SFMTA

Train Control Upgrade Project

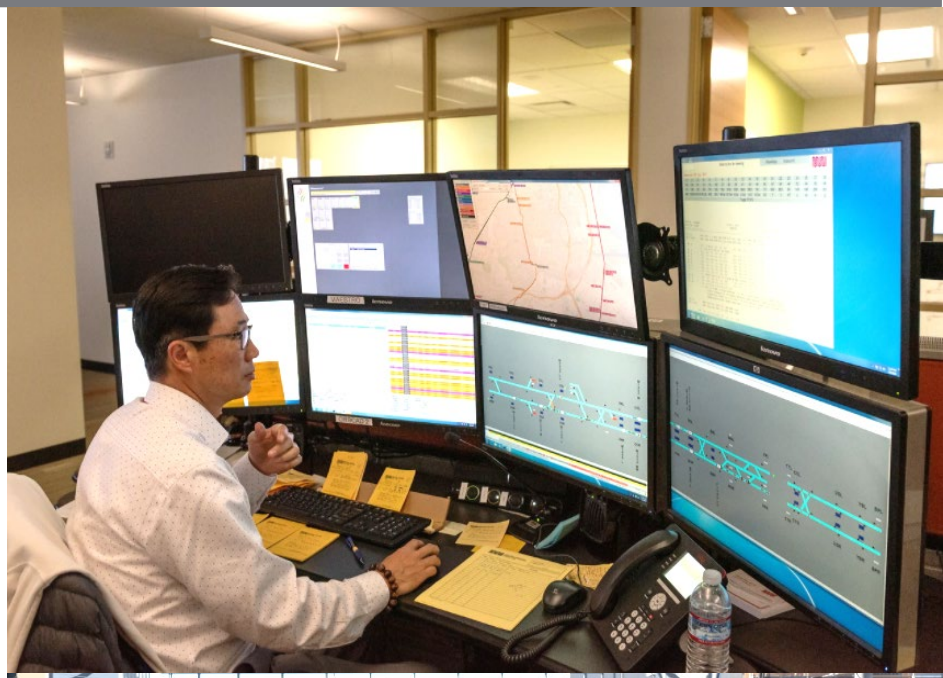
Progress Update

SFMTA Board of Directors

Committee

November 14, 2025

- BART Update
- Accomplishments & Milestones
- Project Updates
- Schedule Updates
- Budget Update
- Risk Management



Accomplishments to Date

2024

- **October**: Won Cap-and-Trade (Cap-and-Invest) TIRCP grant funds totaling $160M
- **November**: Successfully executed the consultant and supplier contracts

2025

- **February**: NTP to Hitachi; Launched preliminary engineering phase
- **June**: Won SFMTA's first-ever Solutions for Congested Corridors grant of $41M
- **July**: Held our first successful partnering meeting with Hitachi staff
- **August**: Hitachi and SFMTA agreed on detailed schedule update

Milestones Look Ahead

2025

- Complete Conceptual Design Review (CDR, 10% design) in December
- Launch staff in-reach program (already consulting regularly with subject matter experts - SMEs)

2026

- 30% Design in Spring 2026
- Phase 1 Installation contractor RFQ
- Bring Siemens onto project to lead vehicle modifications
- Begin targeted outreach along Phase 1 towards the end of 2026
- Wrap up Phase 1 construction design by the end of 2026

Project Updates

- **Working through specifics of the technical approach with Hitachi as a progressive design / agreement**
- **New approach to upgrading Vehicle Onboard Computers (VOBCs)**
- **Changes to schedule**
- **Reached agreement on project management and other governing process as Hitachi completes its mobilization**

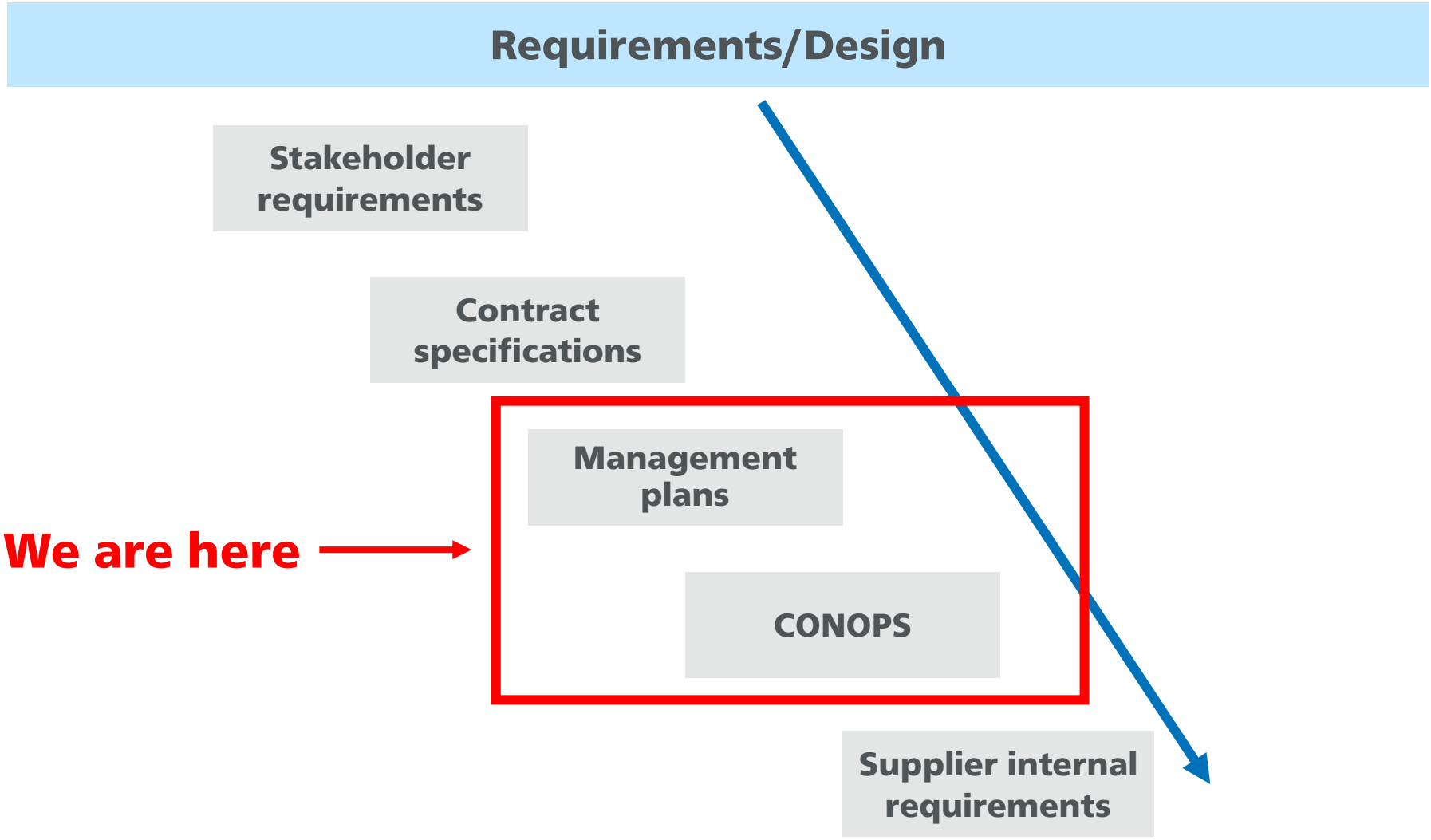
Successful progressive agreement entails vigilance and attention to detail

RFP: We resisted the tendency to over-specify technical requirements

DESIGN PHASE: We now check/approve Hitachi submissions to detail specifications collaboratively

- Opportunities in the acceptance processes to give Hitachi flexibility to define the solution
- SFMTA retains ultimate design control through approval authority
- Submittals evaluated for conformance to
  - The proposal
  - Requirements of the contract
  - Requirement from previously accepted plans
- We only accept changes to requirements that lead to improved outcomes and reduce risk for the SFMTA

Progressive agreement follows V-model



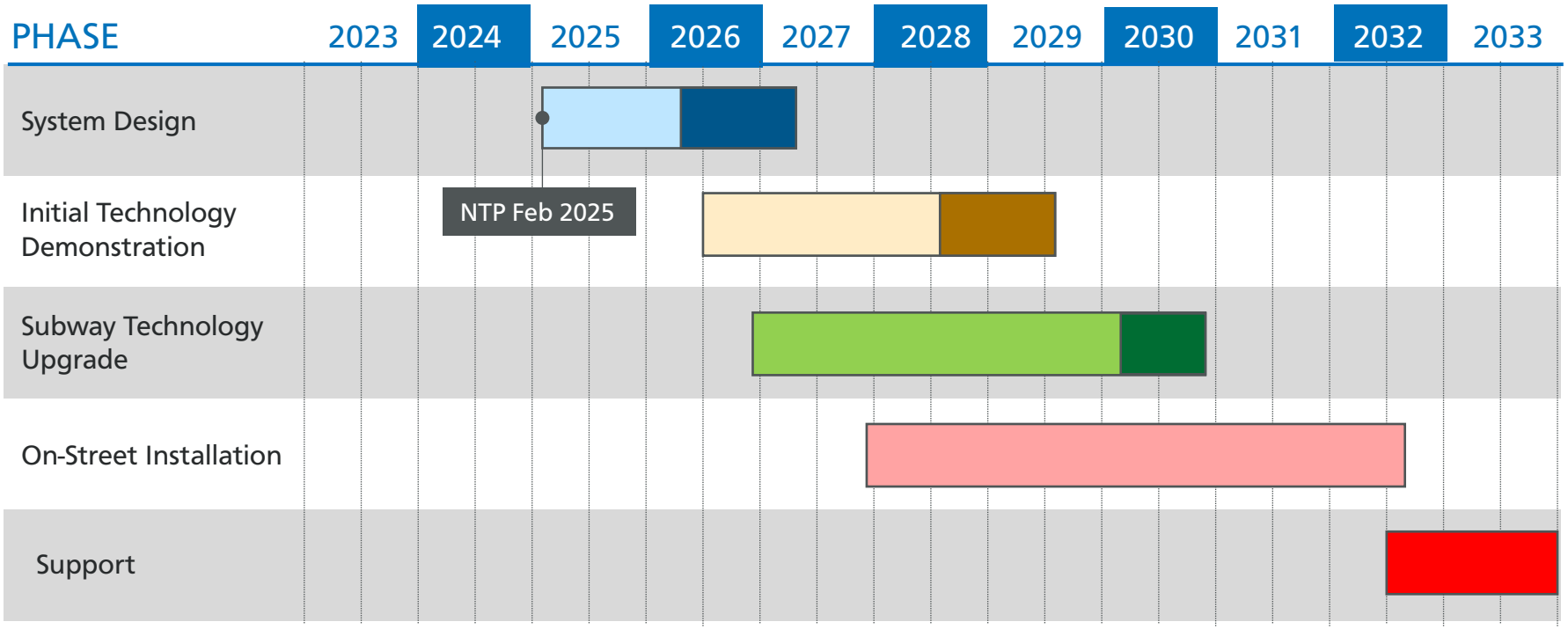
Example of changed design approach

New approach to upgrading Vehicle Onboard Computers (VOBCs):

- More rewiring = More complexity, time and cost up front
- Lowers long-term maintenance cost and risk
- Contract structure combining support and design led to a better outcome

Legacy VOBC **New VOBC**

TCUP Schedule Overview



Schedule Mitigations

Actions to save time and reduce impact to the schedule:

- Initial partnering work identified issues from both SFMTA and Hitachi that could have led to project delays
- SFMTA and Hitachi underwent collective problem solving to address including:
  - SFMTA consultant preparing more detailed guideway data surveys and Hitachi receiving information and working in batches as opposed to waiting for entire set to be delivered
  - Gave Hitachi permission to proceed with 5G design at risk assuming SFMTA receives 5G waiver from FCC
  - SFMTA compressing its own installer procurement schedule and self-performing some design/installation
  - Working on tasks in parallel when possible

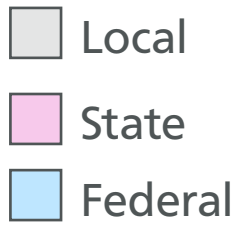
We continue to work on opportunities for time savings.

TCUP Capital Budget

Total Project Budget	**$700,000,000**
Train Control Supplier Contract (*awarded 2025)*	$207M
Consultant Contract *(awarded 2024)*	$40M
Installation Contracts	$99M
Project Management & Engineering	$110M
Network Infrastructure and Systems Integration	$57M
Testing, Training and Operation Support	$108M
Contingency	$79M

Project Funding Plan

Total Project Budget	$700,000,000
Secured Funds	
2021 Revenue Bond	$30,000,000
Prop B (General Fund - Transit)	$28,000,000
Prop L (Sales Tax)	$24,000,000
FTA (Transit Capital Priorities)	$336,000,000
TIRCP Grant	$160,000,000
SB 1 (State of Good Repair)	$24,000,000
Solutions for Congested Corridors	$41,000,000
Future Funds	
Future GO Bond	$25,000,000
Solutions for Congested Corridors	$32,000,000



Risk Reduction: ATCS Troubleshooting

We can keep the ATCS running until we can replace it in 2030, and we have taken steps to reduce the risk of a major failure.

In an (unlikely) complete ATCS failure, CBTC could be rushed into service as early as 2029.

TOP RISKS	MITIGATIONS
VCC failure in Market Street subway	Enough spare parts to reduce repair window to days v. months.
Hardware issues with Station Controllers	Working with Hitachi to acquire additional spare parts for Market Street subway. Central Subway has spares as part of that project.
Loss of in-house institutional knowledge	Hitachi is moving top ATCS expert to SF.
Limited existing ATCS support agreement	Extending and enhancing ATCS support agreement until TCUP is done, including identifying key risks and mitigations, adding onsite support.
Contingency SOPs	Repair and service plans in place for multiple scenarios

Lessons Learned So Far

Allow time for supplier mobilization and orientation

Allowing for progressive design in the contract management yields better cooperation with the supplier and a better overall solution

Secure radio frequency license for 5G cellular as early as possible

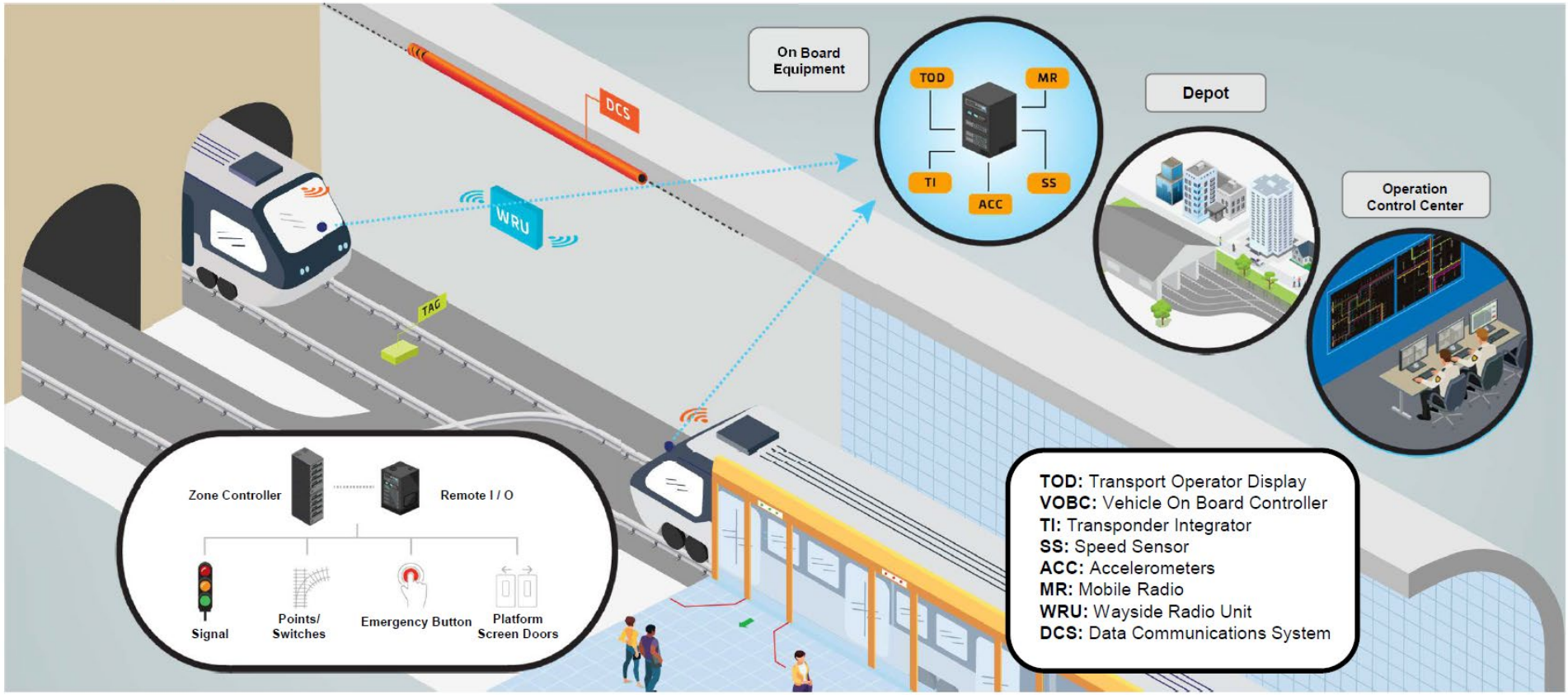
Have discussions as early as possible about the level of detail needed for baseline conditions

Questions?

Modern Train Control Components

Train Control System - SelTrac™

HITACHI
Inspire the Next



V-model

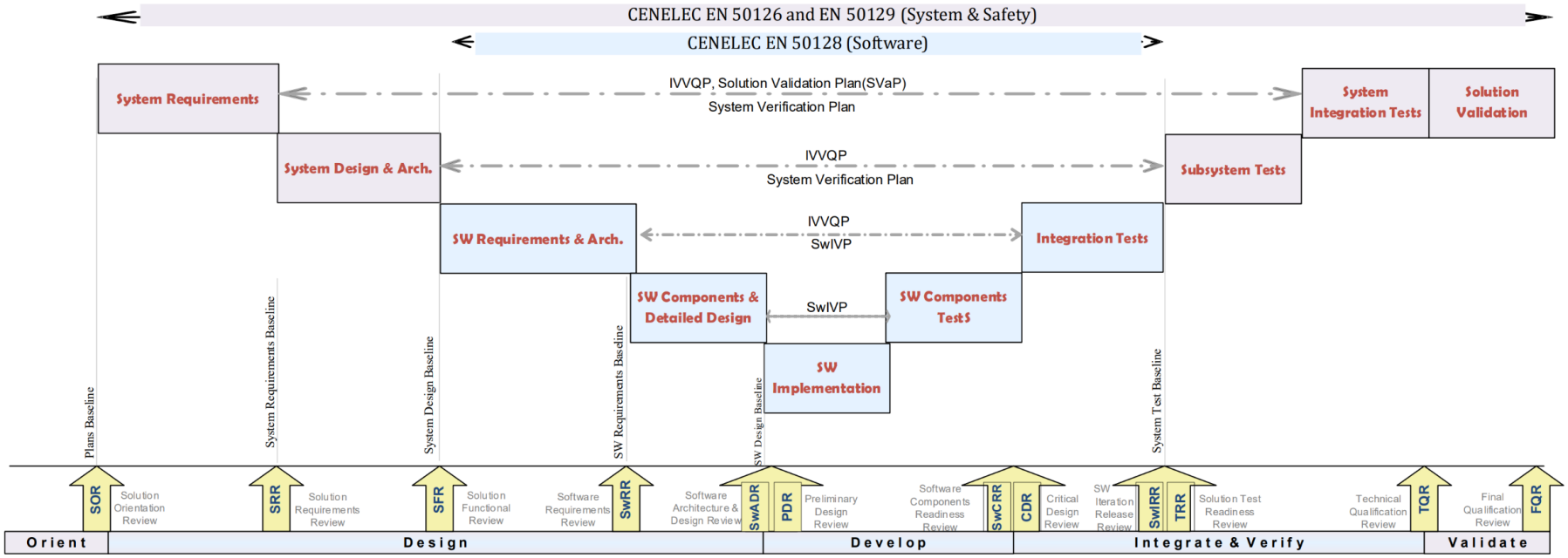


Figure 5 Development Lifecycle 'V-Model'