

# 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: 8/9/2018

TCIF # (Segment): 87.1 Other Project Identifier (EA, Project #, PPNO, etc.): \_\_\_\_\_

Project Title: CARGO TRANSPORTATION IMPROVEMENTS - EMISSION REDUCTION PROGRAM - PHASE 1

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: 21 acres of container backland improvements, including grading, paving, storm drain and SUSMP, rail, reefer racks, tele-communication, electrical and lighting, fire protection, fencing and gates, and striping.

### B. Contact Information

Implementing Agency: Port of Los Angeles

Caltrans District Number: 7

Contact Person: Adrienne Newbold

Phone: (310) 732-3642

Email Address: anewbold@portla.org

### #87.1 CARGO TRANSPORTATION IMPROVEMENTS - EMISSION REDUCTION PROGRAM - PHASE 1

C. Cost	Adopted Program Amount (\$)	Current Approved Amount (\$)	Actual Expended Amount (\$)	Net Difference (Dollars)
<u>Environmental</u>				
Total Amount	\$0	\$0	\$0	\$0
<u>Design</u>				
Total Amount	\$1,285,000	\$1,285,000	\$1,654,672	-\$369,672
<u>Right of Way</u>				
Total Amount	\$0	\$0	\$0	\$0
<u>Construction Support</u>				
TCIF	\$1,155,000	\$1,155,000	\$1,155,000	\$0
Local (POLA)	\$1,155,000	\$1,155,000	\$4,597,637	-\$3,442,637
<u>Construction</u>				
TCIF	\$11,550,000	\$11,550,000	\$11,550,000	\$0
Local (POLA)	\$11,550,000	\$11,550,000	\$26,030,039	-\$14,480,039
Federal				
Other				
<b>Totals</b>	<b>\$26,695,000</b>	<b>\$26,695,000</b>	<b>\$44,987,348</b>	<b>-\$18,292,348</b>

D. Schedule	Adopted Program Date	Current Approved Date	Actual Begin/End Date	Net Difference (Months)
<u>Environmental Phase</u>				
Begin	Oct 2003	Oct 2003	Oct 2003	0
End	Dec 2007	Dec 2007	Dec 2007	0
<u>Design (PS&amp;E) Phase</u>				
Begin	Oct 2011	Oct 2011	Oct 29, 2011	0
End	Oct 2012	Oct 2012	Dec 3, 2012	-1
<u>Right of Way Phase</u>				
Begin	May 2012	May 2012	May 2012	0
End	Sept 2012	Sept 2012	Nov 28, 2012	-2
<u>Construction Phase</u>				
Begin	Jan 2013	Jan 2013	Feb 21, 2013	-1
End	May 2014	May 2014	Apr 24, 2014	1
<u>Closeout Date</u>				
Begin	May 2014	May 2014	Apr 24, 2014	1
End	May 2015	May 2015	Apr 30, 2017	-24

**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	Improved in-terminal vehicular and pedestrian (worker) safety due to automation	Improved in-terminal vehicular and pedestrian (worker) safety due to automation	Safety was improved with the implementation of 10 Automatic Stacking Cranes (ASCs) and 10 automated shuttle carriers. Automated equipment separates manned operations and greatly reduces vehicular and pedestrian workers.																																													
Velocity	Increases velocity of moving/delivering containers	Increases velocity of moving/delivering containers	Velocity of moving/delivering containers was increased by the Terminal Logistic System (TLS) & Terminal Operating System (TOS), which pre-programs automated equipment for optimum routes, speed, and 24/7 operations.																																													
Throughput	Automation increases terminal capacity that is needed to accommodate projected trade demand; projected terminal throughput in year 2035 is +2.4 million TEUs	Automation increases terminal capacity that is needed to accommodate projected trade demand; projected terminal throughput in year 2035 is +2.4 million TEUs	Terminal capacity was increased by the 6 rows of automated blocks operated by 10 ASCs and 10 automated shuttle carriers; enabling the highest possible capacity and stacking density. ASCs optimizes throughput and stacking footprint. The projected terminal throughput in year 2035 is +2.4 million TEUs.																																													
Reliability	Automation improves reliability of moving containers	Automation improves reliability of moving containers	Reliability of moving containers was increased by the TLS & TOS, which pre-programs the automated equipment to move containers with optimum routes and efficiency.																																													
Congestion Reduction	Reduced congestion inside the terminal	Reduced congestion inside the terminal	Congestion was reduced inside the terminal by the 6 rows of automated blocks operated by 10 ASCs and 10 automated shuttle carriers; eliminating manned equipment/vehicles within the container storage areas.																																													
Emissions Reductions	<p>Phases 1 &amp; 2 (TCIF #87.1 &amp; #87.2) Air quality analysis was conducted to determine the change in greenhouse gas emissions with the change from diesel-fueled equipment to electric-powered equipment. The analysis shows the following</p> <table><tr><th colspan="5">Emission Reductions (tons; over 20 years)</th></tr><tr><th>CO<sub>2</sub></th><th>CH<sub>4</sub></th><th>NO<sub>x</sub></th><th>PM<sub>10</sub></th><th>PM<sub>2.5</sub></th></tr><tr><td>154</td><td>68,870</td><td>107</td><td>1</td><td>23</td></tr></table>	Emission Reductions (tons; over 20 years)					CO <sub>2</sub>	CH <sub>4</sub>	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	154	68,870	107	1	23	<p>Phases 1 &amp; 2 (TCIF #87.1 &amp; #87.2) Air quality analysis was conducted to determine the change in greenhouse gas emissions with the change from diesel-fueled equipment to electric-powered equipment. The analysis shows the following</p> <table><tr><th colspan="5">Emission Reductions (tons; over 20 years)</th></tr><tr><th>CO<sub>2</sub></th><th>CH<sub>4</sub></th><th>NO<sub>x</sub></th><th>PM<sub>10</sub></th><th>PM<sub>2.5</sub></th></tr><tr><td>154</td><td>68,870</td><td>107</td><td>1</td><td>23</td></tr></table>	Emission Reductions (tons; over 20 years)					CO <sub>2</sub>	CH <sub>4</sub>	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	154	68,870	107	1	23	<p>Phase 1 implemented 10 electric-powered ASCs, replacing diesel-fueled equipment, as described in the air quality analysis, which resulted in the following</p> <table><tr><th colspan="5">Emission Reductions (tons; over 20 years)</th></tr><tr><th>CO<sub>2</sub></th><th>CH<sub>4</sub></th><th>NO<sub>x</sub></th><th>PM<sub>10</sub></th><th>PM<sub>2.5</sub></th></tr><tr><td>154</td><td>68,870</td><td>107</td><td>1</td><td>23</td></tr></table>	Emission Reductions (tons; over 20 years)					CO <sub>2</sub>	CH <sub>4</sub>	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	154	68,870	107	1	23
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**G. Differences/Variances**

**Describe differences/variances (if any) and reason for, between approved scope, cost, schedule, and actual.**

Cost increases were mainly due to the design and construction of the electrical system. As design progressed, additional electrical infrastructure and service was required.

**H. Lessons-Learned/Best Practices**

**Describe lessons-learned and best practices for future projects.**

Coordination from the start of the project between the tenant, crane manufacturer, and owner made the design and construction a success. Understanding the automated operations, equipment, and how this is integrated into the Port of LA infrastructure helped facilitate successful design & construction. Early notification to third party utilities helped to keep the project on schedule. Provide clear designation of owner/responsible party for all aspects of the planning, design, and construction phases.

Understanding the magnitude of electrical infrastructure and service required for automation helped for future cost estimating.

## 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.

Adrienne Newbold  
(Print name) Project Manager

Adrienne Newbold 8/9/18  
(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.

Mary Estensen  
(Print Name) TCIF Division Program Coordinator/Project Manager

Mary Estensen 8/10/18  
(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 Cano  
(Print Name) TCIF Program Lead

Tony Cano 8/24/18  
(Signature) TCIF Program Lead Date

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

# 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: 8/9/2018

TCIF # (Segment): 87.2 Other Project Identifier (EA, Project #, PPNO, etc.): \_\_\_\_\_

Project Title: CARGO TRANSPORTATION IMPROVEMENTS - EMISSION REDUCTION PROGRAM - PHASE II

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 redevelopment of 72 acres of backland, including grading and paving, construction of storm drain and SUSMP, placement of concrete pavement and fencing, installation of rail, light poles and fire hydrants, and removals, in order to create the infrastructure for 15 rows of automatic stacking cranes.

### B. Contact Information

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

Contact Person: Adrienne Newbold Phone: (310) 732-3642

Email Address: anewbold@portla.org

### #87.2 CARGO TRANSPORTATION IMPROVEMENTS - EMISSION REDUCTION PROGRAM - PHASE II

C. Cost	Adopted Program Amount (\$)	Current Approved Amount (\$)	Actual Expended Amount (\$)	Net Difference (Dollars)
<b>Environmental</b>				
Total Amount	\$0	\$0	\$0	\$0
<b>Design</b>				
Total Amount	\$8,470,000	\$8,470,000	\$4,713,870	\$3,756,130
<b>Right of Way</b>				
Total Amount	\$0	\$0	\$0	\$0
<b>Construction Total*</b>	\$77,544,000	\$143,000,000	\$120,554,624	\$22,445,376
TCIF	\$23,164,000	\$26,664,000	\$22,959,770	\$3,704,230
Local	\$54,380,000	\$107,866,000	\$92,880,984	\$14,985,016
Federal				
Other				
<b>Totals</b>	\$86,014,000	\$143,000,000	\$120,554,624	\$22,445,376

\*Construction Total includes construction + construction support.

D. Schedule	Adopted Program Date	Current Approved Date	Actual Begin/End Date	Net Difference (Months)
<b>Environmental Phase</b>				
Begin	10/31/03	10/31/03	10/2003	0
End	12/31/07	12/31/07	12/6/07	0
<b>Design (PS&amp;E) Phase</b>				
Begin	10/31/2011	10/31/11	6/20/2012	-8
End	6/30/13	6/30/13	5/23/13	1
<b>Right of Way Phase</b>				
Begin	12/31/12	12/31/12	1/30/13	-1
End	6/30/13	6/30/13	4/26/13	2
<b>Construction Phase</b>				
Begin (Contr Award)	11/30/13	11/30/13	11/14/13	0
End	11/30/16	9/30/17	2/15/17	7
<b>Closeout Date</b>				
Begin	11/30/16	9/30/17	2/15/17	7
End	11/30/17	9/30/18	9/30/18	0

**E. Amendments****List approved amendments**

Baseline Amendment Resolution TCIF-P-1213-75, amending Resolution TCIF-P-1213-04B: to update the delivery schedule, cost, and funding plan.

**F. Project Benefits**

Describe and compare project benefits with those included in the approved Baseline Agreement.

Outcomes	Adopted Program	Current Approved	Actual																																													
Safety	Improved in-terminal vehicular and pedestrian (worker) safety due to automation.	Improved in-terminal vehicular and pedestrian (worker) safety due to automation.	Safety was improved with the Implementation of 19 Automatic Stacking Cranes (ASCs) and 16 automated shuttle carriers. Automated equipment separate manned operations and greatly reduces vehicular and pedestrian (workers) within the terminal.																																													
Velocity	Increased velocity of moving/delivering containers	Increased velocity of moving/delivering containers	Velocity of moving/delivering containers was increased by the Terminal Logistic System (TLS) & Terminal Operating System (TOS), which pre-programs automated equipment for optimum routes, speed, and 24/7 operations.																																													
Throughput	Automation Increases terminal capacity that is needed to accommodate projected trade demand; projected terminal throughput In the year 2035 is 2.4 million TEUs.	Automation Increases terminal capacity that is needed to accommodate projected trade demand; projected terminal throughput in the year 2035 is 2.4 million TEUs.	Terminal capacity was increased by the 10 rows of automated blocks operated by 19 ASCs and 16 automated shuttle carriers; enabling the highest possible capacity and stacking density. ASCs optimises throughput and stacking footprint. The projected terminal throughput in the year 2035 is 2.4 million TEUs.																																													
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**G. Differences/Variances**

**Describe differences/variances (if any) and reason for, between approved scope, cost, schedule, and actual.**

Cost savings were mainly due to implementation of lessons learned from TCIF #87.1. This includes additional substructure research and coordination with third party utilities and value engineering for design aspects.

**H. Lessons-Learned/Best Practices**

**Describe lessons-learned and best practices for future projects.**

Coordination from the start of the project between the tenant, crane manufacturer, and owner made the design and construction a success. Understanding the automated operations, equipment, and how this is integrated into the Port of LA infrastructure helped facilitate successful design & construction. Early notification to third party utilities helped to keep the project on schedule. Provide clear designation of owner/responsible party for all aspects of the planning, design, and construction phases. Understanding the magnitude of electrical infrastructure and service required for automation helped for future cost estimating.

## 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.

Adrienne Newbold

(Print name) Project Manager

Adrienne Newbold

(Signature) Project Manager

8/9/18

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.

Mary Estensen

(Print Name) TCIF Division Program Coordinator/Project Manager

Mary Estensen

(Signature) TCIF Division Program Coordinator/Project Manager

8/10/18

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 Cano

(Print Name) TCIF Program Lead

Tony Cano

(Signature) TCIF Program Lead

8/24/18

Date

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