



CALIFORNIA
High-Speed Rail Authority

California High-Speed Rail: Construction Update

Brian Kelly
Chief Executive Officer

2022 PROGRESS

Today:

- 422 of 500 miles environmentally cleared
 - » Bay Area (San Jose) to LA County (Palmdale)
 - » Palmdale to Burbank EIR/EIS 2023
 - » Los Angeles to Anaheim EIR/EIS 2024
- 119 miles under construction
- Merced to Madera and Poplar Avenue to Bakersfield in Advanced Design
- Caltrain electrification construction underway
- Funding committed for LAUS improvements



Southern California Complete Phase 1

- 164 Miles
- 92 miles (56%) environmentally cleared in 2022 (remainder in 2023/24)
- Some advanced design could begin in 2023
- LA Union Station Phase A fully funded, clearing environmental in 2022
- Segment construction is unfunded

Goal: Complete all environmental; begin advanced design in 2023; identify “shared corridor” early capital investments; develop segment funding plan options

Central Valley Update

Where We Are & Where We Are Going

Achieving Construction Management in 2022

- Instituting a complete project definition
 - » Executing change orders to capture full project scope
- Completing right-of-way (ROW) acquisitions
 - » Improved ROW planning and management to exceed forecasts
- Focused efforts on finalizing third-party designs
 - » Increased executive engagement and Third-Party Task Force efforts to complete third-party design approvals
- Updating design and construction activities
 - » Working with Design-Build Contractors to re-sequence work and mitigate schedule impacts



Right-of-Way Status



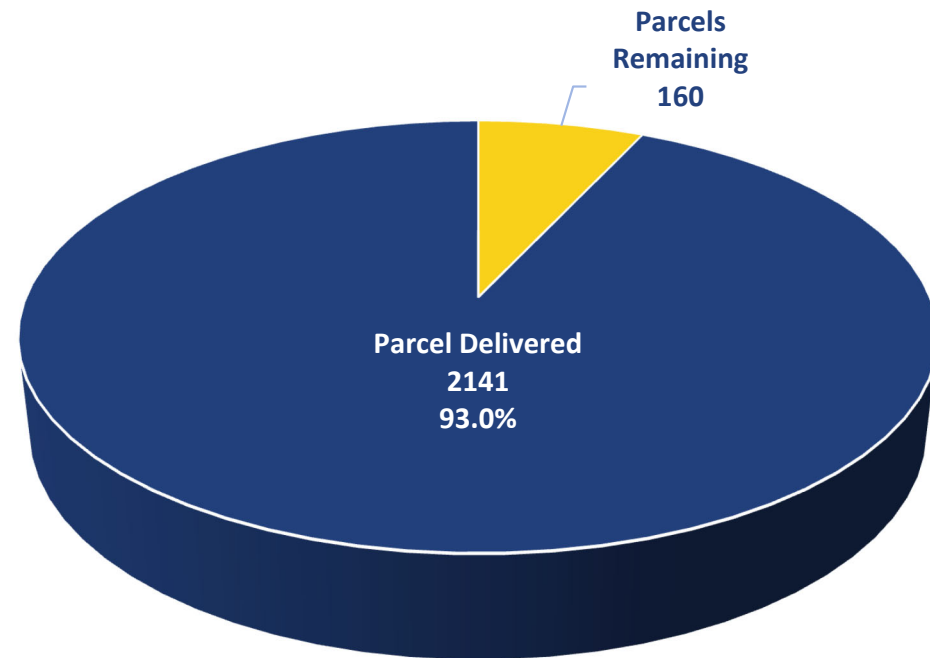
Right-of-Way Update

Construction Packages 1 - 4

2018 to 2022:

- **760** Parcels Delivered
- **411** Additional parcels added due to refined design

Parcels Required 2,301

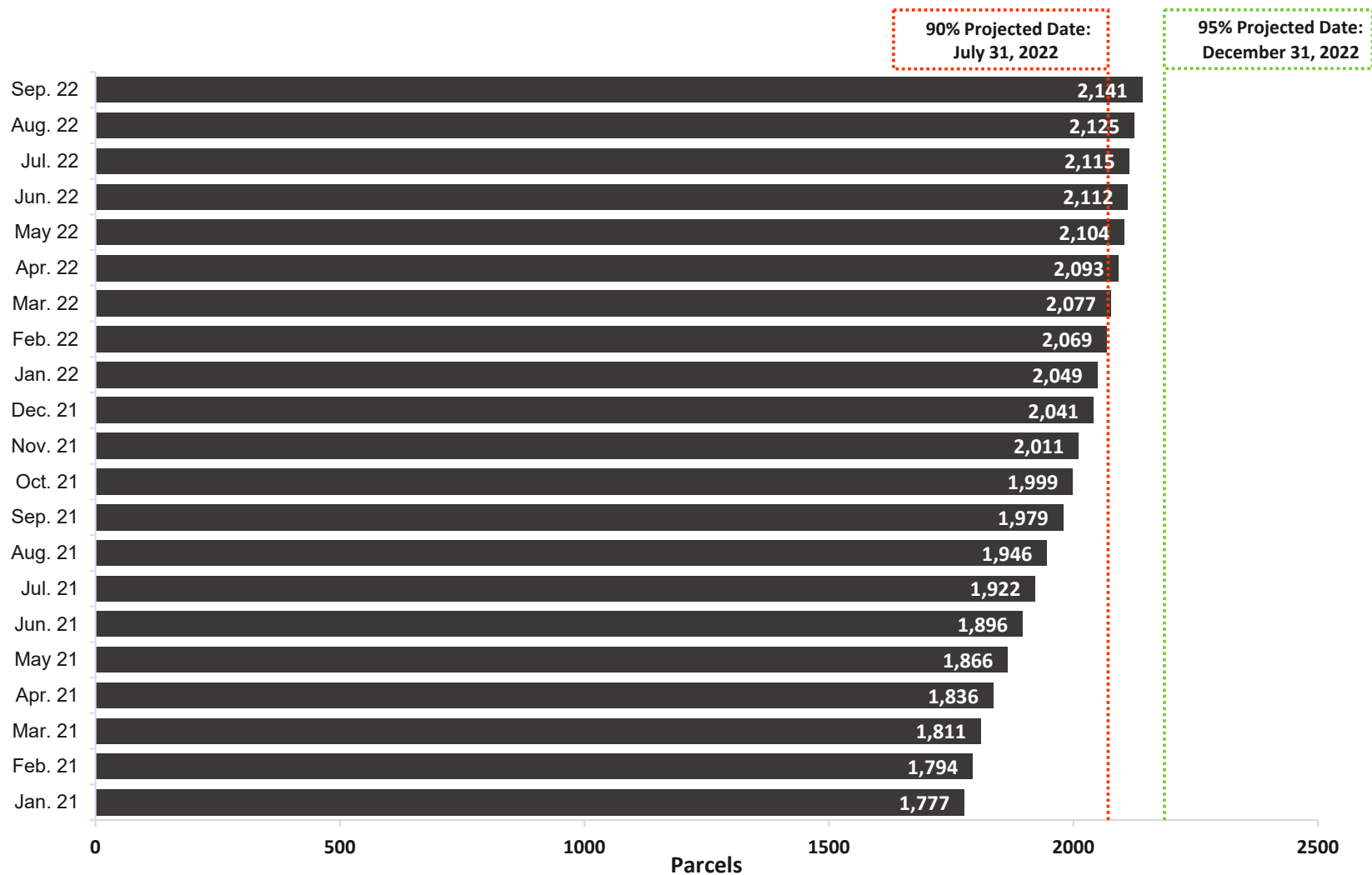


Data Date: 9/30/2022

Right-of-Way Update

Construction Packages 1 - 4

Parcel delivery is ahead of schedule. Delivery in April 2022 surpassed the projected goal for July 2022.



This reflects actual parcels delivered to the Design Design-Builder by month compared to the planned delivery schedule which identifies 90% and 95% milestone completion for CP1-4. The 90% and 95% milestone completion does not include parcels that may be added.

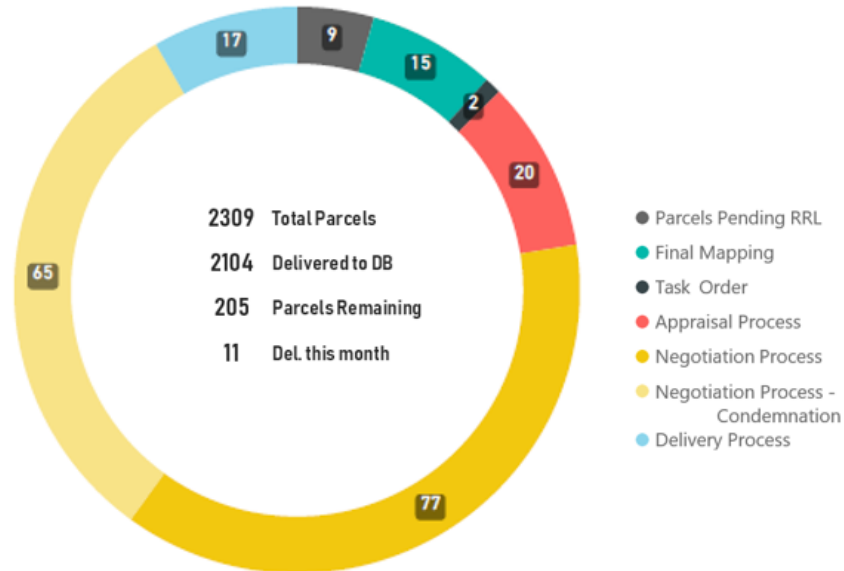
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Right-of-Way Update

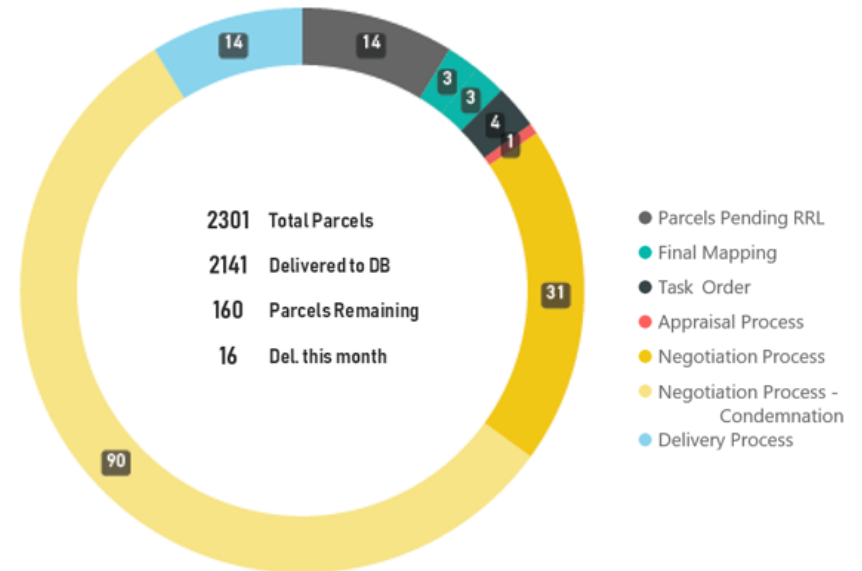
Construction Packages 1 - 4

Right of Way Production Graph

May 31, 2022



September 30, 2022



Data Date: 9/30/2022

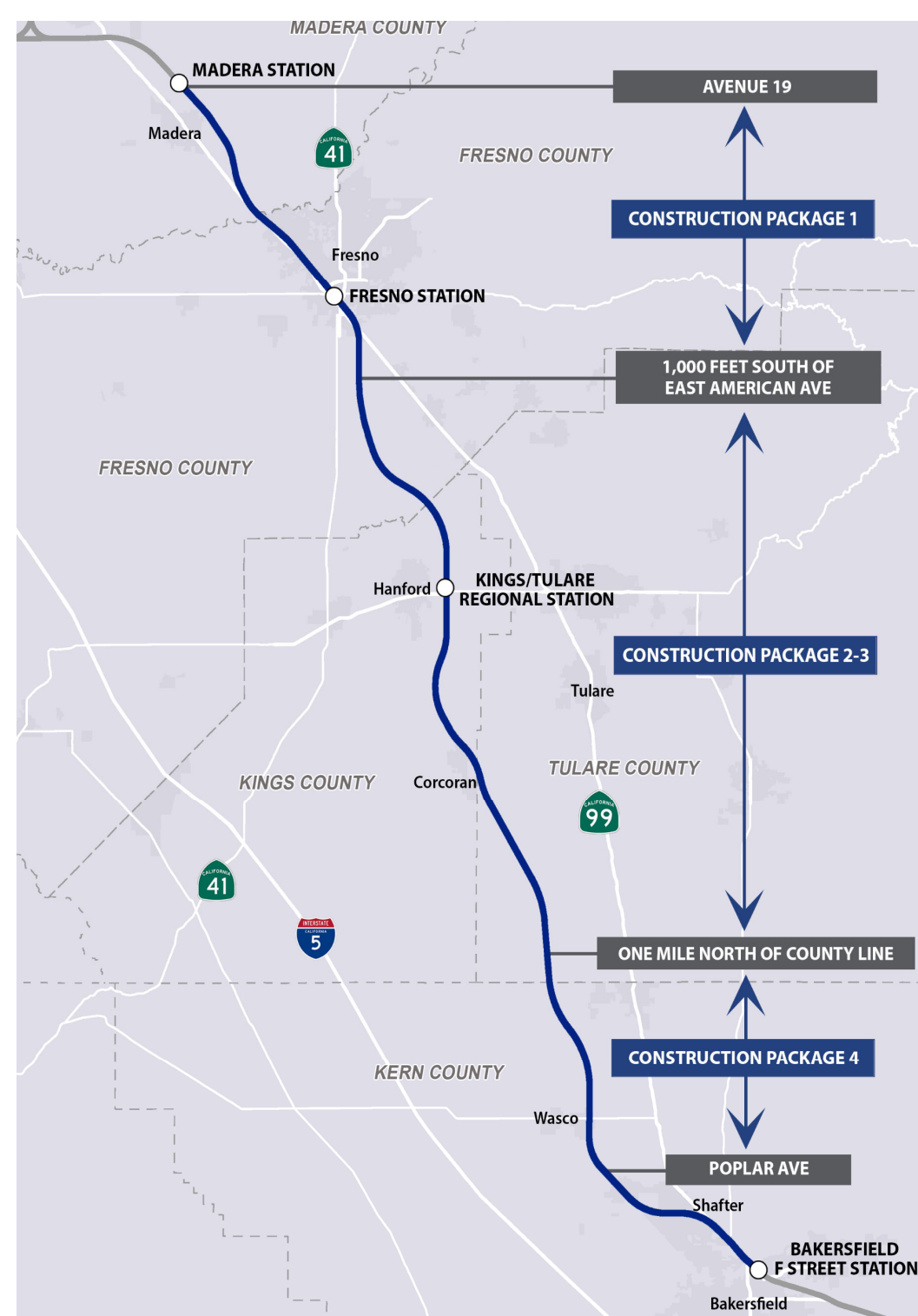


Design & Construction Update

Central Valley Update

119-Miles of Construction

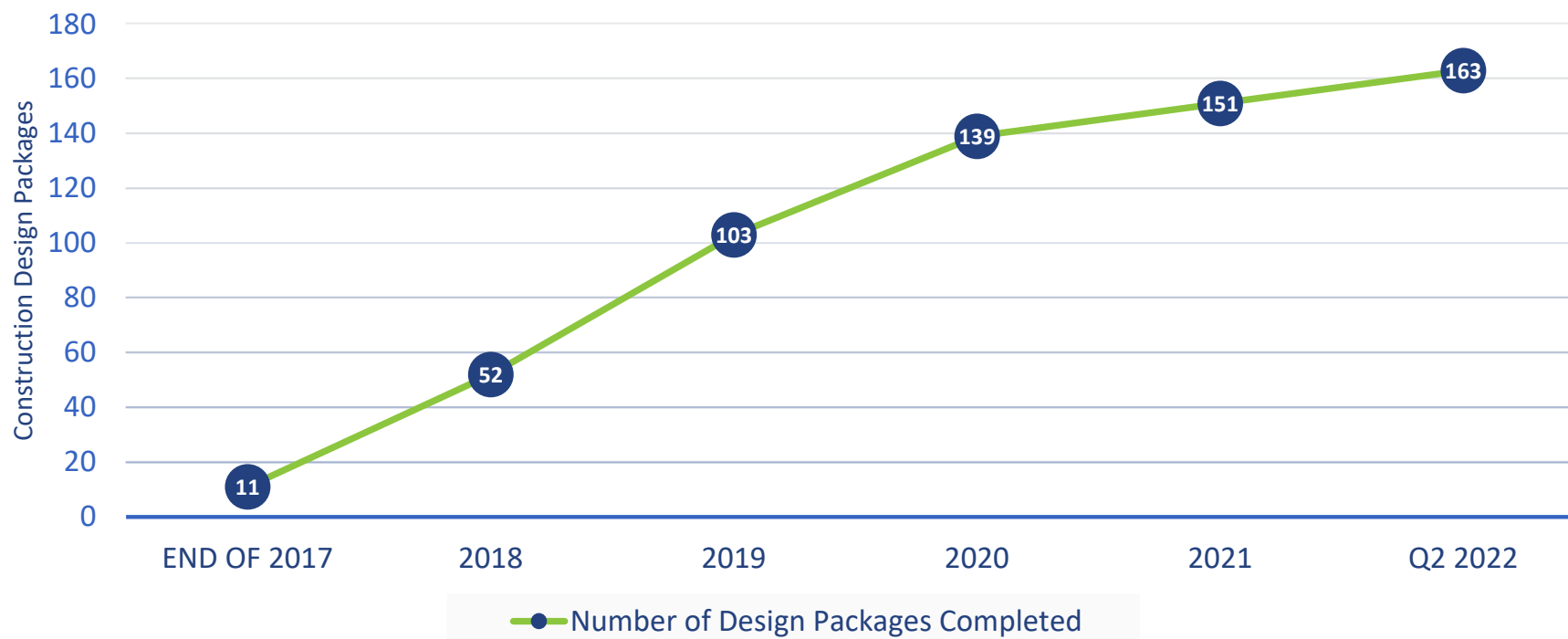
- **Construction Package 1**
 - » 32 Miles
 - » Avenue 19 in Madera County to just South of American Avenue in Fresno County
- **Construction Package 2-3**
 - » 65 Miles
 - » Just south of Fresno to 1 Mile North of the Tulare/Kern County Line
- **Construction Package 4**
 - » 22 Miles
 - » Tulane/Kern County Line to Poplar Avenue





DESIGN PROGRESS - ALL CONSTRUCTION PACKAGES

AUTHORITY APPROVED READY FOR CONSTRUCTION (RFC) DESIGN PACKAGES

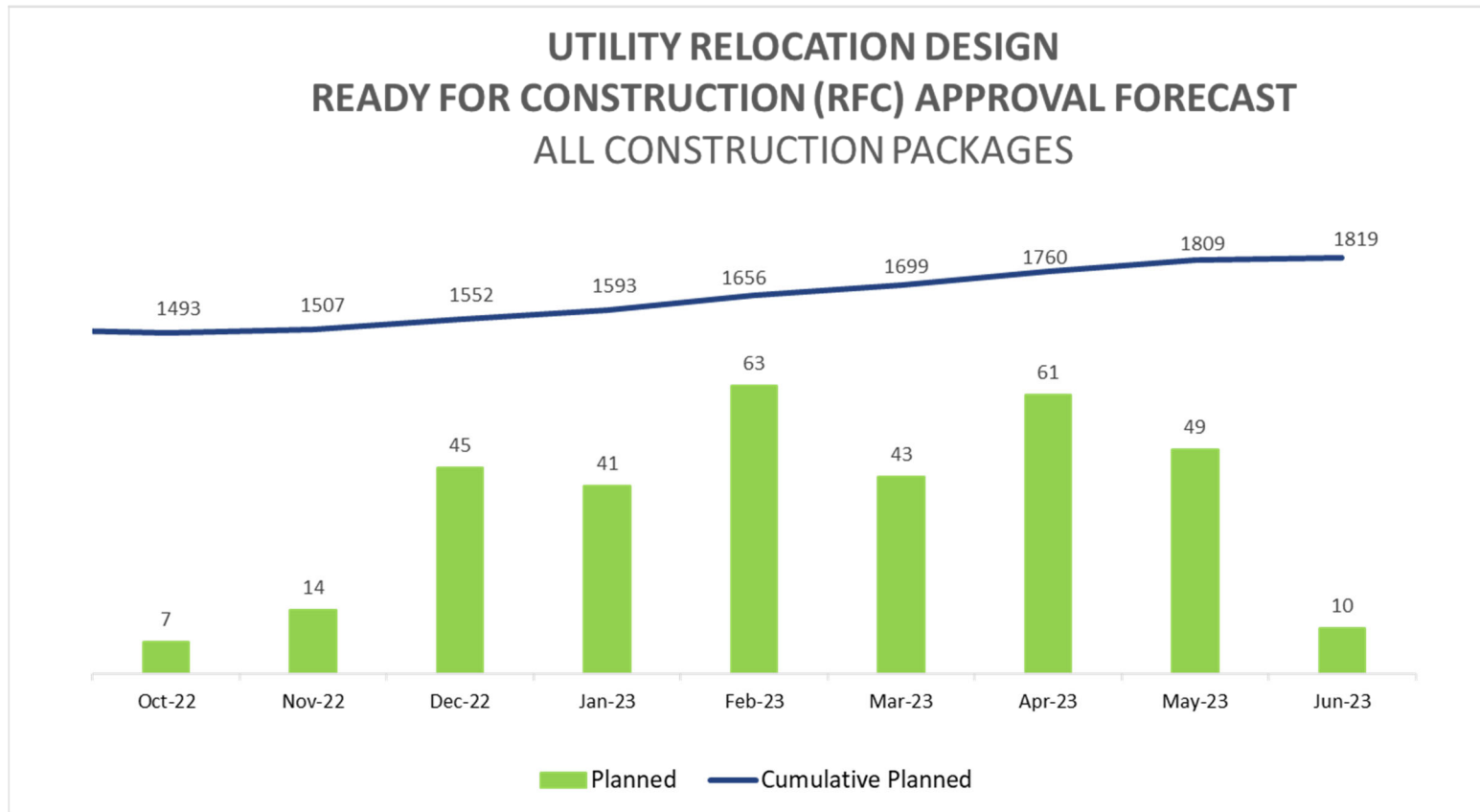


All Authority-approved RFC Design Packages are complete!

Utility Relocation Design Package Approval Forecast

Construction Packages 1 - 4

- 1,860 Utility Relocation Designs needed
- 98% of Utility Relocation Designs forecasted to be approved by June 2023



CP 1	992
CP 2-3	705
CP 4	163
Total	1,860

1. Cumulative Actual RFC value may fluctuate month-over-month due to the PG&E Six-Month Shelf-Life (SMSL) requirements. The PG&E SMSL requires that all approved PG&E design packages can expire after six months if not constructed within the prescribed timeframes.
2. RFC Forecast based on approved CP 4 Revised Baseline Schedule (RBS), and conditionally approved RBSs for CP 1 and CP 2-3.



Construction Package 4



Central Valley Update

Construction Package 4

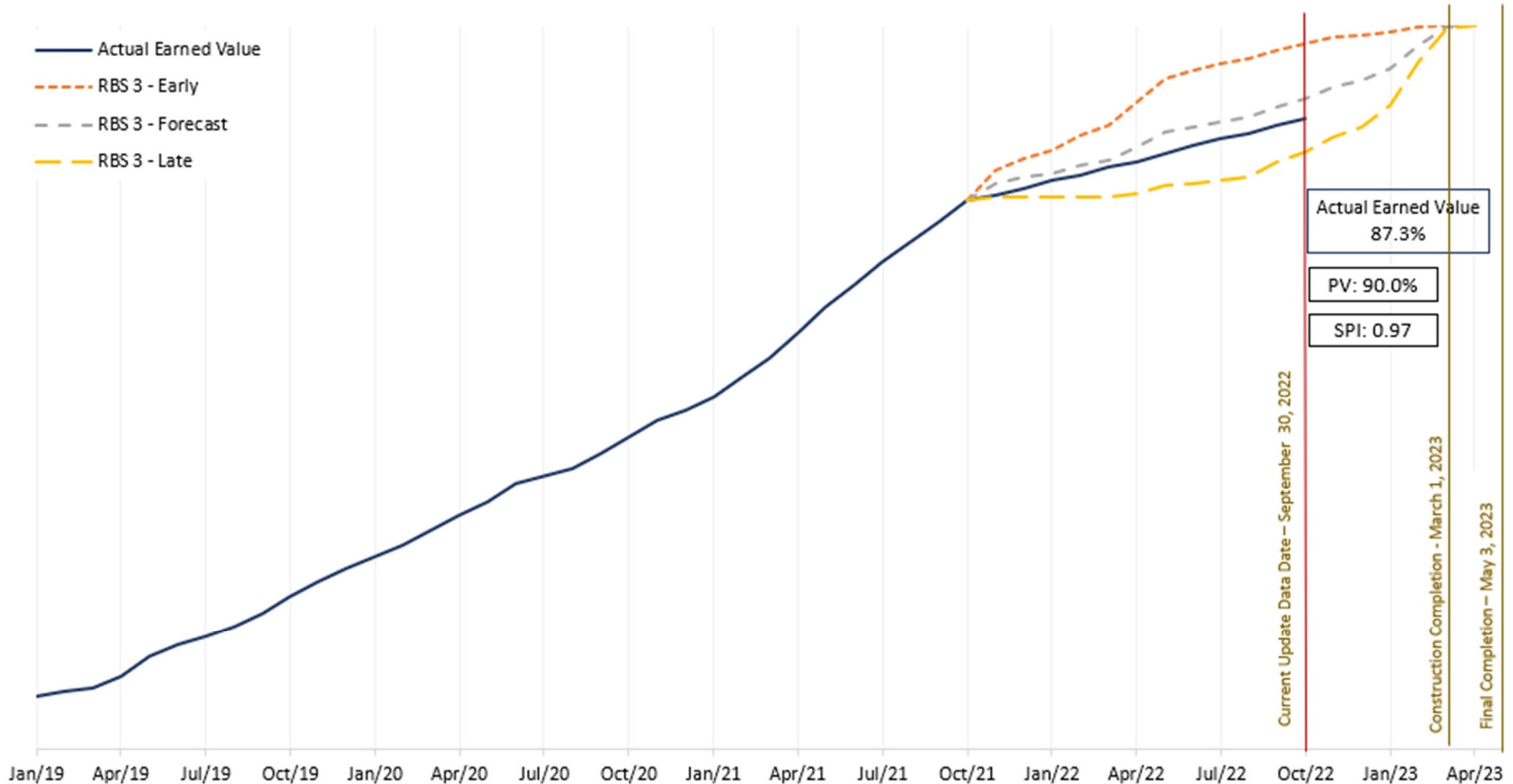
Wasco Viaduct



- Construction Package 4 (CP 4) is the third significant construction contract executed on the Initial Operating Section
- 22-mile stretch bounded by a point approximately one mile north of the Tulare/Kern County Line at the terminus of Construction Package 2-3 and Poplar Avenue to the south
- Will include construction of at-grade, retained fill and aerial sections of the high-speed rail alignment.
- **Substantial completion expected Spring 2023.**

Central Valley Update

Construction Package 4



Notes:

1. The plan graphs are based on RBS Revision 3, which has a data date of October 1, 2021, and a construction completion date of March 1, 2023. Actual graph is as of April 30, 2022.
2. Earned Value represents physical progress of site activities, which is based on project team verification of site progress measurements.
3. The early dates graph is optimistic and assumes activities will take place on the schedule early dates.
4. Average graph assumes non-critical path activities are taking place mid-way of early and late dates.
5. The late dates graph assumes activities will take place on the schedule late dates. If actuals fall below late graph, it indicates schedule slippage. To provide contingency, the Schedule Performance Index (SPI) is measured against the average graph.
6. Time contingency is not included in these forecasts. This is Authority owned contingency.
7. The schedule update received shows Substantial Completion on September 17, 2023; a mitigated schedule has been received bringing completion back to April 21, 2023; further mitigation measures are being implemented with the intent to bring the completion date back to March 1, 2023.

Central Valley Update

Construction Package 4

CP 4



Authority Approved
Design Completed

100%



Right-Of-Way Parcels
Delivered to DB

90%



Utility Relocation
Complete/In-Progress

69%



Structures
Complete/In Progress

100%



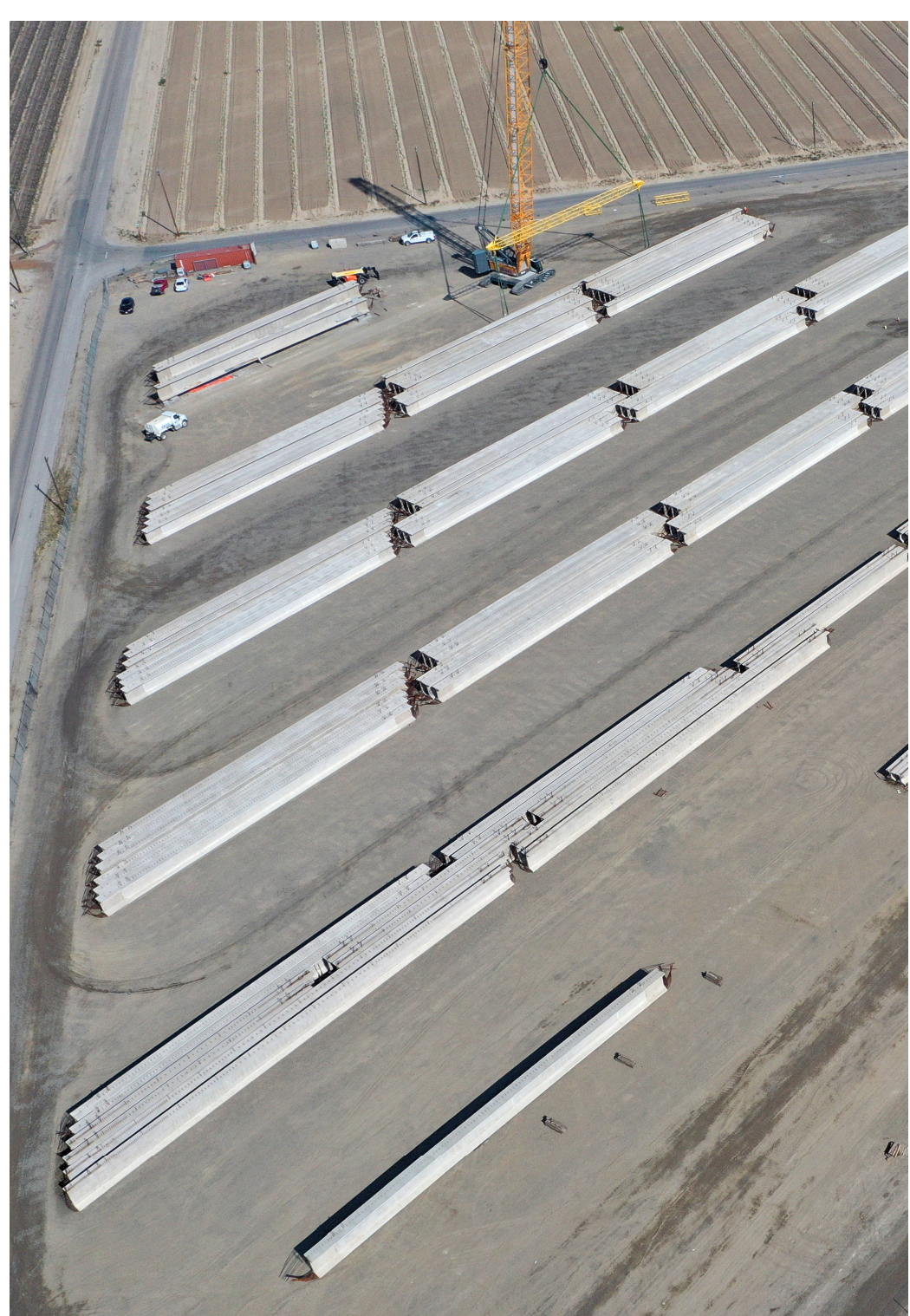
Miles of Guideway
Complete/In Progress

100%



Overall Contract

86%



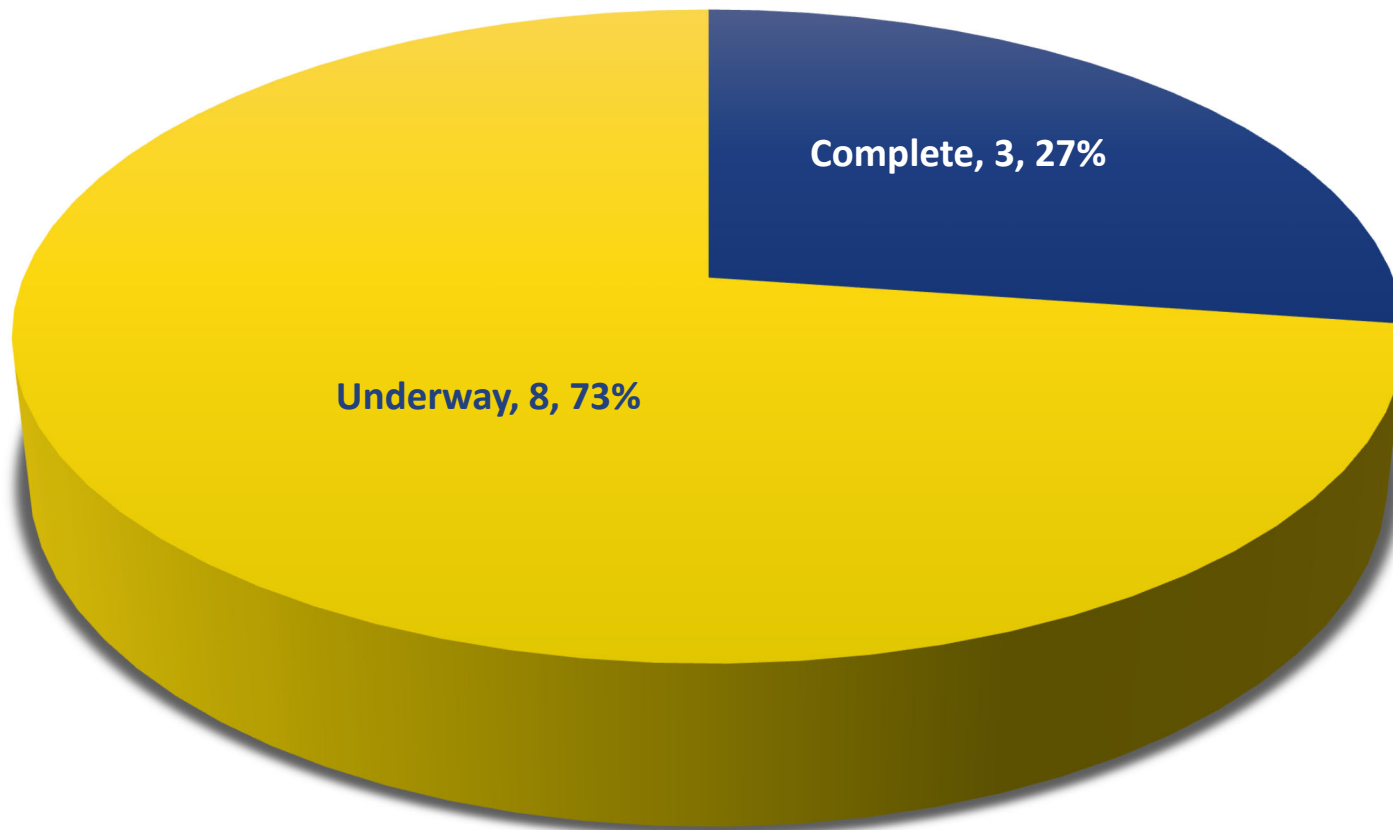
Data Date: 09/30/2022

Central Valley Update

Construction Package 4

Number of Structures in Progress

- » Total Structures: 11
- » **By end of 2022, all structures anticipated to be complete.**



Structure completion is defined as all concrete work complete.

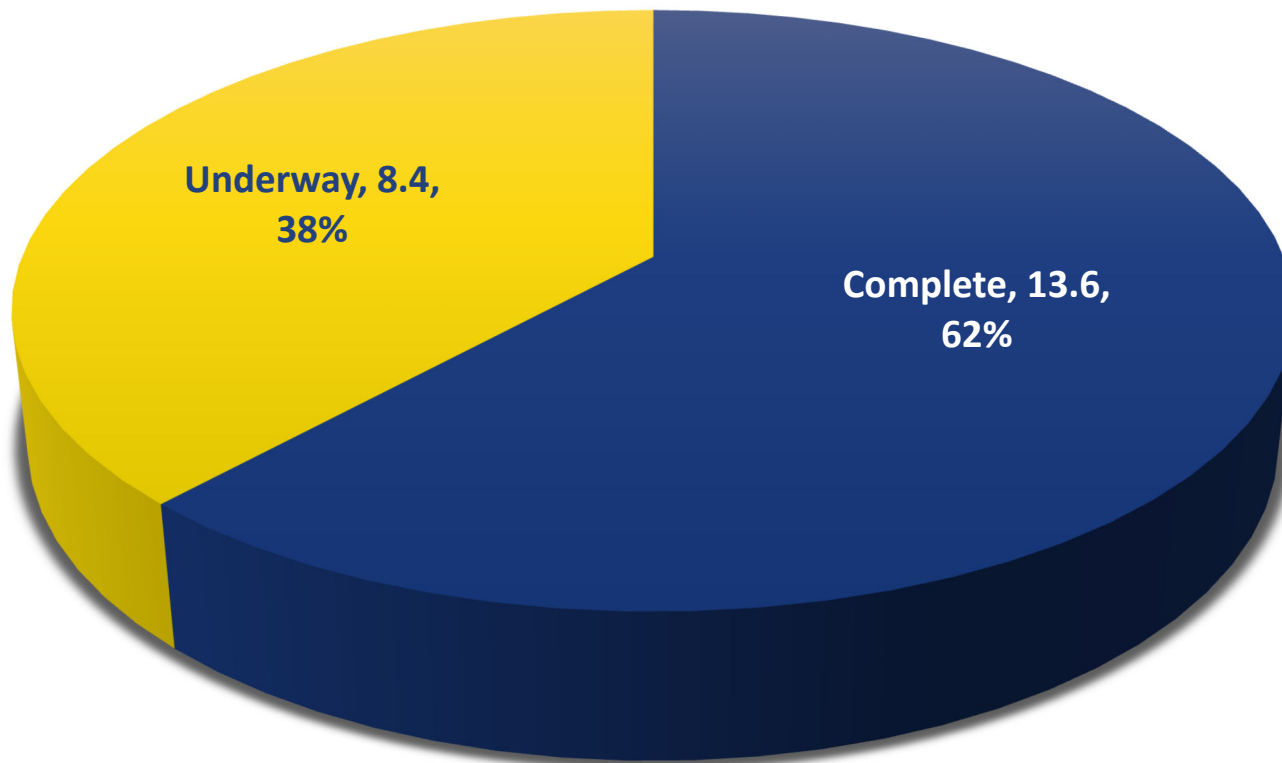
Data Date: 09/30/2022

Central Valley Update

Construction Package 4

Miles of Guideway in Progress

- » Guideway is the riding surface that will support and physically guide the high-speed train.
 - *Total Guideway Miles: 22*



Guideway completion is defined as earthworks complete with rough grading.

Data Date: 09/30/2022

Central Valley Update

Construction Package 4

Primary Risk Areas – Unmitigated Risks Could Adversely Affect Schedule

1. Semitropic design and work plan reviews and approval timing.
2. Finalizing permits with the City of Wasco.
3. PG&E and BNSF processing for reviews and approvals of designs and maintenance agreements.

Risk Mitigations Underway

1. Semitropic - Assigned staff lead to work with Semitropic on design review approvals.
2. Semitropic - Executed agreement with Semitropic in August 2021 to execute design approvals and ROW acquisition.
Status Update: Five of eight utility designs have been approved for construction by Semitropic.
3. Wasco - Continuing partnership with the City of Wasco to progress permitting and work.
Status Update: Permit received for work on Poso Avenue, construction underway, and scheduled to be opened by the end of the year.
4. PG&E and BNSF - Established Third-Party Task Force for a more focused effort on expediting design approvals.
Status Update: Only two issues remain.



Construction Package 1

Central Valley Update

Construction Package 1







Cedar Viaduct



- Construction Package 1 (CP 1) is the first construction contract executed on the Initial Operating Section
- Extends 32-miles between Avenue 19 in Madera County to East American Avenue in Fresno County
- Includes 19 grade separations, 3 viaducts, a major river crossing over the San Joaquin River and 2 trenches.
- **Contractor submitted estimated substantial completion is Q4 2025.**

Central Valley Update

Construction Package 1

		CP 1
	Authority Approved Design Completed	100%
	Right-Of-Way Parcels Delivered to DB	94%
	Utility Relocation Complete/In-Progress	73%
	Structures Complete/In Progress	79%
	Miles of Guideway Complete/In Progress	53%
	Overall Contract	64%



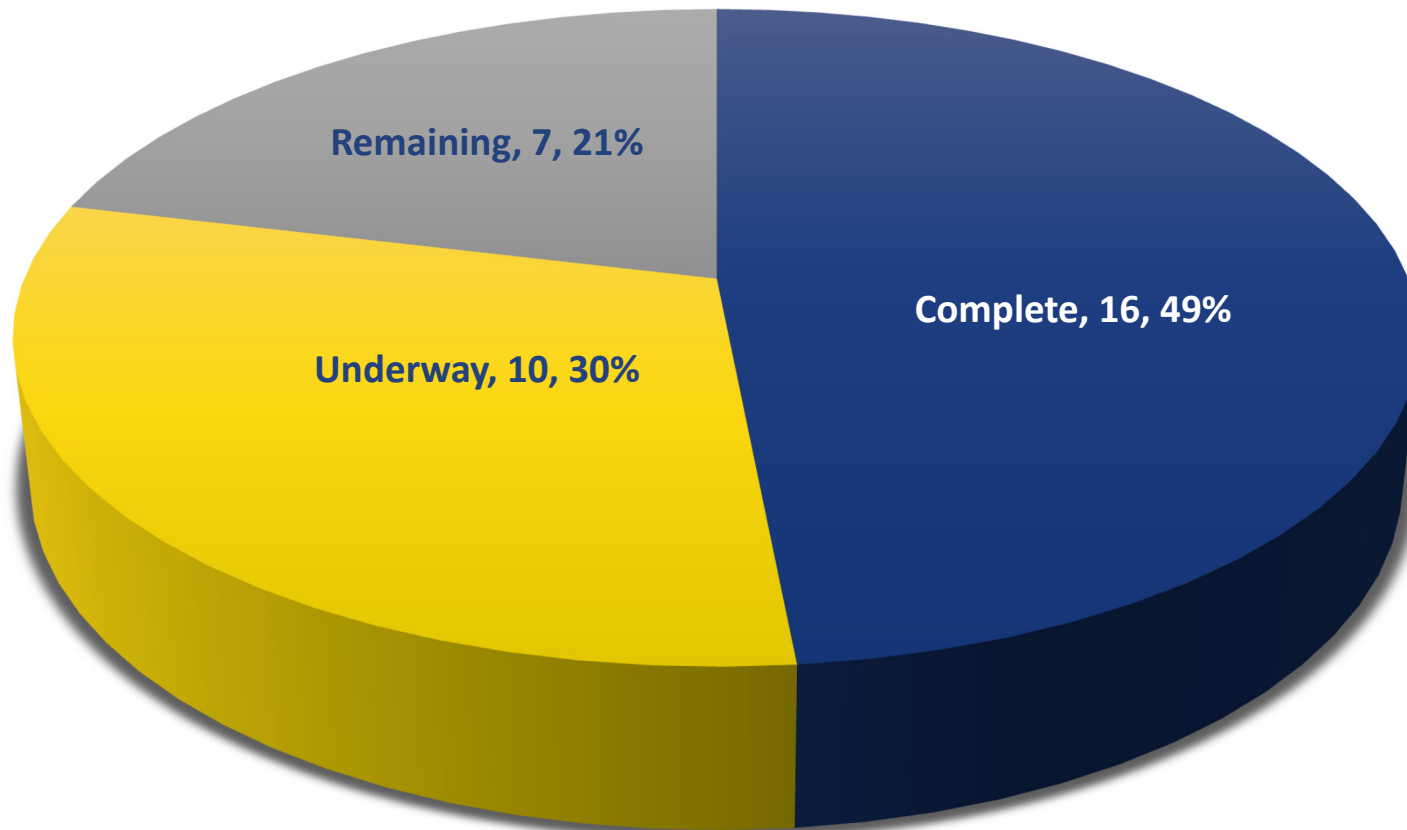
Data Date: 9/30/2022

Central Valley Update

Construction Package 1

Number of Structures in Progress

- » Total Structures: 33
- » **By end of 2022, a total of 2 additional structures have commenced construction, and 3 additional will be completed for a total of 16 structures complete.**



Structure completion is defined as all concrete work complete

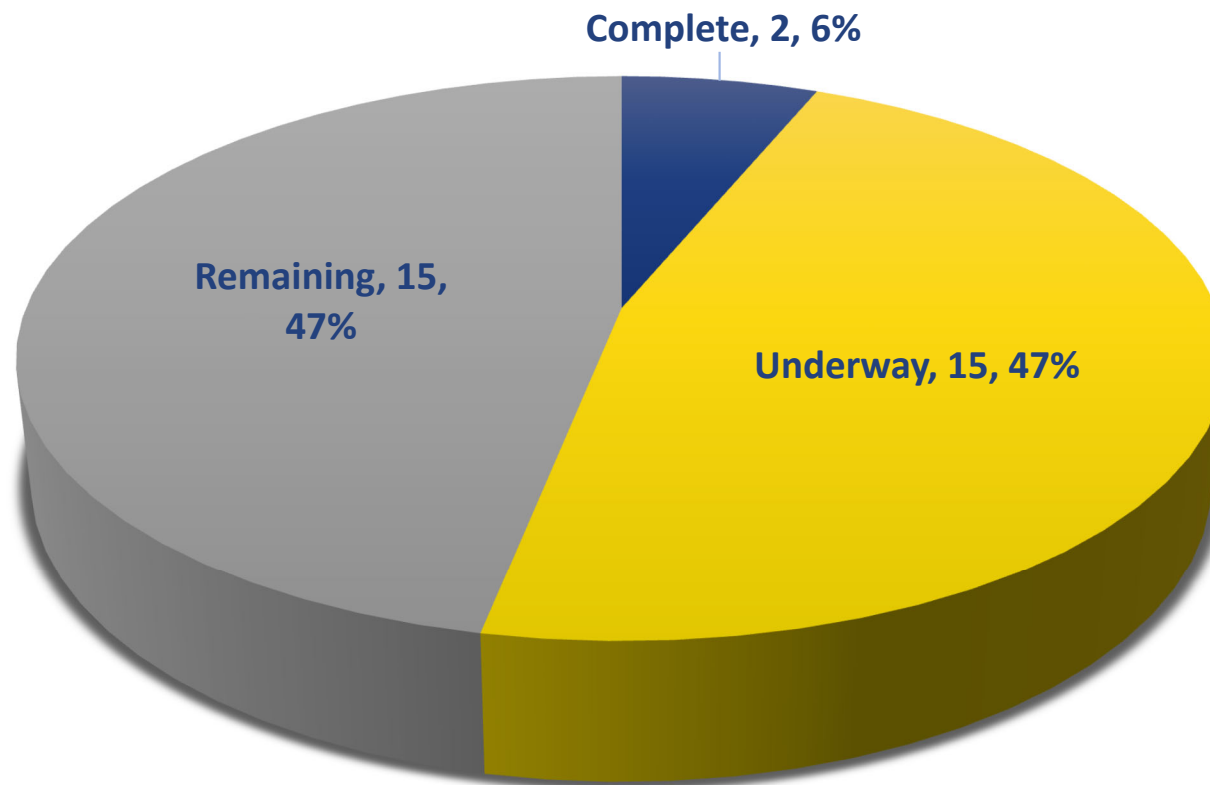
Data Date: 9/30/2022

Central Valley Update

Construction Package 1

Miles of Guideway in Progress

- » Guideway is the riding surface that will support and physically guide the high-speed train.
 - *Total Guideway Miles Needed: 32*



Guideway completion is defined as earthworks complete with rough grading.

Data Date: 9/30/2022

Central Valley Update

Construction Package 1

Finalizing Scope – Significant Change Orders to Complete Construction, Executed

- » **Guideway Construction for Caltrans SR-99 (Between Clinton and Ashlan Avenues)**
 - Construct additional 2.5 miles of at-grade guideway plus Intrusion Protection Barrier walls between Clinton and Ashlan Avenues
 - *Purpose: Scope was included in the project constructed by Caltrans but could not be completed due to AT&T not being relocated. Adding this scope to the TPZP contract.*

Status Update: Change Order executed; scope finalized.

- » **Sweeper Package – Scope Addition for Cable Troughs, Access and Egress Points from Trenches and Viaducts**
 - Provide access and egress points from High-Speed Rail trenches and viaducts, and add cable troughs to all Type 1 structures.
 - *Purpose: Transfer excluded work elements to the Design-Build contract.*

Status Update: Change Order executed; scope finalized.

Central Valley Update

Construction Package 1

Finalizing Scope - Significant Change Orders to Complete Construction, Pending

» Church Avenue – Grade Separation Changes

- Change configuration to create two bridges in lieu of one at the junction of Church and East Avenue, City of Fresno utilities, and satisfy Fresno to Bakersfield Environmental Impact Report change, added cul-de-sacs, overcrossing modifications, and street connections

- *Purpose: City of Fresno changed the configuration of the grade separation*

Status Update: Change Order negotiated, going through Authority governance for approval.

» Downtown Area - Changes to Tulare, Ventura, and Fresno Streets

- Widening UPRR structures in Tulare and Ventura underpasses, adding an access structure to the UPRR structures at Fresno Street, changes to specifications to G Street Bridges in all underpasses.

- *Purpose: UPRR requested wider bridges*

Status Update: Change Order negotiated, going through Authority governance for approval.

Central Valley Update

Construction Package 1

Primary Risk Areas – Unmitigated Risks Could Adversely Affect Schedule

1. Extended road closures in the City of Fresno: Herndon Ave, Shaw Ave, and Church Ave.
2. Enforcement of environmental specifications.
3. Railroad submittal approvals.
4. Utility conflict density in the City of Fresno – Six times more utility conflicts on average compared to other areas of the 119 miles under construction (52 conflicts/mile compared to 9 conflicts/miles).

Risk Mitigations Underway

1. Partnering and engaging the City of Fresno effectively to accomplish agreed-upon schedule.
2. Realigning with permitting agency on requirements and practical implementation of requirements.
3. Elevating engagement with UPRR to outline project completion schedule, and level of effort required for completion.
4. Delegated Authority to the Director of Real Property, Dennis Kim, as the executive in charge of leading Third-Party relationship strategies, including increased engagement of third-party executives and workshops focused on process improvements with AT&T, PG&E, and railroads.



Construction Package 2-3



Central Valley Update

Construction Package 2-3

Hanford Viaduct



- Construction Package 2-3 (CP 2-3) is the second significant construction contract executed on the Initial Operating Section
- Extends approximately 65 miles from the terminus of Construction Package 1 at East American Avenue in Fresno to one mile north of the Tulare-Kern County line
- Includes approximately 26 grade separations in the counties of Fresno, Tulare and Kings, including viaducts, underpasses and overpasses.
- **Contractor submitted estimated substantial completion is Q1 2026.**

Central Valley Update

Construction Package 2-3

CP 2-3



Authority Approved
Design Completed

100%



Right-Of-Way Parcels
Delivered to DB

93%



Utility Relocation
Complete/In-Progress

64%



Structures
Complete/In Progress

63%



Miles of Guideway
Complete/In Progress

74%



Overall Contract

70%



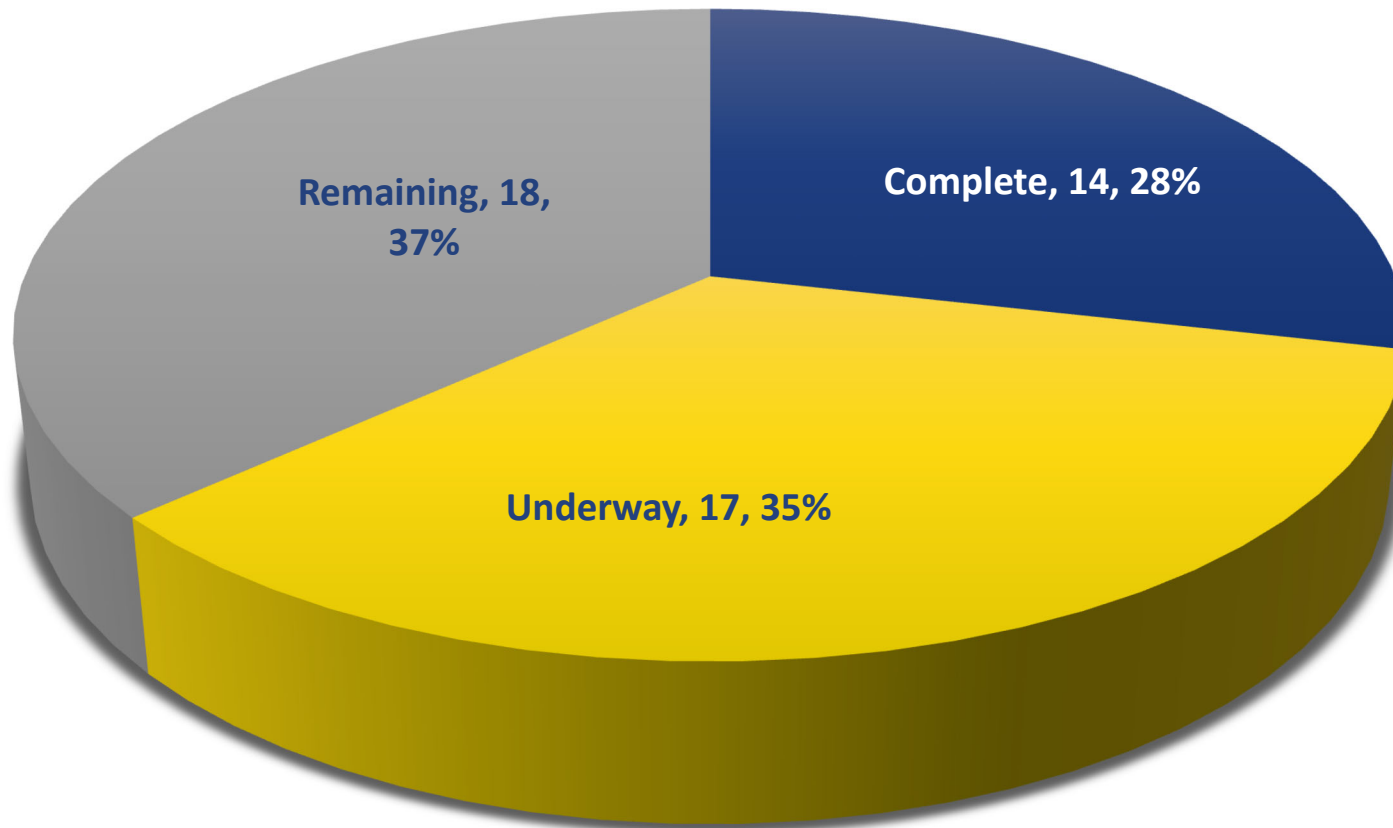
Data Date: 9/30/2022

Central Valley Update

Construction Package 2/3

Number of Structures in Progress

- » Total Structures: 49
- » **By end of 2022, 1 additional structure will begin construction, and 7 additional structures will be open to traffic.**



Structure completion is defined as all concrete work complete.

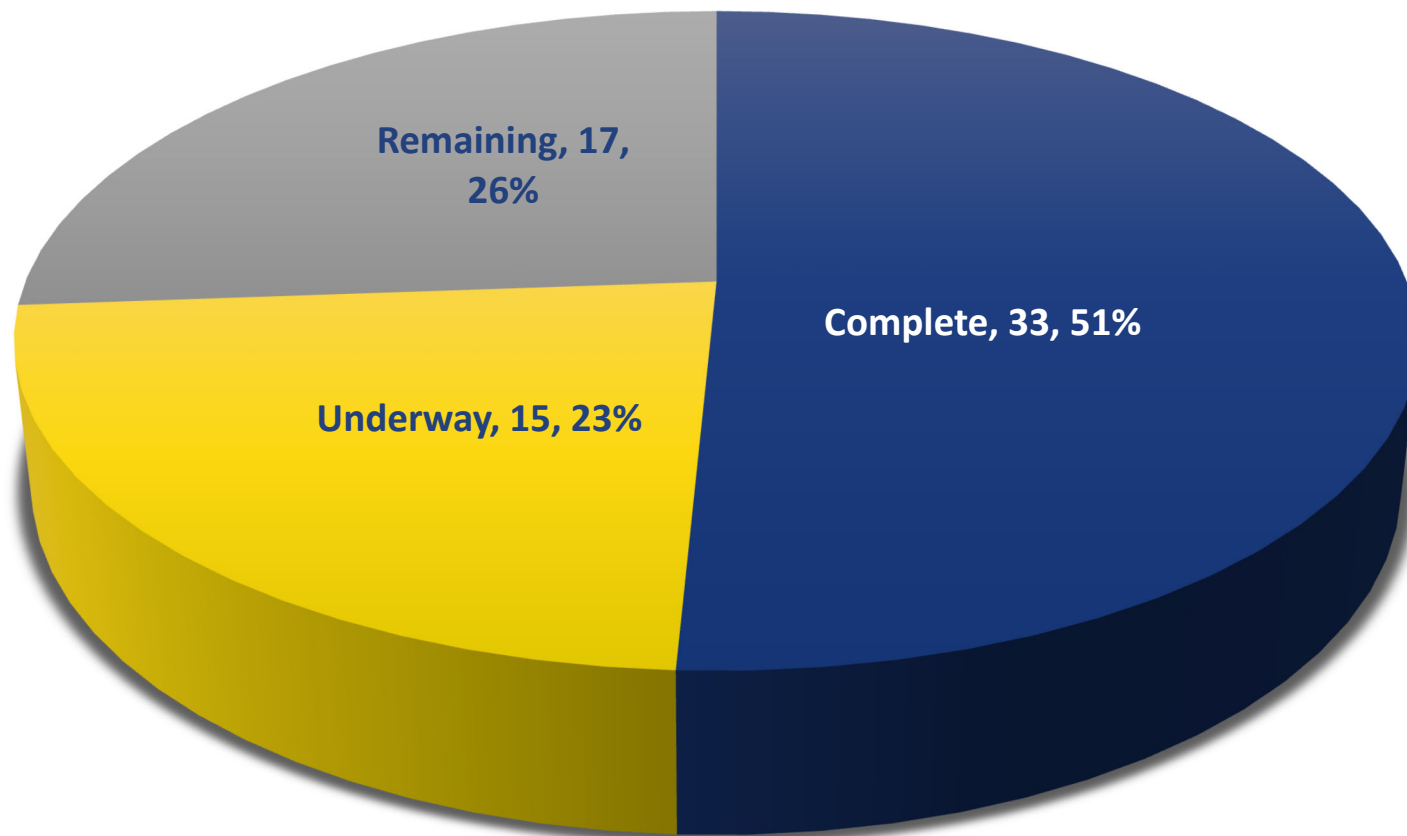
Data Date: 9/30/2022

Central Valley Update

Construction Package 2/3

Miles of Guideway in Progress

- » Guideway is the riding surface that will support and physically guide the high-speed train.
 - *Total Guideway Miles: 65*



Guideway completion is defined as earthworks complete with rough grading.

Data Date: 9/30/2022

Central Valley Update

Construction Package 2/3

Finalizing Scope – Significant Commercial Issues to Complete Construction

» BNSF Intrusion Protection Barrier

- *Construct 15 miles of barrier*

Status Update: Change Order executed; scope finalized.

✓ **Construction underway.**

» Hanford Viaduct

- *Finish superstructure of 6000-foot elevated guideway, configuration change due to Alternative Technical Concept accepted during original procurement*

Status Update: Change Order executed.

✓ **Construction underway.**

» Deer Creek Viaduct

- *Contractor redesigned to 3000-foot viaduct to minimize elevated guideway*

Status Update: Change Order negotiated, going through Authority governance for approval.

✓ **DFJV mobilized to work.**

» Cross Creek Viaduct

- *Contractor redesigned to 2500-foot viaduct to minimize elevated guideway*

Status Update: In arbitration.

Central Valley Update

Construction Package 2/3

Primary Risk Areas – Unmitigated Risks Could Adversely Affect Schedule

1. ROW Acquisition for critical utility relocations (electric transmission and irrigation).
2. Third-Party coordination for design review/approval, negotiation on work windows (irrigation season, transmission black-out periods, railway moratoriums), and negotiation on maintenance agreements.
3. Commercial settlement of key disputes.

Risk Mitigations Underway

1. Working to finalize ROW for utility relocations.
Status Update – The 4 parcels yet to be delivered are anticipated by Q4 2022.
2. Established Third-Party Task Force for more focused effort to negotiate resolutions.
Status Update - 71% of issues resolved by the Third-Party Task Force.
3. Actively negotiating commercial settlements on disputes.
Status Update – Three of four commercial issues were resolved, and one in arbitration.



Program Risks & Opportunities



Program Risk

Inflation Escalation

- Largest 12-month increase in 40-years, affecting the construction industry – Sept 2022 Consumer Price Index (CPI) is 8.2% (Peaking in June 2022 @ 8.99%)
- Contractors have raised concerns and, in some situations, claimed additional impacts for escalating costs
- Authority is developing a strategy to address the concerns and claims.

12-Month Percentage Change, CPI
(All Items, Not Seasonally Adjusted)



Note: Shaded area represents recession, as determined by the National Bureau of Economic Research.
Source: US. Bureau of Labor Statistics.

Program Opportunities

Pending & Future Grant Applications

The Authority has three grant applications pending at USDOT, with more on the way:

Grant Application	Amount	Comment
2022 Mega Program - HSR Application #1	\$1,045M	This application request funding for the purchase of 6 high-speed rail trainsets compliant with Buy America, funding for stations, and funding for the second track
2022 Mega Program – HSR Application #2	\$223M	This application request funding to advance design on 2 San Francisco Bay Area segments and 2 Southern CA segments that have completed environmental clearance
2022 Railroad Crossing Elimination Program	\$67M	This application request funding to advance 6 new grade separations in the Bakersfield extension – 2 through construction and 4 through right-of-way
2022 Consolidated Rail Infrastructure and Safety Improvements	Future Application	The Authority anticipates requesting funding for additional grade separations in this application
2022 Federal State Partnership for Intercity Rail	Future Application	The Authority hopes for a large grant award in this program to build significant scope in the Merced to Bakersfield segment
Multi-year Target / Various Future Programs	\$8B	The Authority’s first priority is to complete high-speed passenger service in the Central Valley. Secondly, we want to advance design throughout the State and complete early investments with independent utility

Questions?



Headquarters

California High-Speed Rail Authority

770 L Street, Suite 800

Sacramento, CA 95814

www.hsr.ca.gov