



PRISM – Paint Room Installation for Safety & Manufacturing

The Planning Bureau



Executive Summary

- Installed and certified a new industrial paint booth to eliminate production bottlenecks.
- Delivered successfully with one mid-project challenge (Fire Marshal DCDA requirement).
- Final delivery completed on Nov 27, 2025, within acceptable variance.
- Budget: \$430,000 (after +\$10,000 change).
- Performance: CPI = 0.98 | SPI = 0.95



Problem Statement

- Existing paint booth lacks efficiency & modern safety systems
- Non-compliant with updated regulations (Cal/OSHA, LAFD, SCAQMD)
- Risk of operational delays and safety hazards
- Need: Install a high-efficiency, fully compliant booth with minimal disruption



Project Objectives

- Install a compliant, high-efficiency paint booth in the El Segundo plant.
- Meet all regulatory and safety requirements (Cal/OSHA, LAFD, SCAQMD).
- Deliver on time and within budget with minimal disruption to operations.
- Ensure full system certification and operational readiness upon completion.



Project Scope

- Install new industrial-grade paint booth in the west wing of El Segundo plant
- Procure booth and supporting equipment
- Prepare site: electrical, concrete, and HVAC/ductwork setup
- Install fire suppression & sprinkler systems to meet safety standards
- Ensure minimal disruption to ongoing operations
- Conduct testing, calibration & certification of the booth
- Manage permitting & inspections:
- Cal/OSHA safety compliance
- LAFD fire inspection (John Storm)
- SCAQMD emissions compliance (Wendy Gale)
- Coordinate across stakeholders & regulatory bodies
- Deliverable: Fully installed, functional, and certified paint booth



Scope & Key Planning Elements



Scope Includes:

- Procurement, delivery, and installation of new paint booth.
- Electrical, concrete, and HVAC modification
- Fire suppression system installation and certification
- Staff training and final handover

Major Assumptions:

- Timely permit processing.
- Vendor reliability.
- Continuous production during installation

Baseline Schedule & Cost

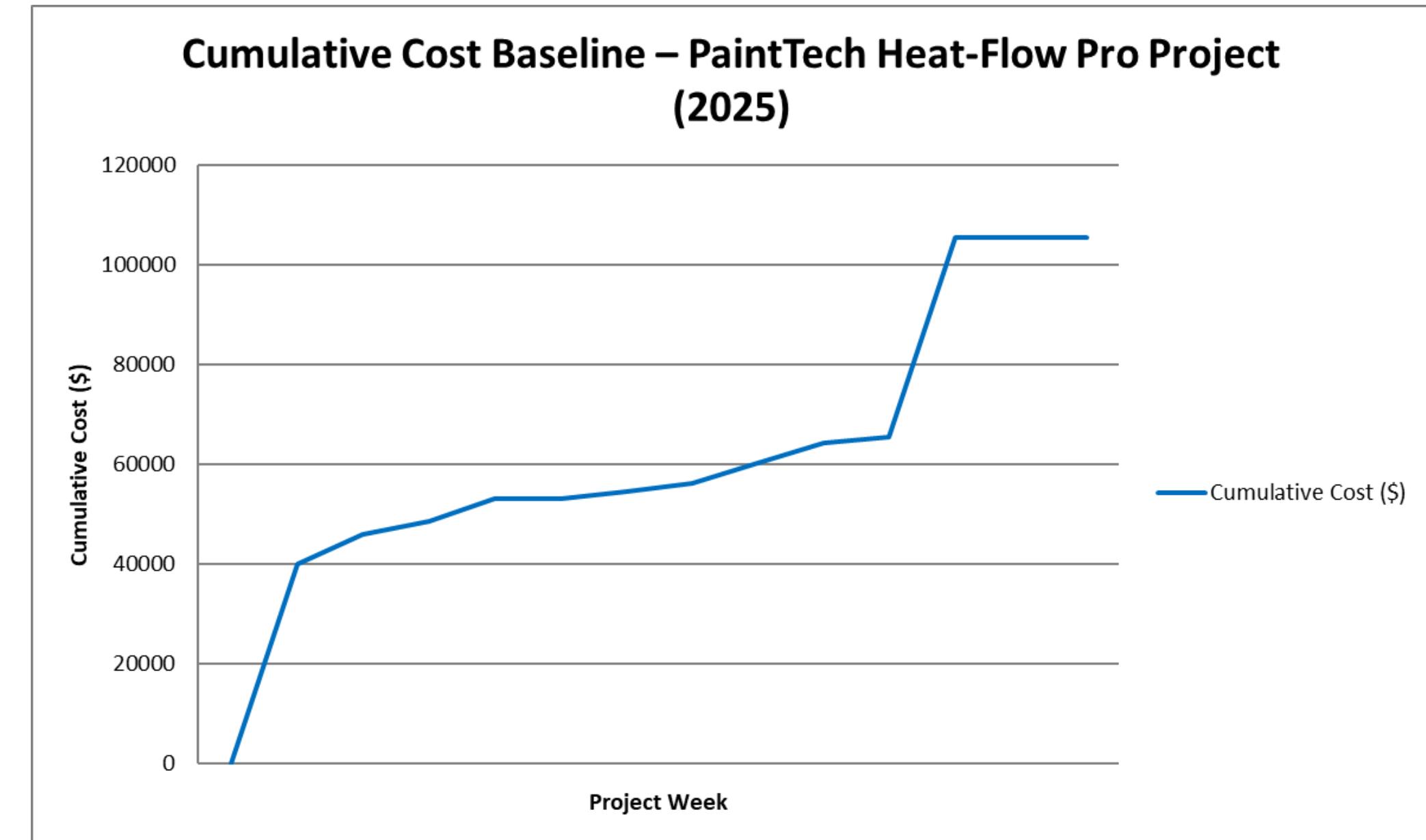
Planned Schedule

- Duration: 8 weeks (Sept 10 – Nov 8, 2025)
 - Key Phases: Planning → Procurement → Installation → Testing → Training
 - Timeline designed for minimal production disruption with overlapping preparatory tasks.
 - Critical-path activities focused on equipment procurement and permitting milestones.

Baseline Schedule & Cost

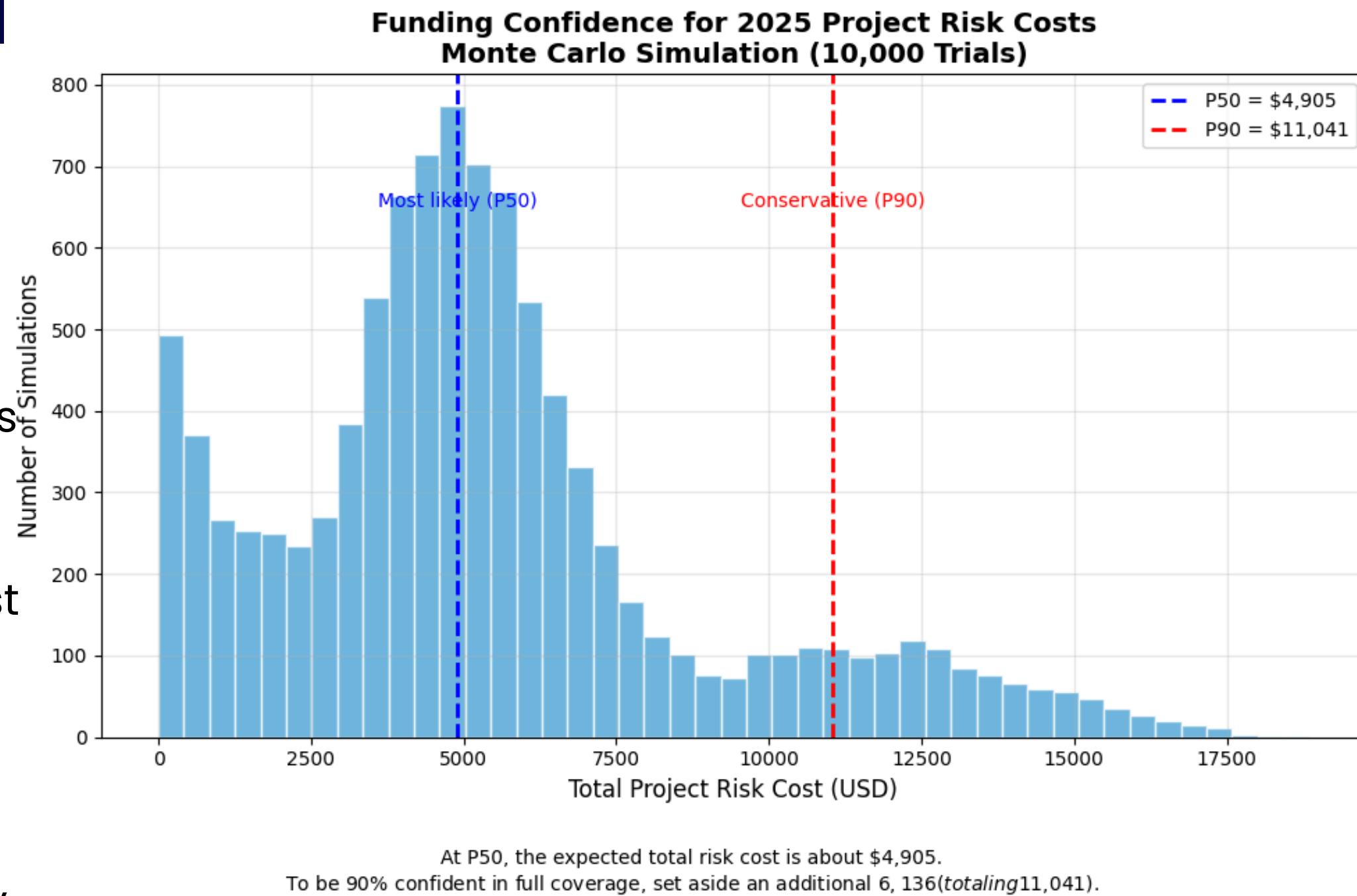
Baseline Cost

- 2025 Project Costs & Schedule
- Total Estimated Cost: ~\$104K (new booth + upgrades)
- Major Expenses: Booth \$80K, Sprinkler & equipment \$3–8K
- Key Milestones: 50% deposit, permits, facility prep, installation, final payment
- Weekly Tracking: Costs monitored cumulatively to ensure budget control



Project Risk Cost Analysis

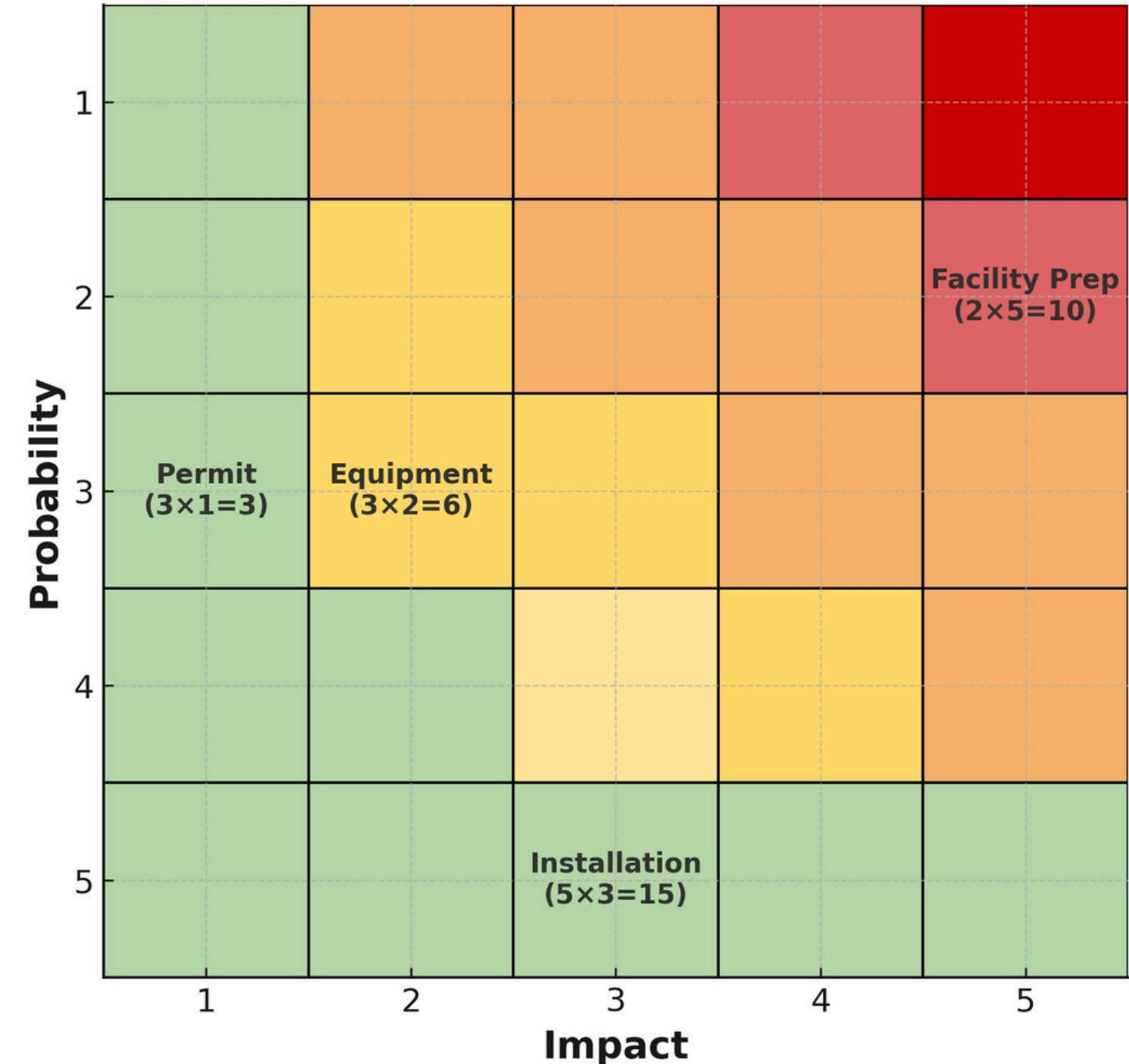
- **P50 (Most Likely Total Risk)**
 - Half of all simulations fall below this cost; represents the most likely total risk.
- **P90 (Conservative Estimate / 90% Confidence)**
 - 90% of simulations are below this cost; provides an upper bound for budgeting.
- **Recommended Contingency**
 - Set aside this amount to cover unexpected cost increases.
- **Takeaways**
 - Budgeting to P90 ensures risk-averse funding.
 - Histogram shows the spread of possible outcomes, helping visualize project uncertainty.



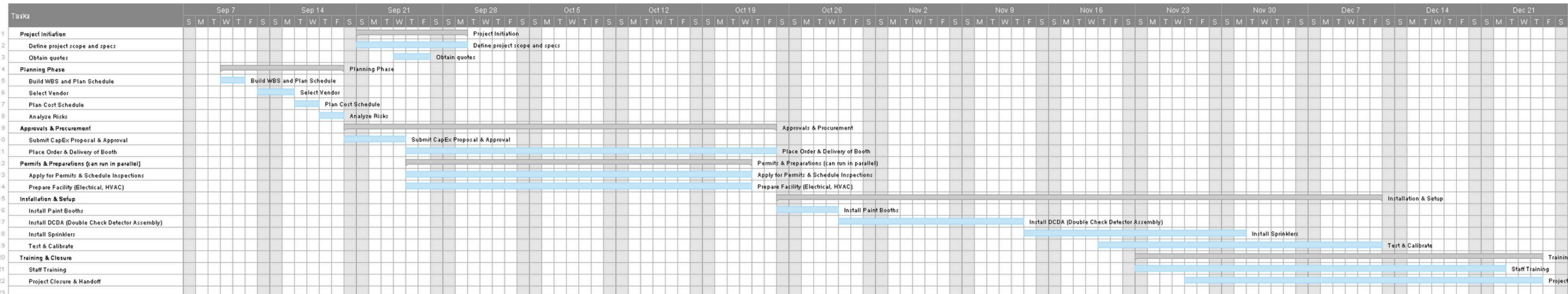
Risk Matrix Analysis

- Risks were ranked by Probability × Impact to identify critical focus areas.
- **Installation (5×3=15)** – Highest overall risk; high likelihood of site issues mitigated by buffer days.
- **Facility Prep (2×5=10)** – Low probability but high impact; proved accurate when Fire Marshal added DCDA requirement.
- **Equipment (3×2=6)** – Medium risk; potential vendor delay managed through close coordination.
- **Permit (3×1=3)** – Initially low risk but later escalated due to regulatory change.
- Matrix validation showed that Installation and Facility Prep were true high-impact stages, supporting the team's proactive contingency planning.

Assigned Risk Priority Matrix - Paint Booth Installation



Updated Schedule Snapshot



- The project schedule was re-baselined to reflect the Fire Marshal's added DCDA requirement for the sprinkler system.
- A new task – Install DCDA (Double Check Detector Assembly) – was inserted under Installation & Setup between Install Paint Booths and Install Sprinklers.
- Dependent activities (Install Sprinklers, Testing & Calibration, Training, and Closure) were shifted forward by approximately 15–19 days.
- The revised project completion date is now Nov 27, 2025 (original: Nov 8, 2025).
- Overall schedule variance: +19 days (\approx 2.5-week extension).

Project Risk Cost Analysis (Post Obstacle)

- **Context**

- Fire Marshal safety requirement added an obstacle:
- Sprinkler + DCDA vs Dry Chemical System

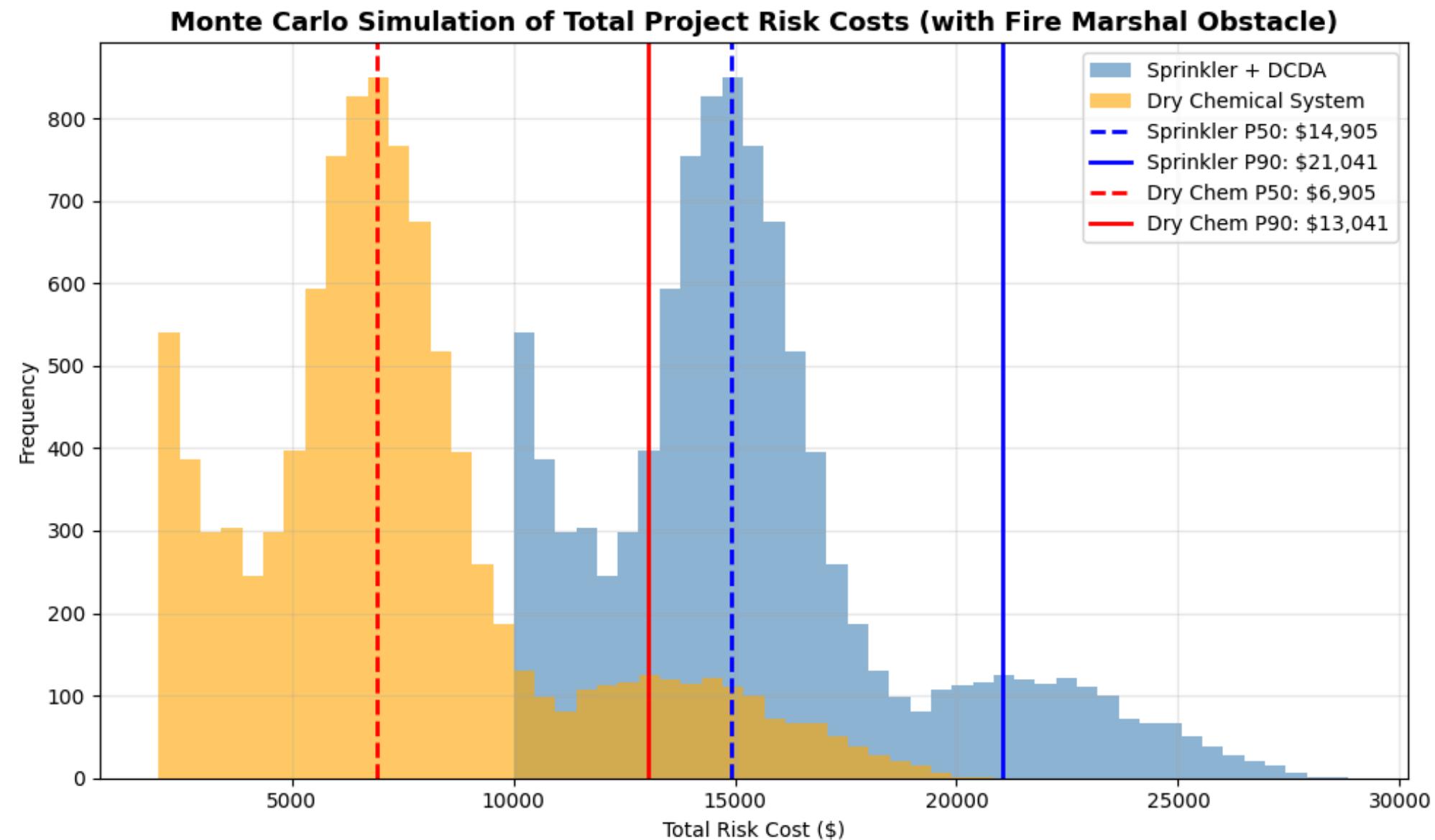
- **Monte Carlo Key Metrics**

- P50 (Median): Most likely total risk cost
- P90 (Conservative): Covers 90% of scenarios → used for contingency planning
- Contingency = P90 - P50

- **Results Summary**

- Sprinkler + DCDA: P50 = \$X, P90 = \$Y → Contingency = \$Y-\$X, 15-day schedule impact
- Dry Chemical System: P50 = \$A, P90 = \$B → Contingency = \$B-\$A, 27-day schedule impact

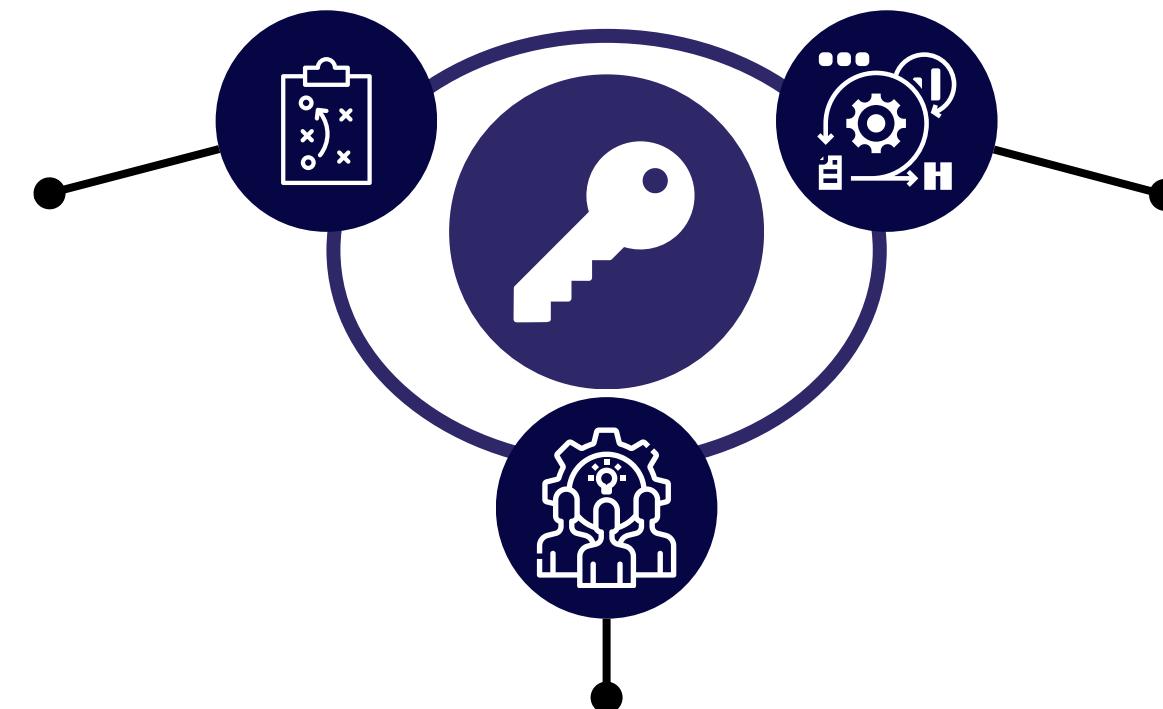
- **Recommendation:** Choose Sprinkler + DCDA → Lower P90, shorter schedule



Change Management Record (Fire Marshal DCDA)

Unexpected Event:

During the permitting phase, the Fire Marshal required installation of a Double Check Detector Assembly (DCDA) for the sprinkler system's backflow prevention. This new compliance scope was not part of the original plan and had to be completed before the final sprinkler permit could be approved.



Options Evaluated:

- Install DCDA : Additional cost of \$10,000 and 15 days of schedule impact.
- Switch to Dry Chemical Suppression System: Slightly lower cost but 27-day lead time for materials.
- The team analyzed both alternatives for schedule risk, cost, and operational readiness.

Decision & Impact:

The team selected the DCDA installation to minimize schedule disruption and maintain system reliability. This change added a new task under Installation & Setup, extending the project completion date to Nov 27, 2025 (+19 days) and increasing total project cost to \$430,000 (+\$10K).

Final Performance Report (EVM)

| Metric | Formula | Result | Interpretation |
|----------------------|------------------------|-------------|--------------------------|
| Planned Value (PV) | — | \$420,000 | Baseline |
| Actual Cost (AC) | — | \$408,000 | Slightly under spent |
| Earned Value (EV) | — | \$400,000 | Slightly behind schedule |
| CPI = EV ÷ AC | $400,000 \div 408,000$ | 0.98 | Slightly over budget |
| SPI = EV ÷ PV | $400,000 \div 420,000$ | 0.95 | Minor schedule delay |

Interpretation:

Cost variance: +2%

Schedule variance: +5%

Project within control limits and successfully delivered.

Lessons Learned & Reflection

What Worked:

- Strong communication between PM and stakeholders.
- Early risk analysis helped manage Fire Marshal surprise.
- Clear WBS and baseline simplified reforecasting.

What Could Improve:

- Build larger contingency buffer for regulatory changes.
- Speed up change approval workflow.

Key Takeaways:

- Adaptability under uncertainty is essential.
- Earned Value Management ensured transparency.
- Team collaboration and quick problem-solving led to project success.





Thank You

For Your Attention

