximize the efficiency of the recycle asphalt pavement (RAP) facility and reappropriate any existing storage capacity. Erect a canopy structure covering the RAP and RAP processing equipment to protect from moisture, wind and other natural elements.</p> <p>Provide office structure for employees (<4) with bathroom and furnitures</p> <p>Establish utilities (electricity, water, sewer, and communication) for the facility and office structure.</p> <p>Replace current rental RAP processing equipment and purchase new equipment to accommodate 50% of AP1's full capacity.*</p> <p>Install truck weight scales at entrance and exit to the facility.</p> <p>Construction concrete pavement for vehicles entering and exiting the facility and parking for idle equipments.</p> <p>Evaluate and upgrade current facility lighting system.</p> <p>Design new perimeter fencing with separate access gates for entrance and exit.</p> <p>Evaluate RAP facility for site drainage mitigation.</p> <p>Project design plans with budget and schedule.**</p>		
Acceptance Criteria	<p>The project will be accepted when:</p> <ol style="list-style-type: none"> 1. All permit requirements are satisfied. 2. Street Renewal Program agreed the deliverables meet their needs. 		
Constraints	<p>Project limit is within city owned parcels</p> <p>Total project budget is limited to approval from CAO Maintain RAP operation</p>		

* Installation of an impactor and screener to process RAP. The processed RAP will be used in the production of HMA at AP1.

** construction documents (including specifications), any site investigation report required, environmental reports, progress reports, schedule, design reviews, LID.

A Project Cost Delta Analysis Table

5/17/2021

Item/Description	Original Class "O" Estimate	Revised Class "O" Estimate	Delta (\$)	Remarks
1. Utilities	\$2,000,000	\$2,000,000	\$0	No scope change
2. RAP Equipment	\$1,100,000	\$1,100,000	\$0	No scope change
3. Equipment Rental	\$1,000,000	\$0	\$1,000,000	Equipment will be purchased under item 2
4. Design completion by D/B entity	\$0	\$1,090,000	\$1,090,000	D/B will be used instead of DBB
5. Site Improvement	\$2,300,000	\$2,300,000	\$0	No scope change
6. Hazmat Abatement		\$1,200,000	\$1,200,000	Potential soil contamination remediation was not included
7. Canopy Structure		\$1,590,000	\$1,590,000	Canopy is added to mitigate dust /AQMD compliance
8. Concrete Bins		\$1,000,000	\$1,000,000	Added scope, Bins are needed to store the RAP
9. Office/Restrom Trailer		\$200,000	\$200,000	Added scope, this is required for staff operations
10. Truck scale		\$400,000	\$400,000	Added scope to optimize/reduce transportation costs
11. Demolition of existing concrete structure	\$0	\$1,633,000	\$1,633,000	Added scope to accommodate the new canopy structure (item 7)
12. Security measures		\$835,000	\$835,000	Added scope to secure/protect new City assets
Subtotal	\$6,400,000	\$13,348,000	\$6,948,000	
13. Design Contingency	\$1,280,000	\$0		Design/Build (DB) will be used instead of Design/Bid/Build (DBB)
14. Construction Contingency	\$960,000	\$2,492,000		Revised Contingency due to increased Construction Cost
Total Construction Cost	\$8,640,000	\$15,840,000		
Pre-Design:				
Environmental/Survey/Geotechnical/Hazmat Survey	\$100,000	\$560,000		Higher amount is required to accomplish these tasks
BOE Design/PM/CM	\$748,000	\$510,000		BOE will now deliver 30% vs 100% Design, change to DB vs DBB
BCA Inspection		\$600,000		Was not included in original estimate
Construction escalation	\$320,000	\$1,090,000		5% annually till 2023 (mid-point of construction)
Other Direct Costs	\$192,000	\$300,000		Art fee, plan check/permit fees, printing, etc.
Total Project Estimated Cost	\$10,000,000	\$18,900,000	\$8,900,000	

B **Cost Benefit Analysis:**

1. Procuring the RAP equipment, we save the rental cost of \$645,000 per year.

2. The scales will result in annual savings of \$150,000:

- Calculation: Approx. 80,000 tons of RAP used for production of 220,000 tons of asphalt; assuming 20% empty trucks paid as full, we paid an extra 20,000 tons of RAP; 20,000 tons x \$7.48/ton= \$149,600 (approximately \$150,000 /year).

3. Using 50% RAP instead of 20% RAP brings a saving of \$1,243,200/year cost of the procurement of virgin materials and a saving of \$933,600/year for the hauling and dumping of 30% RAP not used in asphalt production. This calculation is based on 220,000 tons of asphalt production:

- Calculation for \$1,234,200 saving: 80,000 tons RAP used for 50% of the aggregate; for the rest of 50% were used 80,000 tons virgin materials for a total of 160,000 tons aggregates; if only 20% RAP used, the 30% difference of 48,000 tons represents the additional virgin materials needed; $160,000 \text{ tons} \times 30\% = 48,000 \text{ tons virgin material} \times \$25.90/\text{B35ton} = \$ 1,243,200 / \text{year}$;
- Calculation for \$933,600 saving: $48,000 \text{ tons RAP} \times \$19.45/\text{ton disposal cost} = \$933,600$

4. Total savings per year = \$645,000 + \$150,000 + \$1,243,200+ \$933,600= \$2,971,800/year for 220,000 tons of asphalt

Note: Cost recovery of the investment: approximately six (6) years; The savings are increasing with the increase of production.

A Project Cost Delta Analysis Table

9/8/2022

Item/Description	Initial Cost Estimate	Adjusted Cost Estimate	Delta
1. RAP Equipment	\$ 1,100,000.00	\$ 1,363,000.00	\$ 263,000.00
2. Truck scale	\$ 400,000.00	\$ 415,000.00	\$ 15,000.00
3. Hazmat Abatement	\$ 1,200,000.00	\$ 650,000.00	\$ (550,000.00)
4. Design completion by D/B entity	\$ 1,090,000.00	\$ 1,762,000.00	\$ 672,000.00
5. Demolition of existing concrete structure	\$ 1,633,000.00	\$ 1,480,000.00	\$ (153,000.00)
6. Site Improvement	\$ 2,300,000.00	\$ 3,717,000.00	\$ 1,417,000.00
7. Utilities	\$ 2,000,000.00	\$ 2,339,000.00	\$ 339,000.00
8. Canopy Roof	\$ 1,590,000.00	\$ 1,700,000.00	\$ 110,000.00
9. Concrete Exterior Wall/Bin Walls	\$ 1,000,000.00	\$ 2,476,000.00	\$ 1,476,000.00
10. Office/Restroom	\$ 200,000.00	\$ 638,000.00	\$ 438,000.00
11. Security measures	\$ 835,000.00	\$ 352,000.00	\$ (483,000.00)
Subtotal of the item 5 to 11	\$ 9,558,000.00	\$ 12,702,000.00	\$ 3,144,000.00
Subtotal of item 1 to 11	\$ 13,348,000.00	\$ 16,892,000.00	\$ 3,544,000.00
			\$ -
12. Design Contingency	\$ -	\$ -	\$ -
13. Construction Contingency	\$ 2,492,000.00	\$ 2,723,000.00	\$ 231,000.00
			\$ -
Total Construction Cost	\$ 15,840,000.00	\$ 19,615,000.00	\$ 3,775,000.00
Pre-Design:			
Environmental/Survey/Geotechnical/Hazmat Survey/Architect	\$ 560,000.00	\$ 753,000.00	\$ 193,000.00
Consultant 20% Bridging Document	\$ -	\$ 523,000.00	\$ 523,000.00
BOE PM/PE/CM	\$ 510,000.00	\$ 1,468,000.00	\$ 958,000.00
BCA Inspection	\$ 600,000.00	\$ 787,000.00	\$ 187,000.00
Construction escalation	\$ 1,090,000.00	\$ 5,234,000.00	\$ 4,144,000.00

Other Direct Costs	\$	300,000.00	\$	484,000.00	\$	184,000.00
Total Project Estimated Cost	\$	18,900,000.00	\$	28,864,000.00	\$	9,964,000.00

B Cost Benefit Analysis:

1. Procuring the RAP equipment, we save the rental cost of \$645,000 per year.

2. The scales will result in annual savings of \$150,000:

- Calculation: Approx. 80,000 tons of RAP used for production of 220,000 tons of asphalt; assuming 20% empty trucks paid as full, we paid an extra 20,000 tons of RAP; 20,000 tons x \$7.48/ton= \$149,600 (approximately \$150,000 /year).

3. Using 50% RAP instead of 20% RAP brings a saving of \$1,243,200/year cost of the procurement of virgin materials and a saving of \$933,600/year for the hauling and dumping of 30% RAP not used in asphalt production. This

- Calculation for \$1,234,200 saving: 80,000 tons RAP used for 50% of the aggregate; for the rest of 50% were used 80,000 tons virgin materials for a total of 160,000 tons aggregates; if only 20% RAP used, the 30% difference of 48,000 tons represents the additional virgin materials needed; 160,000 tons x 30% = 48,000 tons virgin material x \$25,90/ B35ton = \$ 1,243,200 /year;
- Calculation for \$933,600 saving: 48,000 tons RAP x \$19.45/ton disposal cost=\$933,600

4. Total savings per year = \$645,000 + \$150,000 + \$1,243,200+ \$933,600= \$2,971,800/year for 220,000 tons of asphalt

Note: Cost recovery of the investment based on the current contracting price and operation cost: approximately nine (9) years; The duration could be reduced with the increase of the production and material and operation costs.