



# Construction Update

May 2015

## Transbay Transit Center

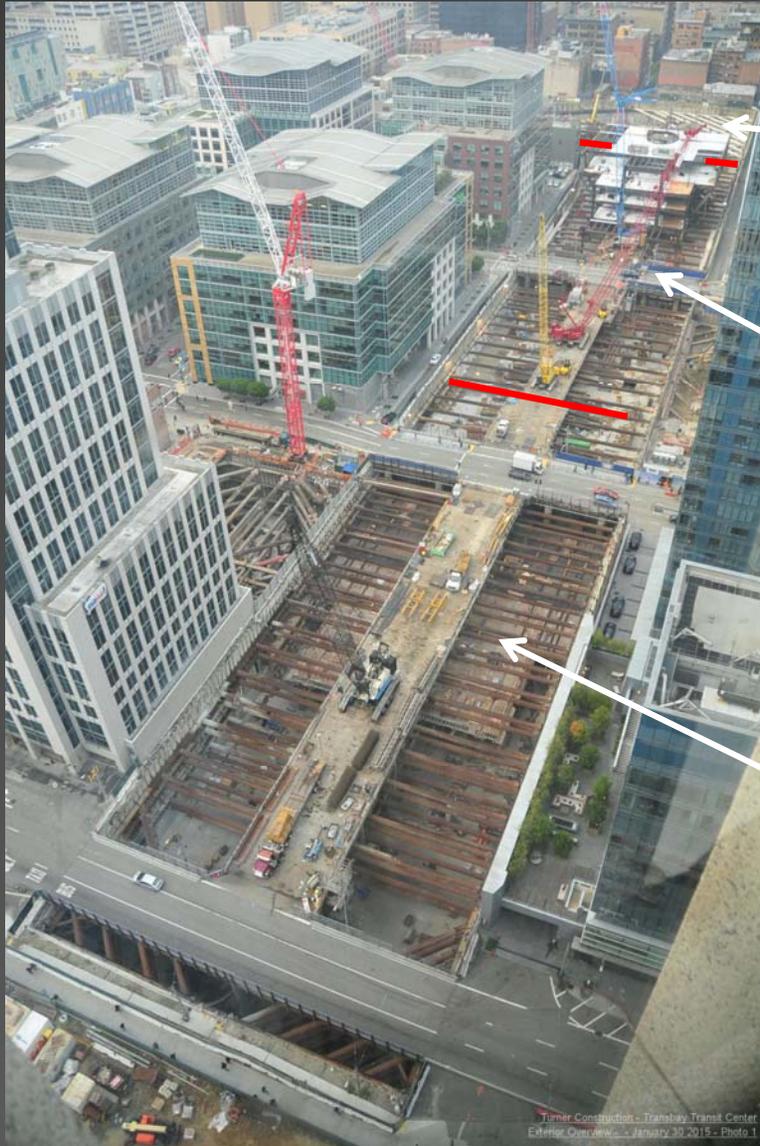
**TJPA**





Transbay Transit Center

# Current Project Overview



Western Zone – Gridlines 1 to 10

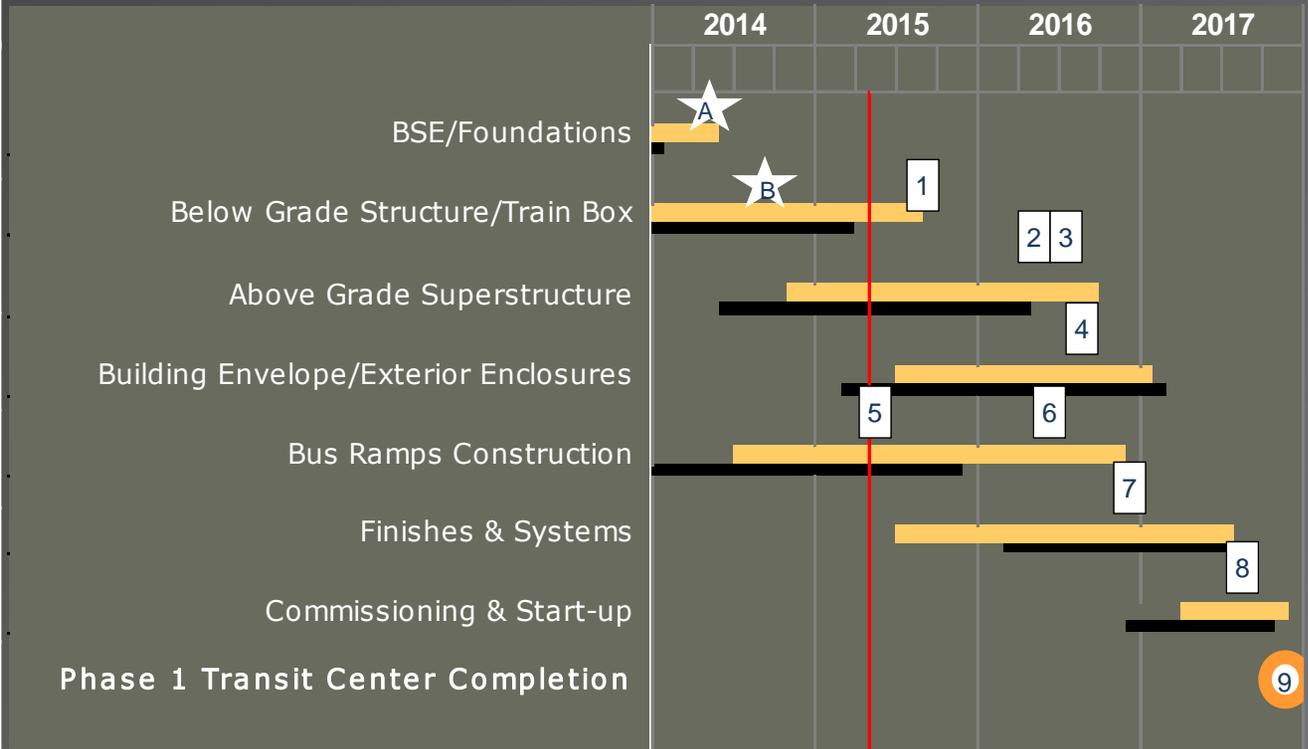
Central Zone – Gridlines 10 to 20

Eastern Zone – Gridlines 20 to 35



# Project Status – Schedule

#	Milestone	Current
1	Complete TG 6.0 Below Grade Concrete	Q3 2015
2	Complete Structural Steel Erection and Welding	Q2 2016
3	Complete Above Grade Concrete	Q2 2016
4	Building Watertight	Q3 2016
5	Complete Bus Ramp Below Grade Concrete	Q2 2015
6	Complete Bus Ramp Viaduct and Cable Stay Bridge	Q2 2016
7	Permanent Power to Building	Q4 2016
8	Building Ready for Bus Driver Training	Q3 2017
9	Substantial Completion	Q4 2017



\* The current critical path of the project is as follows; structural steel fabrication and erection, eastern zone wall lift 2, lower concourse slab, wall lift 3 and re-bracing.

Current Schedule

Baseline Schedule

★ = Completed Work; A) excavation through “rat” slab installation (re-bracing remains). B) mat foundation slabs.



# **Project Status – Active Milestones**

#	Milestone	Planned	Actual / Current
1	Complete TG 6.0 Below Grade Concrete	Q3 2015	Q3 2015
	Milestone Activity Start	March 2013	Jul 17, 2013 (A)
	Milestone Activity Finish	June 2015	September 2015
	Percent Complete as of April 30, 2015	86%	95%
2	Complete Structural Steel Erection and Welding	Q1 2016	Q2 2016
	Milestone Activity Start	July 2014	Oct. 29, 2014 (A)
	Milestone Activity Finish	Dec. 2015	Apr. 2016
	Percent Complete as of April 30, 2015	52%	20%

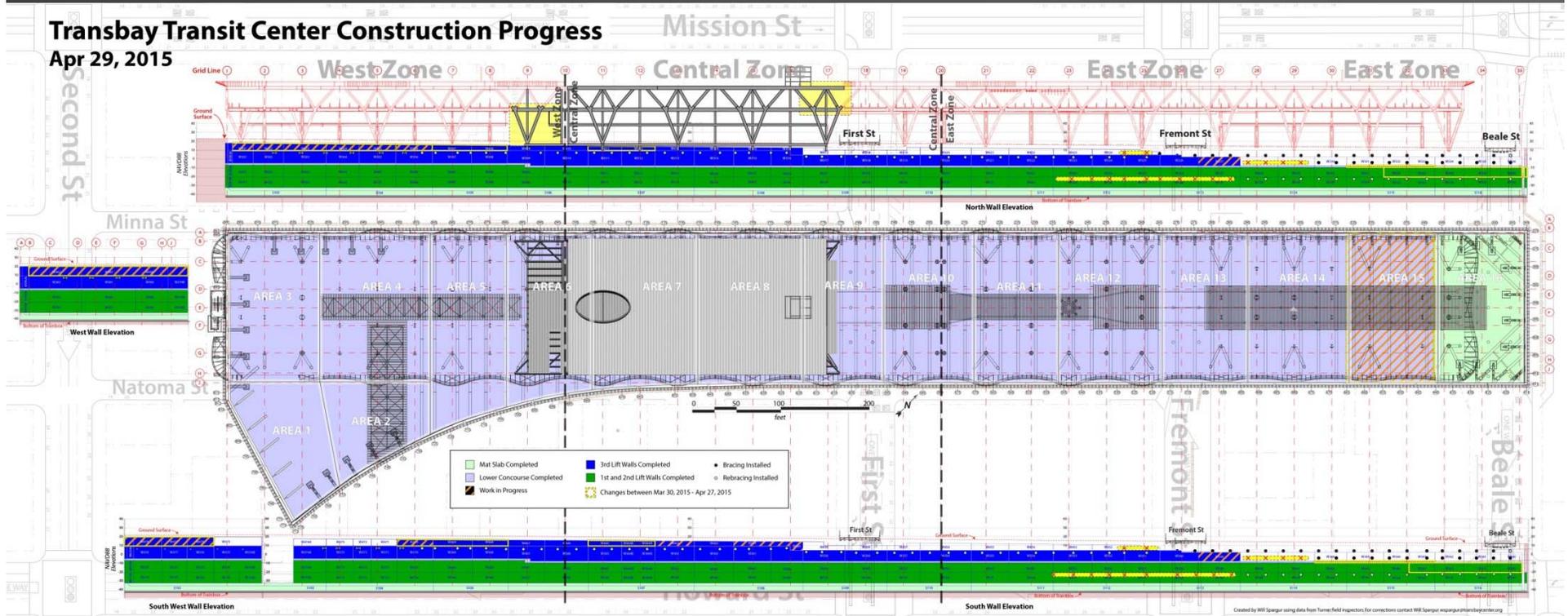


# Transbay Transit Center

# Project Status Diagram

## Transbay Transit Center Construction Progress

Apr 29, 2015





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## Project Status – Contingency Tracking (\$millions)

Trend	Design Contingency	Construction Contingency	CM/GC Contingency	Program Reserve	Escalation	Total Contingency & Reserve
Baseline Budget Amounts (July 2013)	\$8.2	\$62.5	\$36.4	\$87.5	\$30.3	\$224.9
Contingency Usage Through March 2015	(\$3.1)	(\$9.4)	(\$1.7)	(\$72.5)	(\$9.6)	(\$96.3)
Remaining Baseline Budget Amounts (March 2015)	\$5.1	\$53.1	\$34.7	\$15.0	\$20.7	\$128.6
Utility Relocation Change Orders		(\$0.7)				(\$0.7)
BSE Change Orders		(\$11.7)	(\$7.5)			(\$19.2)
Below Grade Structure Change Orders		(\$0.5)				(\$0.5)
Structural Steel/Concrete Change Orders		(\$1.5)				(\$1.5)
Glass Curtain Wall Changes Orders		(\$0.6)				(\$0.6)
Trade Package Awards	(\$0.2)			(\$7.9)	(\$2.0)	(\$10.1)
Total Draws/Addls April 2015	(\$0.2)	(\$14.9)	(\$7.5)	(\$7.9)	(\$2.0)	(\$32.6)
Remaining Balances	\$4.8	\$38.2	\$27.2	\$7.1	\$18.7	\$96.0



# Project Status – Safety Statistics

	2010 / 2011 / 2012	2013	2014	2015 (through Apr. 30 <sup>th</sup> )
<b>Total Craft Hours by Year</b>	<b>627,744</b>	<b>315,000</b>	<b>375,615</b>	<b>126,038</b>
<b>Number of Recordable Incidents</b>	<b>9</b>	<b>3</b>	<b>13</b>	<b>1</b>
<b>Number of Lost Time Incidents</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>
<b>WO Project Annual RIR / National Annual BLS RIR Average / California RIR Average</b>	<b>2.87 / 3.6 / 3.8</b>	<b>1.90 / 3.8 / 4.0</b>	<b>6.92 / tbd / tbd</b>	<b>tbd / tbd / tbd</b>
<b>WO Project Annual LTIR / National Annual BLS LTIR Average / California LTIR Average</b>	<b>0.32 / 1.9 / 1.8</b>	<b>0.00 / 1.8 / 1.7</b>	<b>1.60 / tbd / tbd</b>	<b>tbd / tbd / tbd</b>

NOTES:

RIR = recordable incident rate, LTIR = lost time incident rate.

These rates are calculated as follows: RIR and LTIR = (# of recordable or lost time incidents for the year X 200,000) / actual hours worked.

\* BLS is the Bureau of Labor Statistics, U.S. Department of Labor and State of California, it takes these agencies more than 18 months to produce the statistics after year's end.



# Period Summary

- There were no recordable or lost time safety incidents this period.
- There have been over 1,444,000 craft hours completed, excluding demolition, through April 30, 2015. This is an increase of over 49,000 hours since our last construction update.
- Steel fabrication continues in all Structural Steel fabrication shops. To increase production and improve schedule, work has been moved to a sixth facility, Herrick – Stockton.
- For structural steel erection, the access trestle disassembly work continues and has been completed between gridlines 9 and 19. Trestle disassembly work between gridlines 8 to 9 was removed in early May.
- Structural steel erection with Crane #1 continues and is currently in progress between gridlines 17 and 19. Work over First Street started on May 4<sup>th</sup>. With Crane #2, steel erection on the west side continues between gridlines 8 and 9.



## Period Summary

- In the eastern zone, 2<sup>nd</sup> lift wall work has been completed. Re-bracing, Lower Concourse formwork and concrete placement continues. Column placement was also completed this period.
- In the western zone, falsework, rebar and concrete work on the vehicle / bike ramp as well as interior partition walls continues.
- Above Grade concrete work continues with waterproofing and reinforcing steel for 4<sup>th</sup> lift walls between gridlines 1 and 16.5.
- In the eastern zone, another Lower Concourse slab placement was completed on April 10<sup>th</sup> and May 9<sup>th</sup>. There is one pour day remaining, currently scheduled for June 1<sup>st</sup>.
- Work on the Bus Ramp / Bridge portion of the project continues. A significant milestone was achieved this period with the completion of all below grade work.



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# Below Grade Concrete Progress Through April 30, 2015

Steel Erection Zones	1st Lift Walls	1st Lift Walls Poured	1st Lift Walls Percent	2nd Lift Walls	2nd Lift Walls Poured	2nd Lift Walls Percent	3rd Lift Walls	3rd Lift Walls Poured	3rd Lift Walls Percent
Western	35	35	100%	35	35	100%	35	35	100%
Central	20	20	100%	20	20	100%	20	20	100%
Eastern	35	35	100%	35	35	100%	35	15	43%
<b>Total</b>	<b>90</b>	<b>90</b>	<b>100%</b>	<b>90</b>	<b>90</b>	<b>100%</b>	<b>90</b>	<b>70</b>	<b>78%</b>

Steel Erection Zones	Columns	Columns Poured	Columns Percent	Lower Concourse Decks	Lower Concourse Poured	Lower Concourse Percent
Western	62	62	100%	10	10	100%
Central	48	48	100%	10	10	100%
Eastern	66	66	100%	16	10	63%
<b>Total</b>	<b>176</b>	<b>176</b>	<b>100%</b>	<b>36</b>	<b>30</b>	<b>83%</b>



Above Left : Structural steel erection at gridline 9 proceeding west.



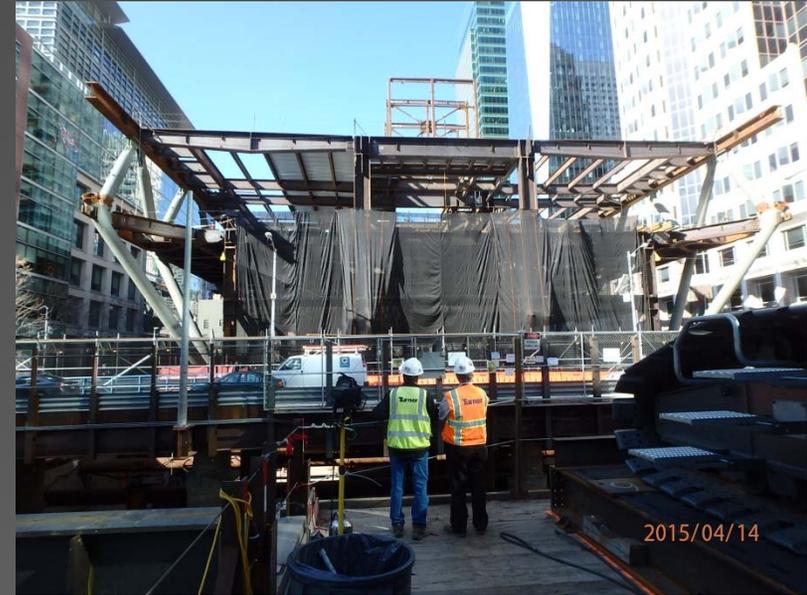
Above Right: Continued work on vehicle / bike ramp.



Below Right: Removal of shoring wall to allow for vehicle ramp tie-in.



# Central Zone Activity



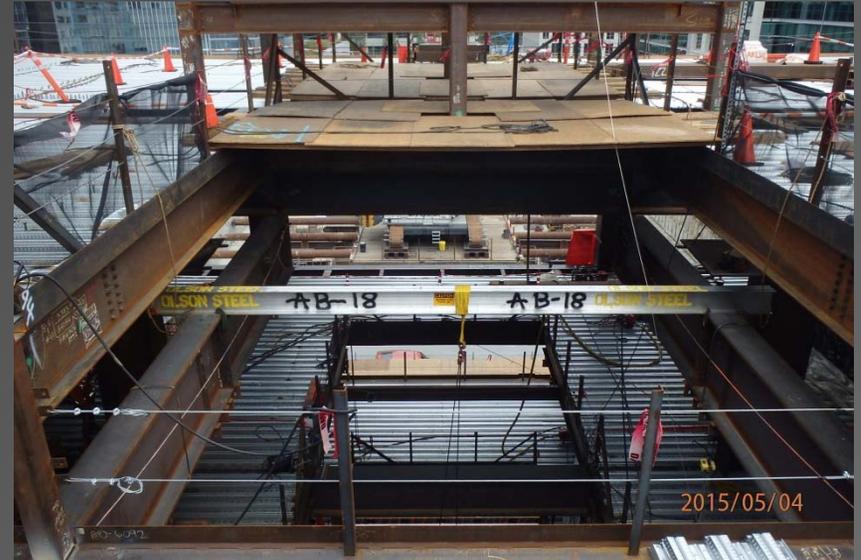
Above Left: 4<sup>th</sup> lift wall formwork and completed wall sections, north side.

Right Above and Below: Ongoing structural steel work.





# Central Zone Activity



Above Left and Right: Beginning of stair installation work.

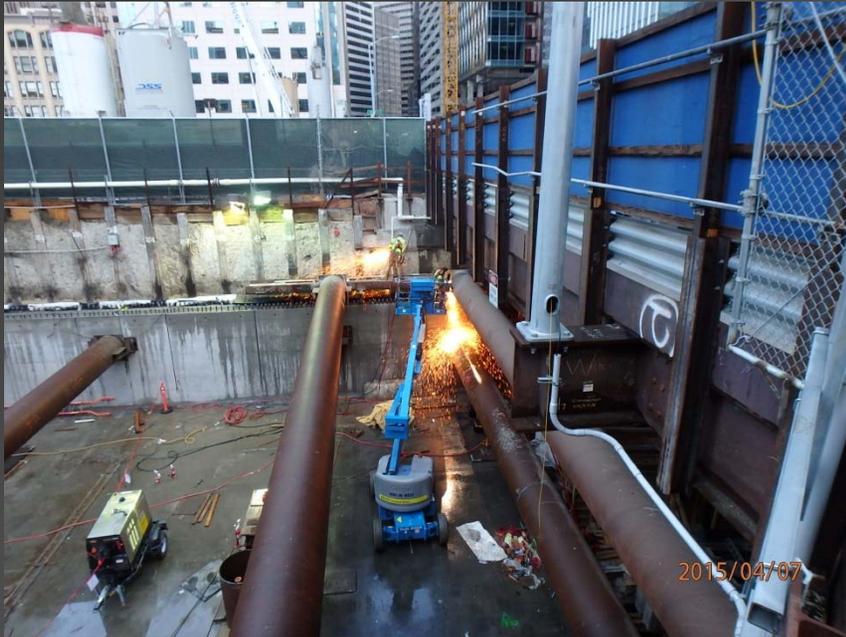
Below Right: Steel erection crossing First Street.





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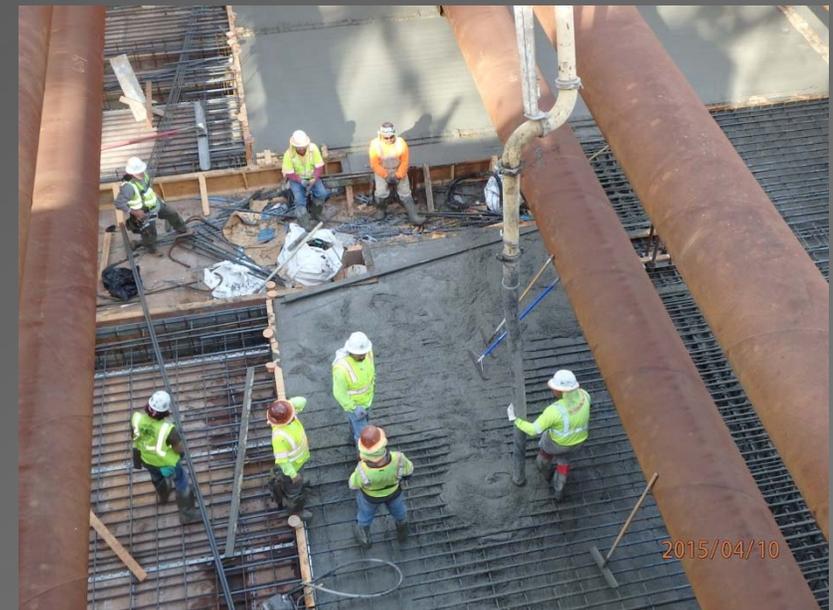
# Eastern Zone Activity



Above: Re-bracing at 3<sup>rd</sup> lift walls just west of Fremont Street.



Above Right: On going installation of Lower Concourse formwork.



Below Right: Lower Concourse concrete placement, only two remain.



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# Ongoing Structural Steel Fabrication



Above: Steel being primed at OIW in Oregon.



Above and Below Right: Pipe, Cast Node and Beam Fabrication at TMF in Washington.





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# Cast Node Fabrication as of April 30, 2015

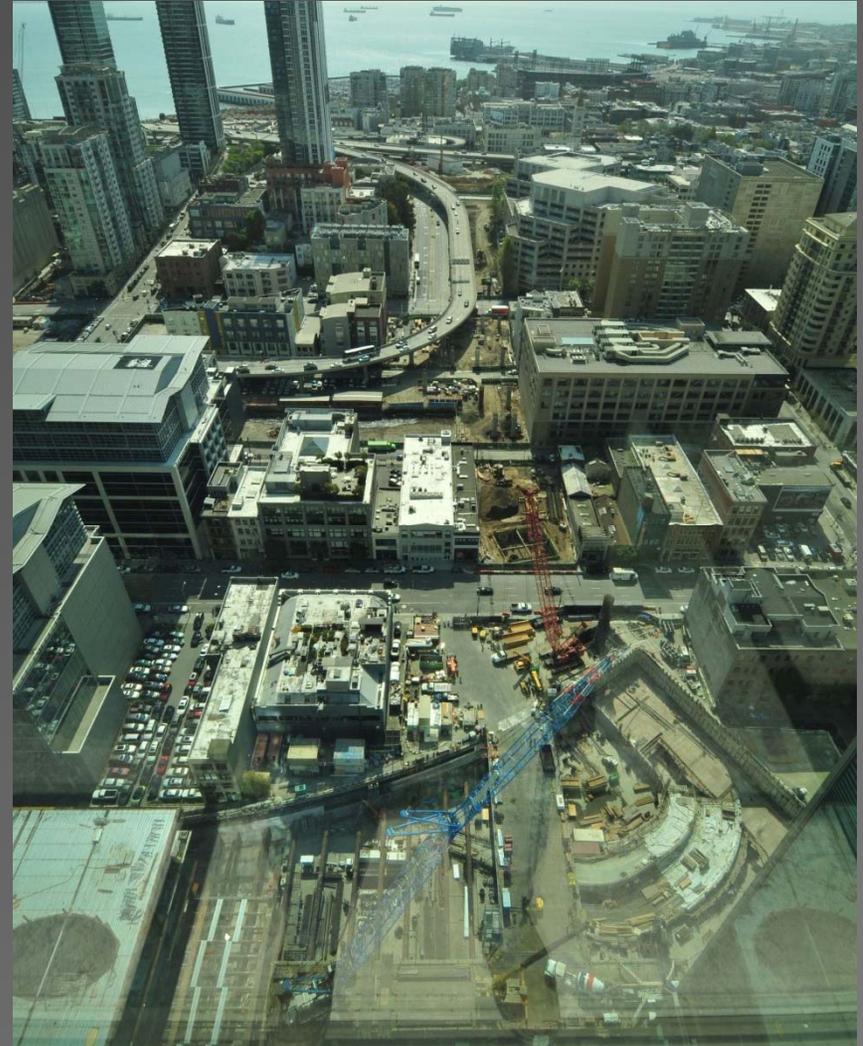
Casting Group	Totals	Shipments Mar.-May	Shipment May-June	Shipment August	Shipment September - October	Shipment November - December	Shipment January – April	Total Shipped to Date
Ground Level - Atchison 19,600 - 46,300 lbs	35	8	6	8	2	0	9	33
Bus Deck - Amite 9,500 - 22,800 lbs	75	16	5	10	16	8	20	75
Roof Level - Atchison 4,400 - 5,400 lbs	138	32	32	14	24	12	24	138
Light Columns	56	0	0	8	0	33	15	56
Totals	304	56	43	40	42	53	68	302

Of the 304 total cast nodes required for the project, a total of 302, or 99%, have shipped to the structural steel fabricators. There are 2 nodes remaining to ship (Beale Street, ground level).



# Bus Ramp and Bridge

- Current Status
  - CIDH Piles are complete.
  - Eleven columns have been placed.
  - Pylon 9 reinforcing steel, formwork and concrete installation continues. First Pylon 9 above grade concrete placement occurred on May 8<sup>th</sup>.
  - Cable stay bridge saddle materials are in fabrication.
  - Abutments 1 and 24, near Folsom and Harrison Streets, are in progress.





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# Bus Ramp and Bridge



Above: Viaduct columns at south side of Howard Street.

Right: Pylon 9 column reinforcement placement.





# Bus Ramp and Bridge



Above and Right: Quality Control and Assurance visit to VSL in Fort Worth, Texas. Observed fabrication of cable saddles for the cable stay bridge. The bridge has a total of seven saddles.





# Construction The Next 90 Days

- Next 30 Days (May)
  - Continue Lower Concourse rebar and concrete in eastern zone.
  - Continue 3<sup>rd</sup> lift walls and re-bracing in the eastern zone.
  - Continue structural steel fabrication and complete cast node fabrication.
  - Continue Bus Ramp abutment and MSE wall work and continue above grade concrete work and start viaduct falsework.
  - Continue structural steel erection and 4<sup>th</sup> lift wall construction in the western and central zones.
  - Continue MEPF Coordination.
  - Continue stair and ladder fabrication. Continue stair installation.
- Next 60-90 Days (Jun. – Jul.)
  - Complete Lower Concourse decking, rebar and concrete in the eastern zone, target is June 1<sup>st</sup>.
  - Continue re-bracing work in eastern zones.
  - Continue Bus Ramp and Bridge work including falsework, abutments, columns and Pylon 9.
  - Continue trestle removal, structural steel erection and structural steel fabrication.
  - Continue installation of stairs and ladders.
  - Start superstructure concrete in central zone.



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# Bay Area Regional Labor Breakdown

	Through April 2015	
Location	Total Hours Completed	Percent of Total
East Bay (Alameda, Contra Costa, Solano)	506,859	35%
North Bay (Marin, Napa, Sonoma)	50,674	3%
South Bay (San Mateo, Santa Clara)	133,208	9%
San Francisco	254,046	18%
Other*	499,610	35%
<b>Totals</b>	<b>1,444,397**</b>	<b>100%</b>

\*Other includes workers from throughout California including the Central Valley as well as workers from out of state who are onsite for specific tasks.

\*\*Total hours are for the Transit Center construction work and do not include the initial Demolition work represented by a total of approximately 55,000 craft hours.



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# Bay Area Regional Apprentice Hours Breakdown

	Through April 2015	
Location	Total Hours Completed	Percent of Total
East Bay (Alameda, Contra Costa, Solano)	61,255	25%
North Bay (Marin, Napa, Sonoma)	13,568	6%
South Bay (San Mateo, Santa Clara)	32,855	13%
San Francisco	74,546	30%
Other*	62,559	26%
<b>Totals</b>	<b>244,783*</b>	<b>100%</b>

\*Other includes workers from throughout California including the Central Valley as well as workers from out of state who are onsite for specific tasks.



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# Labor Breakdown by Trade through April 2015

<b>Classification</b>	<b>TTC Building and RUP's*</b>
Inspectors – Soils / Material Test	43
Carpenters and Related Trades	205
Cement Mason	78
Electrical – Utility Lineman	28
Electrician	55
Field Surveyor	38
Iron Worker	562
Laborer and Related Trades	745
Operating Engineer	443
Pile Drivers	185
Plumber	25
Roofer and Waterproofor	40
Sheet Metal	5
Teamsters	178
Tile Setters / Finishers	7
Water Well Driller	9
<b>Totals</b>	<b>2,646</b>

\* Relocation of Utilities Project



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# Questions?

