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Title: CONSIDER AUTHORIZATION TO EXPEND ADDITIONAL FUNDS FOR PROJECT NO. 919 [FEDERAL NO. HPLUL-5403(017)]: WILMINGTON AVENUE INTERCHANGE MODIFICATION AT THE I-405 FREEWAY
THIS IS A JOINT AGENDA ITEM WITH THE SUCCESSOR AGENCY

Sponsors: Public Works

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Attachments: 1. Exh No. 1 (Location Map), 2. Exh No. 2 (Exist and Future), 3. Exh No. 3 (2013 AUG 06 CSA (Minutes)item #1), 4. Exh No. 4 (2015 AUG 4 CSA Minutes Item No. 16), 5. Exh No. 5 (Tesoro-Shell Pipelines), 6. Exh No. 6 (Foreman Hours), 7. Exh No. 7 (Machine Equipment Rentals), 8. Exh No. 8 (Office and Jobsite Equipment Rentals), 9. Exh No. 9 (Contractors Laborers), 10. Exh No. 10 (Disposal Fees), 11. Exh No. 11 (Union Labor Wage Rates), 12. Exh No. 12 (Concrete Cost), 13. Exh No. 13 (Rebar Labor), 14. Exh No. 14 (Landscape Labor-Material), 15. Exh No. 15 (Bridge Demo Subcontractor), 16. Exh No. 16 (Traffic Control and Surveyor), 17. Exh No. 17 Reso 17-055

Date	Ver.	Action By	Action	Result
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Report to Mayor and City Council

Tuesday, April 18, 2017

Discussion

SUBJECT:

**CONSIDER AUTHORIZATION TO EXPEND ADDITIONAL FUNDS FOR PROJECT NO. 919 [FEDERAL NO. HPLUL-5403(017)]: WILMINGTON AVENUE INTERCHANGE MODIFICATION AT THE I-405 FREEWAY
THIS IS A JOINT AGENDA ITEM WITH THE SUCCESSOR AGENCY**

I. SUMMARY

I. The Carson Successor Agency and the City Council are undertaking Project No. 919: Wilmington Avenue Interchange Modification at the I-405 Freeway (Exhibit No. 1). The project includes the construction of a new northbound on-ramp, widening Wilmington Avenue from 223rd Street to 220th Street, modifying the existing southbound on-ramp, and the construction of a right-turn lane from Wilmington Avenue northbound to 223rd Street eastbound by widening the existing bridge over the Dominguez Channel (Exhibit No. 2).

Staff requests that the City Council and Successor Agency Board authorize additional funds in the amount of \$5,008,345.00 to cover construction delays, change orders, and payments for a variety of items required to complete this project.

II. **RECOMMENDATION**

TAKE the following actions:

1. AUTHORIZE additional funds in the amount of \$5,008,345.00 to cover construction delays, change orders, and payments for a variety of project related items required to complete Project No. 919: Wilmington Avenue Interchange Modification at the I-405 Freeway,
2. APPROPRIATE \$5,008,345.00 from the Carson Successor Agency Bond Fund account to augment the amount currently budgeted for Project No. 919: Wilmington Avenue Interchange Modification at the I-405 Freeway,
3. WAIVE further reading and ADOPT Resolution No. 17-055, "A RESOLUTION OF THE CARSON CITY COUNCIL, amending the FY 2016/17 budget in the Carson Successor Agency Bond Fund to increase the Carson Successor Agency budget by \$5,008,345.00, AND
4. APPROVE necessary contract amendments in the amount of not to exceed \$5,008,345.00 and authorize the Mayor to execute the same upon approval as to form by the City Attorney.

1.

III. **ALTERNATIVES**

1. DO NOT AUTHORIZE additional funds in the amount of \$5,008,345.00 to cover construction delays, change orders, and payments for a variety of project related items required to complete Project No. 919: Wilmington Avenue Interchange Modification at the I-405 Freeway.
2. TAKE another action the City Council / Successor Agency Board deems appropriate consistent with the requirements of the law.

IV. **BACKGROUND**

Project 919 Wilmington Avenue Interchange Modification at the I-405 Freeway was listed in the City's Capital Improvement Program (CIP) for FY 2005/06. Wilmington Avenue essentially runs north/south and the I-405 freeway runs on a due east/west alignment at this location. Wilmington Avenue is an undercrossing and generally provides two lanes in each direction in the project vicinity. The southerly quadrant of the interchange is a standard diamond configuration. The northerly quadrant has a loop on-ramp and an off-ramp, both located in the northeast quadrant. A railroad track crosses 223rd Street and Wilmington Avenue south of the interchange, runs parallel to the I-405 freeway, and limits the opportunities for modifications in the south quadrants.

On August 6, 2013, the City Council / Successor Agency Board awarded a Construction Contract for Project No. 919 to the lowest responsible bidder, OHL USA, Inc. (OHL) (Exhibit No. 3).

On August 4, 2015, the City Council / Successor Agency Board authorized and appropriated \$3,200,000.00 from the Carson Successor Agency Bond Fund to cover pending change orders and other unforeseen construction work (Exhibit No. 4)

DELAYS

The project plan include five sequential construction stages. In most cases, work on one stage must be completed in its entirety before the next stage can be started.

Typically, in order for a contractor to provide an accurate and competitive bid, the contractor estimates the equipment, labor, and materials needed to complete the project based on plans, specifications and construction stages. The inability of the contractor to work in a logical sequence has severely impacted the overall productivity of the project. The original contractual completion date of the project was January 2016. However, the project's critical path method (CPM) schedule now extends the construction to be completed in November 2017, which is 432 working days beyond the original contract completion date.

One of the critical path items of the project is the relocation of SCE's overhead utility lines to an underground infrastructure. The whole process of undergrounding (e.g. design, construction of substructure, removal of overhead lines and poles, etc.) was one of the major issues that caused a series of delays in the project. Aside from this, the project site abuts the Union Pacific Railroad and has an abundance of pipelines, governed by various companies/agencies. It is a very difficult and extremely laborious process to obtain approvals from several companies and agencies. City staff and the construction manager (Hill International) collaborated to aggressively pursue solutions to any conflicts encountered, and minimize delays.

The construction has overcome two major challenges since this project was last presented to City Council in August 2015.

One of the accomplished milestones is the work over, and within, the Dominguez Channel. The Los Angeles County Flood Control District (LACFCD) approved the workplan and authorized work within the Dominguez Channel for the construction of the new northbound on-ramp over the channel. The new northbound on-ramp bridging over the channel was completed within the limited dry-season of April 2015 through October 2015, one year behind the original schedule.

The other accomplished milestone was Southern California Edison (SCE) undergrounding approximately 1,000 feet of overhead utility lines that fell primarily within Caltrans' right-of-way. Although the SCE underground plans were approved by Caltrans around June 2015, the construction start was delayed approximately six months due to an unexpected number of potholes being required by SCE to verify any utility conflicts. Each identified conflict required an SCE design change which takes approximately six weeks to complete. The underground work was approved by SCE in August 2016, and SCE's work force started the relocation of overhead lines in October 2016.

Recently, SCE discovered an unknown communication wire on their poles, had extreme difficulties identifying the user, and refused to proceed without making contact. After months of effort by SCE and City staff, the owner of the communication line, Wilcon Communications (Wilcon), finally engaged in the project. Wilcon's involvement allowed for the removal of the lines over the freeway and subsequent removal of one of the power

poles that was in the middle the new northbound on-ramp. As of April 7, 2017, one pole located towards the side of the northbound on-ramp still remains. SCE just recently notified the City that another communication company, Time Warner Cable (TWC), is also on their power pole. City staff is aggressively pushing SCE and TWC for the removal of the communication line in order to complete removal the final power pole, which would allow the contractor to complete the northbound on-ramp.

In the past few months, conflicts with an AT&T vault and Shell and Tesoro pipelines were discovered in the area being widened on the east side of Wilmington Avenue south of 223rd Street. The road widening is in conjunction with the bridge widening over the Dominguez Channel, which will accommodate an additional dedicated right-turn lane from northbound Wilmington Avenue to eastbound 223rd Street. Due to the road widening, sidewalks that provided vertical clearance and protection to the substructures were removed, and this resulted in the vault and pipelines interfering with the proposed roadway section, and it would take several months to lower or relocate the vault and pipelines in order to provide proper vertical clearance to the surface of the roadway (Exhibit No. 5). AT&T has recently approved the design of a reinforced concrete slab over the vault, and a design to address the pipelines is under review by each company. Soon after the pipeline companies' approval of said design, the contractor will pave this section of the project and complete construction stage 3 along the eastside of Wilmington Avenue.

LOST PRODUCTIVITY

The contractor assessed areas where there has been a measurable impact in terms of lost productivity. These impacts include, but are not limited to (i) Foreman Cost; (ii) Equipment Rental Cost; (iii) Crew Loss of Efficiency.

One of the components of the contractor's bid was based on 7,690 foreman hours for the 520 working days specified in the project. This equals roughly 14.79 foreman hours per working day of the contract. Typically, as it was anticipated for this project, each foreman could oversee multiple types of operations occurring simultaneously, but due to an unsteady flow of work, this could not occur. Based on the estimated remaining 432 working days at 14.79 foreman hours per working day, the total of 6,388.47 hours was reduced by 20%, to 5110.77 hours which summed to a negotiated additional cost of \$564,158.89 (Exhibit No. 6).

The contractor's estimate for machine equipment rentals used in their bid anticipated that these machines could be used for long durations, moving from one activity to the next, as shown in the contract staging plans. However, the limitations of the contractor to be able to do the work due to conflicts in field conditions translated into an additional cost for equipment rentals. The conflicts prevented the contractor from optimizing equipment rental cost. Rather than using the rented equipment once to accomplish the full extent of the work, the equipment was rented multiple times for several small portions of the work. The contractor has exceeded its original budget of \$942,362.90 for equipment rentals. The construction manager was able to reduce the requested additional compensation amount of \$643,530.46 for equipment rentals by 35%; down to \$419,377.41 (Exhibit No. 7).

Rental of office space to accommodate the construction management staff, along with rental of jobsite equipment (e.g. portable restrooms, Krail, Electronic Message Boards, etc.), had to be extended in parallel with the new construction completion schedule. The

rental amount was calculated with a monthly rate of \$2,932.79 and \$26,305.71. Hill managed to negotiate and reduce OHL's initial request to be compensated at a monthly rate of \$39,412.46 for the jobsite equipment, which would have equaled \$827,661.57 for the remainder of the job. That initial request was reduced by approximately 33% and negotiated to a revised amount of \$552,419.98 (Exhibit No. 8).

The contractor's laborers were also directly affected by the unforeseen field conditions and delays. They could not be utilized at their optimum capacity due to issues that took days or months to resolve. There have been approximately 70 days when the crews could not complete the scope of work due to various reasons. The contractor had initially requested to be compensated for 100 days of inefficiencies, in the amount of \$410,662.54 for additional labor costs. Hill assessed the contractor's proposal, to omit invalid claims, and reduced the negotiated amount down by 54%, to \$220,026.34 (Exhibit No. 9).

At the time that the contractor bid the project in 2013, they were able to make contractual agreements with suppliers and vendors, and lock-in rates per unit cost based on the original duration of the project. Since the construction schedule has been extended, disposal fees increased by 87.5% plus \$120.00 per load (Exhibit No. 10); union labor wage rates increased by an average of \$2.01 per hour (Exhibit No. 11); and the concrete market price increased by an average of 16% (Exhibit No. 12). Due to these escalations, the net increases directly related to this project are \$232,577.40 for disposal fees; \$67,891.91 for union labor wage rates; and \$144,943.66 for the increase in concrete cost; all totaling \$445,412.97. There was not much room for negotiations regarding these items, since they are based on industry rates.

There has also been an escalation of costs associated with laborers for the installation of rebar (ironworkers) and landscape maintenance. The rebar work on the bridge widening, the new northbound on-ramp and walls was delayed due to permits and utility interference (Exhibit No. 13). The landscaping subcontractor has also requested an increase based on labor and material.

Additional costs due to delays also included Time-Related Overhead (TRO). These are contractor's expenses, including field office overhead, that are in proportion to the time required to complete the work; and accounts for expenses associated with the normal and recurring operations of the construction project. TRO includes, but is not limited to, salaries, benefits, and contractor's office equipment costs of project managers, general superintendents, field office managers, and other field office staff assigned to the project; rent; utilities; maintenance; security; supplies; and equipment costs of the project field office. The contractor bid the TRO line item at \$1,500.00 per working day. The contract stipulates that this unit cost is valid up to 149%, and anything thereafter shall be negotiated. Based on the original working days of 520, the bid cost is honorable up to an additional 255 working days. Anything over that amount is subject to negotiated unit cost. Since the project is estimated to have an additional 432 working days, that results in 177 days beyond the 255 working day threshold. Initially, the contractor concluded TRO cost to-date was \$4,303.13 per working day. However, after further review and negotiations by Hill, that initial unit cost was reduced by 45%, down to \$2,975.00 per working day. The additional 255 working days at a rate of \$1,500.00 per working day plus the 177 days at the negotiated rate of \$2,975.00 per working day equates to \$909,075.00 in delay costs associated with TRO.

At the time of bid, OHL selected Hard Rock Equipment to be the subcontractor for the bridge demolition component of the construction. The bridge demolition was delayed by one year, during which time Hard Rock Equipment filed for bankruptcy and went out of business. To expedite the replacement and quickly secure a subcontractor that would be able to provide the same type of services, OHL selected the second lowest bidder Penhall Company. The newly selected subcontractor honored their original bid of \$325,000.00, which was \$158,526.00 more than Hard Rock Equipment. Including OHL's 5% mark-up, the increase for the replacement of the bridge demolition subcontractor was \$166,452.30 (Exhibit No. 15).

Subcontractors that manage to stay committed to the project that provided traffic control services and surveying were affected by the limitations of the job site conditions. Much like the laborers experience of being unable accomplish their full scope of work, their services were needed more times than originally anticipated. The additional traffic control services and surveying resulted in an additional total cost of \$775,537.59 (Exhibit No. 16).

From the start of the construction, there are several items that need constant maintenance; such as Storm Water Pollution Prevention Plans (SWPPP), ensuring that traffic control devices are properly placed, cleanup of nuisance debris, graffiti removal and weed abatement. OHL's budget for this component of the project has been exhausted. It has been discussed and concluded to provide an allowance of \$50,000.00 to compensate the contractor on a time and material basis for this service, at the City's discretion.

OHL provided a very detailed analysis and estimates of all of the items above. The 131 page set of documents is available to the City Council upon request.

NEGOTIATIONS AND SAVINGS

Hill has had numerous meetings with OHL, discussing the contractor's concerns about cost impacts due to delays. They included the project's inspector and Resident Engineer, and brought in an experienced negotiator, to ensure that the City was well represented in the efforts to reduce costs as much as possible. Hill was able to reduce OHL's initial request of \$4,931,309.81, down by nearly 30%, to \$3,500,258.78.

In addition to the reduced amount of \$3,500,258.78, below are other upcoming expenses:

COMPANY	PURPOSE	AMOUNT
L.A. COUNTY FLOOD CONTROL	PLATS/LEGAL & APPRAISAL	\$19,970.00
L.A. COUNTY INSPECTIONS		18,000.00
WATER BOARD	Annual Permit	813.00
UPRR PERMIT		19,600.00
TESORO RIGHT OF ENTRY AMENDMENT		9,000.00
HILL INTERNATIONAL	Beyond December 2017 (assumed) Thru Feb 2018	130,000.00*
OHL	Pending CCOs	1,310,702.00
TOTAL		\$1,508,085.00

*The amount specified for Hill, the City's construction management consultant for the project, will only be needed if the project goes beyond December 2017. If necessary, staff will present a separate staff report for an amendment to the professional services agreement and

authorize to expend the amount stated above for the extension of their services.

Aside from these efforts, there were other items that were addressed and avoided additional costs to the project including:

	Efforts the Construction Management (CM) employed	Description	Savings Amount
1	Channel lining at the existing bridge at the Dominguez Channel Bridge Widening (Completed)	The contract plans and County As-Built show the existing bridge to have channel lining at bents 4, 5, and 6. The contract plans also show new concrete liners to adjoin the existing at these locations. To construct this liner and work around it would be tedious and would delay the project another season. Hill CM took charge and worked hard contacting Caltrans, and as a result, it was determined that the plans mistakenly showed liners; and they worked to eliminate the liners, which helped save the City time and substantial cost.	\$2,000,000
2	Pile driving monitoring at Dominguez Channel (Completed)	The special provisions call for Pile Dynamic Monitoring to be done by state forces using state-furnished dynamic pile analyzer monitoring instruments. Contractor was working 6 days a week and 10 hour Shifts. Caltrans personnel that conduct the monitoring come from Sacramento and must be scheduled in advance. They will only work on weekdays. Hill staff efforts convinced Caltrans to allow weekend work. Hill's effort expedited work, and saved the City time and additional costs.	200,000.00

3	AT&T vault conflict with approach slab (In Process)	While excavating for the approach slab at abutment 1 of the 223rd Street bridge widening, an AT&T vault was discovered that would prevent the slab construction. Per AT&T specifications, standard cover from grade to roof of the manhole must be a minimum of 24" and a maximum of 60". Sharing this with the designer, the answer was to remove the vault and replace it. Hill staff efforts resulted in revised approach slab design, which eliminated removal and reduced delays and cost.	600,000.00
4	Roadway removal and conflict with utilities (In Process)	Too many utility lines are being encountered where roadway excavation is taking place. To eliminate tremendous potential delay and cost, Hill staff is trying to come up with methods to eliminate majority of roadway excavation and replacement.	600,000.00
	TOTAL		\$3,400,000.00

V. FISCAL IMPACT

This is a multi-year project for which funds are budgeted each fiscal year in the Carson Successor Agency Bond Fund account; the state-funded Metropolitan Transportation Authority (MTA) - 2007 Call for Projects; the Safe, Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) federal funds; and the Federal Interstate Maintenance Discretionary funds. The total funds from the aforementioned funding sources is \$26,503,926.00. In Fiscal Year 2015-16, additional \$6 million was appropriated to cover various expenditures for the project. Including the appropriations in the amount of \$5,008,345.00, recommended in this staff report, the total project cost including design, construction, construction management, utility relocations, and the right-of-way acquisition cost is now estimated at \$37 million.

If the Successor Agency Board adopts proposed Resolution No. 17-10-CSA (Exhibit No. 17), funds should be appropriated from the Cooperative Agreement Bond Proceeds account in the amount of \$5,008,345.00 to account no. 84-70-793-985-8020/0091901.

VI. EXHIBITS

1. Location Map. (pg.9)
2. Existing and future layout. (pg. 10)
3. Minutes, August 6, 2013, Item No. 1. (pgs. 11 - 12)
4. Minutes, August 4, 2015, Item No. 16 (pgs. 13 - 14)
5. Photo of Pipelines (pg. 15)
6. Foreman Hours (pg. 16)
7. Machine Equipment Rentals (pg.17)
8. Office and Jobsite Equipment Rentals (pgs. 18 - 19)
9. Contractor's Laborers (pg. 20)

- 10. Disposal Fees (pg. 21)
 - 11. Union Labor Wage Rates (pgs. 22 - 23)
 - 12. Concrete Cost (pg. 24)
 - 13. Rebar Labor (pgs. 25 - 26)
 - 14. Landscape Labor-Material (pgs. 27 - 28)
 - 15. Bridge Demo Subcontractor (pg. 29)
 - 16. Traffic Control & Surveyor (pgs. 30 - 31)
 - 17. Resolution 17-055 (pgs. 32 - 33)
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