

PROJECT DELIVERY REPORT

Trade Corridors Improvement Fund

The submitting agency will be responsible for maintaining documentation of the information entered on this report.
(Please type your response, handwritten reports will not be accepted)

A. Project Information

Date: 10/15/2018

TCIF # (Segment): 102 Other Project Identifier (EA, Project #, PPNO, etc.): _____

Project Title: TraPac Terminal Automation - Automated Shuttle Carrier Maintenance and Repair (M&R) Facility

Delivery Report: ☒ Final- Due within six months of project becoming operable.
☒ Supplemental - Due at the conclusion of all project activities.

Location: County: Los Angeles City: Wilmington

Project Description: The project consists of a 5,000 square foot building with a roof height of approximately 60 feet for the maintenance of 45 foot high automated shuttle carriers. The project also includes civil work within a 50 foot perimeter for grading, paving, water, sewer, gas, electrical, lighting, communications, striping, fencing and methane mitigation.

B. Contact Information

Implementing Agency: City of Los Angeles Caltrans District Number: 7

Contact Person: Christina Sar Phone Number: (310) 732-3627

Email Address: csar@portla.org

C. Cost				
	Adopted Program Amount (\$)	Current Approved Amount (\$)	Actual Expended Amount (\$)	Net Difference (Dollars)
Environmental				
Total Amount	\$0	\$0	\$0	\$0
Design				
Total Amount	\$375,619	\$375,619	\$2,454,408	-\$2,078,789
Right of Way				
Total Amount	\$0	\$0	\$0	\$0
Construction				
TCIF	\$2,840,500	\$2,840,500	\$2,840,500	\$0
Local (POLA)	\$2,464,881	\$2,464,881	\$3,916,692	-\$1,451,811
Federal				
Other				
Totals	\$5,681,000	\$5,681,000	\$9,212,100	-\$3,531,100

D. Schedule				
	Adopted Program Date	Current Approved Date	Actual Begin/End Date	Net Difference (Months)
Environmental Phase				
Begin	Oct 2003	Oct 2003	Oct 2003	0
End	Dec 2007	Dec 2007	December 6, 2007	0
Design (PS&E) Phase				
Begin	Nov 2012	Nov 2012	Dec 16, 2012	-1
End	Jan 2015	Jan 2015	Jan 2015	0
Right of Way Phase				
Begin	Feb 2014	Feb 2014	Oct 8, 2014	-7
End	Jul 2014	Jul 2014	June 10, 2015	-11
Construction Phase				
Begin (Award)	Jul 2015	Jul 2015	August 11, 2015	-1
End	Aug 2016	Aug 2016	May 22, 2017	-9
Closeout Date				
Begin	Aug 2016	Aug 2016	May 2017	-9
End	Aug 2017	Aug 2017	December 2018	-17

E. Amendments
List approved amendments
None

F. Project Benefits**Describe and compare project benefits with those included in the approved Baseline Agreement.**

Outcomes	Adopted Program	Current Approved	Actual																																																																								
Safety	Automation eliminates in-terminal vehicular and worker conflicts; M&R facility serves automated shuttle carriers used in the on-dock railyard, which reduces truck trips	Automation eliminates in-terminal vehicular and worker conflicts; M&R facility serves automated shuttle carriers used in the on-dock railyard, which reduces truck trips	Automation improves safety by separating vehicular/pedestrian access from container handling. The M&R facility supports the maintenance of automated equipment																																																																								
Velocity	Automation increases velocity of moving containers; M&R facility serves automated shuttle carriers used in the on-dock railyard, which reduces off-dock container truck trips	Automation increases velocity of moving containers; M&R facility serves automated shuttle carriers used in the on-dock railyard, which reduces off-dock container truck trips	Automation increases velocity of moving/delivering containers. The M&R facility supports the maintenance of automated equipment																																																																								
Throughput	Automation reduces per container operation costs, which enables projected volume increases	Automation reduces per container operation costs, which enables projected volume increases	Automation increases terminal capacity with lower operating costs. The M&R facility supports the maintenance of automated equipment																																																																								
Reliability	Automation improves reliability of moving containers; M&R facility serves automated shuttle carriers used in the on-dock railyard, which has better reliability than off-dock truck trips	Automation improves reliability of moving containers; M&R facility serves automated shuttle carriers used in the on-dock railyard, which has better reliability than off-dock truck trips	Automation improves reliability and accuracy of moving and organizing containers. The M&R facility supports the maintenance of automated equipment																																																																								
Congestion Reduction	Automation reduces congestion inside the terminal; M&R facility serves automated shuttle carriers used in the on-dock railyard, which reduces trips	Automation reduces congestion inside the terminal; M&R facility serves automated shuttle carriers used in the on-dock railyard, which reduces trips	Congestion is reduced inside the terminal by eliminating manned equipment within the container storage areas. The M&R facility supports the maintenance of automated equipment																																																																								
Emissions Reductions	<p>An air quality analysis was conducted to determine the change in emissions with the change to automation, the analysis showed the following</p> <table><tr><th colspan="8">TraPac Terminal Automation Emission Reductions (tons/year)</th></tr><tr><th>CO</th><th>SO₂</th><th>NO_x</th><th>PM₁₀</th><th>PM_{2.5}</th><th>NO₂</th><th>PM_{10-2.5}</th><th></th></tr><tr><td>10.27</td><td>4.674</td><td>18.46</td><td>0.46</td><td>0.05</td><td>1.18</td><td></td><td></td></tr></table>	TraPac Terminal Automation Emission Reductions (tons/year)								CO	SO ₂	NO _x	PM ₁₀	PM _{2.5}	NO ₂	PM _{10-2.5}		10.27	4.674	18.46	0.46	0.05	1.18			<p>An air quality analysis was conducted to determine the change in emissions with the change to automation, the analysis showed the following</p> <table><tr><th colspan="8">TraPac Terminal Automation Emission Reductions (tons/year)</th></tr><tr><th>CO</th><th>SO₂</th><th>NO_x</th><th>PM₁₀</th><th>PM_{2.5}</th><th>NO₂</th><th>PM_{10-2.5}</th><th></th></tr><tr><td>10.27</td><td>4.674</td><td>18.46</td><td>0.46</td><td>0.05</td><td>1.18</td><td></td><td></td></tr></table>	TraPac Terminal Automation Emission Reductions (tons/year)								CO	SO ₂	NO _x	PM ₁₀	PM _{2.5}	NO ₂	PM _{10-2.5}		10.27	4.674	18.46	0.46	0.05	1.18			<p>The M&R facility, in conjunction with the Cargo Transportation Improvements - Emission Reduction Program - Phases I & II and the TraPac Terminal On-Dock Railyard, the change from diesel-fueled to electric-powered equipment and reduction in truck trips on roadways/highways, as described in the air quality, resulted in the following</p> <table><tr><th colspan="8">TraPac Terminal Automation Emission Reductions (tons/year)</th></tr><tr><th>CO</th><th>SO₂</th><th>NO_x</th><th>PM₁₀</th><th>PM_{2.5}</th><th>NO₂</th><th>PM_{10-2.5}</th><th></th></tr><tr><td>10.27</td><td>4.674</td><td>18.46</td><td>0.46</td><td>0.05</td><td>1.18</td><td></td><td></td></tr></table>	TraPac Terminal Automation Emission Reductions (tons/year)								CO	SO ₂	NO _x	PM ₁₀	PM _{2.5}	NO ₂	PM _{10-2.5}		10.27	4.674	18.46	0.46	0.05	1.18		
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G. Differences/Variations**Describe differences/variances (if any) and reason for, between approved scope, cost, schedule, and actual.**

The original construction budget was based off the construction of a typical marine maintenance building. Construction costs increased due to the unknown elements required for the unique maintenance of Automated Shuttle Carriers. The construction schedule was modified to match the completed design and absorb unforeseen events during the bid and award phase. The new schedule incorporated lead times of custom equipment and the large quantity procurement of steel. Unforeseen schedule changes came from the rejection of the first round of bids, which in turn delayed construction start.

H. Lessons-Learned/Best Practices**Describe lessons-learned and best practices for future projects.**

The biggest lesson learned was our original challenge; we did not have an existing model to reference. The design was molded through research of existing non-automation serving maintenance facilities and the input of shuttle carrier mechanics. The project helped us understand the unique equipment and space required for the proper maintenance of Automated Shuttle Carriers (automated equipment). This project now serves as a US based model for others who plan to use the same type of automated equipment. Extensive coordination between adjacent projects under construction, owner, tenant and equipment operators kept this project on schedule and made it a success.

Certification Signature

Implementing Agency

I hereby certify to the best of my knowledge and belief, the information in this report is a true and accurate record. The work was performed in accordance with the CTC approved scope, cost, schedules, and benefit information in the Baseline Agreement.

Christina U. Sar
(Print name) Project Manager

Christina U. Sar 10/15/2018
(Signature) Project Manager Date

Caltrans

The TCIF Division Program Coordinator and/or the Project Manager from the California Department of Transportation has reviewed the information contained in this report and has verified the information presented is correct.

PHILLIP HOEBEL
(Print Name) TCIF Division Program Coordinator/Project Manager
PHILLIP HOEBEL 10/18/18
(Signature) TCIF Division Program Coordinator/Project Manager Date

The TCIF Program Lead from the California Department of Transportation has reviewed the information contained in the report and concurs with the approval.

Tony Caro
(Print Name) TCIF Program Lead

Tony Caro 10/18/18
(Signature) TCIF Program Lead Date

Distribution: 1) Local Agency, 2) Division Program Coordinator/Project Manager, 3) TCIF Program Lead, 4) CTC

