



San Francisco Office of the City Administrator

Improving Capital Project Delivery

Capital Planning Committee

January 13, 2025

Background & Context

Background

- Why this project now?
 - Widespread agreement among City leaders that capital project delivery could be improved
 - SFCTA recommended creating a CPMO within CAO, which we were uncertain about
- Comprehensive literature review
 - Reports specific to San Francisco
 - Look for citywide trends across all project types (big and small, vertical and horizontal)
 - Broader industry reports
 - While some aspects are unique to SF, many are common across the nation and world
- Incorporate practitioner perspective
 - Practitioners included project managers, engineers, architects, and construction managers from the Airport, MTA, Port, Public Works, PUC, and Rec Park
 - Summer 2023: survey received 449 responses (approximately 50% response rate)
 - Fall 2023: 23 focus group meetings attended by 242 practitioners
- Rationale
 - Create a comprehensive roadmap by knitting disparate perspectives together
 - Many solutions require individual behavior change rather than top-down interventions
 - Begin building trust with the individual practitioners on whom success is predicated

Background



City Context
















- Six departments have construction contracting authority per Administrative Code Ch. 6
 - Airport, SFMTA, Port, Public Utilities, Public Works, Recreation & Park
 - City Administrator's Office does not have construction contracting authority
 - Authority has devolved over time; elements of PUC, MTA, RPD, and all of DPW used to be under the CAO (not to mention DBI and DPH)
- Two types of projects
 - Horizontal/ infrastructure
 - Vertical/ buildings
- The City delivers a high volume of projects
 - Many are delivered without incident
 - Employees are proud of the work they do
- Well-publicized debacles erode public confidence and staff morale
 - Most recently: Van Ness BRT, toiletgate, L- Taraval

Citywide Findings

Most Realistic Goals & Values

How realistic or achievable are the following goals?	Average Score	% Unrealistic or Very Unrealistic	% Neutral	% Realistic or Very Realistic	Rank
Improved communication	71	7%	21%	72%	1 of 18
Project teams that are trusting, proactive, collaborative, and good at problem-solving	71	7%	18%	75%	1 of 18
Stronger, more collaborative relationships with contractors	68	9%	24%	67%	2 of 18
Plan and select the best, most impactful projects	67	9%	28%	63%	3 of 18

Least Realistic Goals & Values

How realistic or achievable are the following goals?	Average Score	% Unrealistic or Very Unrealistic	% Neutral	% Realistic or Very Realistic	Rank
Projects come in under budget	47	 41%	 24%	 35%	14 of 18
Projects delivered faster	46	 41%	 28%	 32%	15 of 18
Projects come in under schedule	45	 44%	 25%	 31%	16 of 18
Fewer legislative and regulatory barriers	43	 45%	 28%	 27%	17 of 18
Projects delivered for less money	39	 55%	 23%	 22%	18 of 18

Biggest Problems

Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
It takes too long to hire staff and consultants	86	2%	12%	86%	1 of 41
Project staffing and workload assignments are inconsistent and inadequate. Some people work on more projects than they can provide responsible care for.	78	3%	19%	78%	2 of 41
Making decisions involving more than one department is particularly difficult	76	3%	18%	79%	3 of 41
Low bid contracting does not save money	72	8%	25%	67%	4 of 41
External coordination (with other departments) needs improvement	72	9%	20%	71%	5 of 41
We don't do enough due diligence during the planning phase (i.e. surveying, potholing, other exploratory work). Spending more money on these activities early on would save money later on.	71	12%	19%	69%	6 of 41
Projects are held up by regulatory bodies. It takes too long for permits to be issued or to obtain other approvals.	70	9%	27%	63%	7 of 41

Smaller Problems

Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
Using the "best value" procurement type is overly complicated and too much work	52	18%	57%	24%	37 of 41
Soft costs are too high / make up too large a share of overall project budgets	51	26%	46%	29%	38 of 41
I do not feel prepared to work on a project with an alternative delivery contract (i.e. design-build, CM/GC)	50	29%	39%	32%	39 of 41
We don't adequately capture progress during construction	49	31%	44%	26%	40 of 41
It is inefficient to have engineers and architects in six different departments	47	36%	37%	27%	41 of 41

Most Favored Solutions

Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
Review and address City permitting agencies' staffing levels, process inefficiencies, and prioritization for and within public projects	74	5%	25%	69%	1 of 35
More contract awards should consider technical merit/quality in addition to cost (move away from low bid)	73	8%	22%	70%	2 of 35
Systematically evaluate contractor performance and use that information in future contract award decisions	73	6%	25%	69%	3 of 35

Least Favored Solutions

Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
Provide project funding in smaller chunks, tied to specific milestones, to make sure the estimated scope, schedule, and budget remain aligned. Cancel projects that are no longer cost effective.	50	35%	28%	37%	33 of 35
Establish an independent management group to review citywide project performance, monitor adherence to policies and procedures, and/or mediate inter-departmental conflicts	41	43%	35%	23%	34 of 35
Establish a separate agency or new governance structure for delivering large, multi-jurisdictional projects and to cut across department silos	37	51%	30%	19%	35 of 35

Oversight, Governance, Structure

City Structure

Interdepartmental Collaboration & Coordination

Processes

Technology, Data, Reporting, and Oversight

Central Project Management Office (CPMO)

Regulatory

City Structure

- SF has six departments with construction contracting authority, in-house staff, and separate oversight commissions
- Impacts: difficulty prioritizing citywide outcomes, achieving shared visions and decisions, or following standardized processes
- Lack of cohesive oversight means no focused accountability for improvement or standardization efforts and inter-departmental collaboration
- Staff sentiments are mixed
 - Assignment of designers across departments seen as the least important problem

Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
It is inefficient to have engineers and architects in six different departments	47	36%	37%	27%	41 of 41

- Some practitioners resent having to rely on an in-house workforce due to cost and speed concerns while others see it as important for building a depth of experience and expertise
- Challenges
 - City Charter, tradition and culture
 - Competing priorities- individual services (i.e. transit, sewer) prioritized over citywide capital project delivery

City Structure

Survey comment:

*“Ownership of infrastructure throughout the city differs leading to complexity during design and delays during maintenance. For example, PUC owns a light pole, MTA owns the [traffic] signals, DT owns equipment on the pole, [and] PW is responsible for the concrete around the pole”
– survey comment from an engineer*

Interdepartmental Collaboration

- Regardless of funding and scope, capital projects require the involvement of multiple departments, collaboration and coordination between which can be inadequate
- Impacts: schedule delays, conflict, and inefficiently planned projects
- Survey participants identified this as a problem but are relatively skeptical about improvements

Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
Making decisions involving more than one department is particularly difficult	76	3%	18%	79%	3 of 41
External coordination (with other departments) needs improvement	72	9%	20%	71%	5 of 41
The City suffers from a lack of project coordination; adjacent projects are planned independently and agencies miss important opportunities to coordinate	67	14%	27%	60%	15 of 41
How realistic or achievable are the following goals?	Average Score	% Unrealistic or Very Unrealistic	% Neutral	% Realistic or Very Realistic	Rank
Break through silos and make decisions like we are one entity rather than separate departments or divisions. Decision-making should be guided by city-wide concerns.	55	28%	28%	44%	13 of 18

- Challenges
 - Federated department structure and independent funding (conflicting goals and competing priorities)
 - Culture (defensiveness, adversarial)

Interdepartmental Collaboration

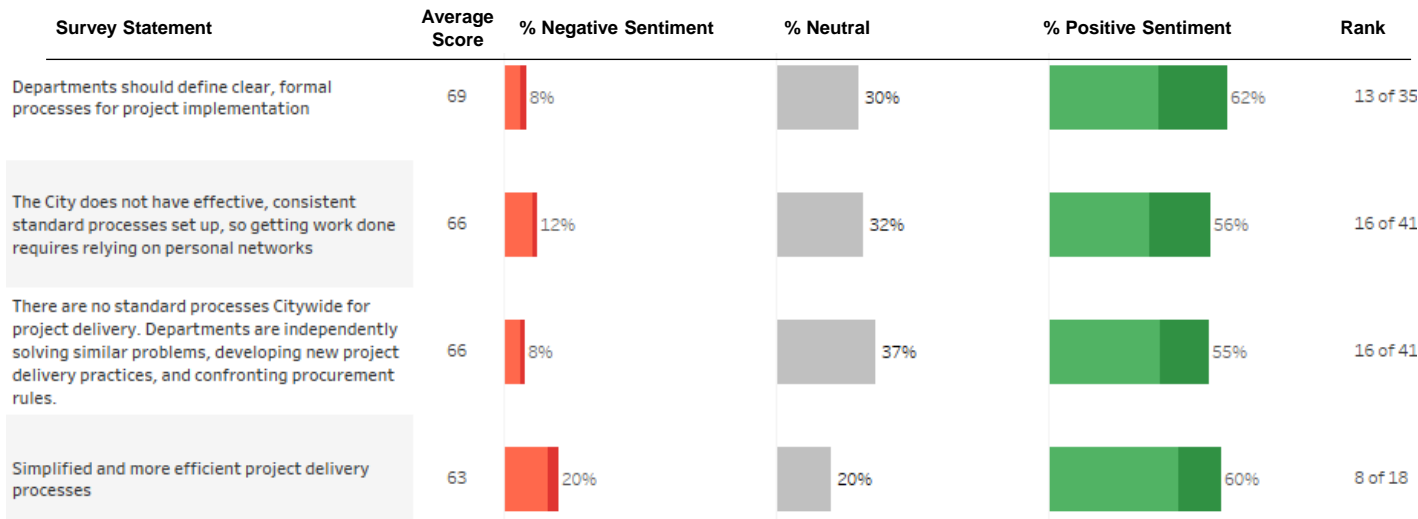
Survey comment:

The City should be “culture building to a point where every department understands that the public doesn't care which department we work for, and that the City Family failed as a whole to deliver.”

– Public Works manager

Processes

- Processes for delivering capital projects can be both ineffective and inconsistent across City departments.
- Impacts: inefficiencies and unnecessary complexity
- Practitioners see a need for more flexible procedures differentiated by project type, but it isn't a high priority (top ~40%)



- **Challenges**

- Procedures may be nonexistent, not followed, and/or overly cumbersome, inflexible, and not regularly updated

Processes

Survey comment:

*“it is difficult to parse out how many problems are rooted in poor adherence to existing policies and procedures as opposed to a lack of sufficient guidance. The bulk of problems that I have dealt with relate to personalities more than poor structure, guidance, or oversight within the organization”
– Public Works employee*

Technology, Data, & Reporting

- Availability of tools and information to manage and deliver projects, measure success, and identify areas for improvement
- Impacts: work is less efficient, decisions are made with imperfect or incomplete information, and oversight is less effective
- Practitioners are interested in improvements but feel burdened by current reporting requirements and skeptical of citywide software and oversight

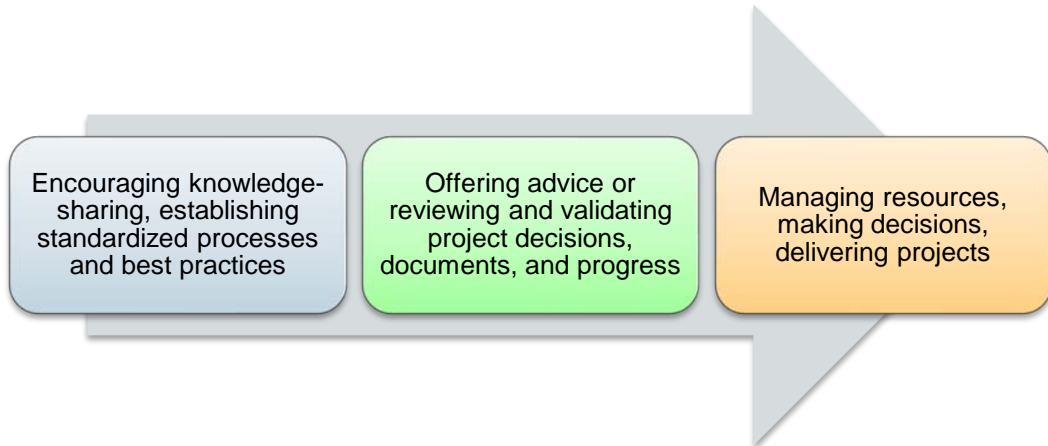
Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
Project reporting requirements are inconsistent, overly burdensome, and not useful	65	8%	38%	54%	17 of 41
There is no consistent project data available for things like decision-making or trend analyses. We cannot compare projects' performance.	63	8%	43%	48%	21 of 41
Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
Build a database of past project costs to be used for budgeting purposes - to be able to query average cost per square foot, design fees, etc.	69	11%	27%	62%	10 of 35
Invest in citywide project software solutions, regularly use said software to maintain accurate and real-time project information, and produce project reports for oversight	61	20%	30%	50%	28 of 35

- **Challenges**

- Previous capital project systems have been more of a hindrance than a help
- Difficulty adopting comprehensive systems in a government setting
- Culture, resistance to performance measurement and oversight

Central Project Management Office













- A CPMO is an internationally-inspired form of governance to transcend current organizational shortcomings
- Can take different forms and encompass various functions:



- **Impact**
 - Minimize competing priorities from broadly-focused agencies
 - Standardization
 - More comprehensive application of lessons learned across projects
 - Reverses decades of precedent
 - Separation from operations and maintenance

Central Project Management Office

- Practitioners become less interested as CPMO authority increases
- Benefits of a neutral third-party versus another layer of bureaucracy

Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
A forum should be created for Chapter 6 departments to share notes, construction best practices, and learn from each other's project experiences	65	 12%	 34%	 54%	21 of 35
Establish a resource center to set citywide standards and processes; help with knowledge transfer between delivery agencies; serve as a mediator for inter-departmental conflicts; and/or retain specialized, objective advisors and consultants to be made available to supplement the expertise of project staff	61	 16%	 35%	 49%	27 of 35
Establish an independent management group to review citywide project performance, monitor adherence to policies and procedures, and/or mediate inter-departmental conflicts	41	 43%	 35%	 23%	34 of 35
Establish a separate agency or new governance structure for delivering large, multi-jurisdictional projects and to cut across department silos	37	 51%	 30%	 19%	35 of 35

Regulatory

- Impacts: schedule delays and cost increases
- Practitioners see this as a top area for improvement (top 5%) but understand change may be difficult

Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
Review and address City permitting agencies' staffing levels, process inefficiencies, and prioritization for and within public projects	74	5%	25%	69%	1 of 35
How realistic or achievable are the following goals?	Average Score	% Unrealistic or Very Unrealistic	% Neutral	% Realistic or Very Realistic	Rank
Fewer legislative and regulatory barriers	43	45%	28%	27%	17 of 18

- **Challenges**

- Legislation is passed for laudable goals but not re-assessed for efficacy and impact
- Lack of incentives for regulators

“These regulations and hoops that need to be jumped through end up costing taxpayers more money” – SFMTA project manager ²³

People

Hiring & Staffing

Team Culture & Soft Skills

Training

Hiring and Staffing

- Inadequate staffing to meet demands and challenging hiring processes
- Impacts: schedule delays and cost increases
- Practitioners' top concern (top 5%), frequently cited as a barrier to improvement

Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
It takes too long to hire staff and consultants	86	2%	12%	86%	1 of 41
Project staffing and workload assignments are inconsistent and inadequate. Some people work on more projects than they can provide responsible care for.	78	3%	19%	78%	2 of 41

- Challenges
 - City human resources rules
 - Public sector recruitment challenges
 - Industry trends regarding efficiencies

“less staff = less time thinking = hastily slapped together projects = more money spent correcting later during construction or claims”
 – a construction manager

Team Culture and Soft Skills

- Competing goals and built-in tension between parties mean conflict is traditionally engrained in capital project delivery
- New paradigm: collaboration, trust, integration, respect
- Impacts: cost increases, poor problem-solving
- Practitioners see this as the most realistic area of improvement (top 5%), requesting targeted training and identifying the importance of leadership

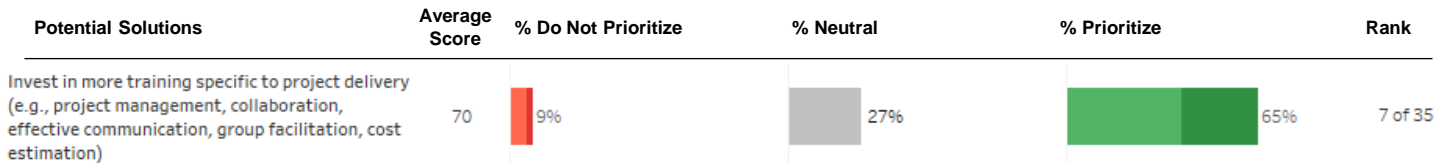
How realistic or achievable are the following goals?	Average Score	% Unrealistic or Very Unrealistic	% Neutral	% Realistic or Very Realistic	Rank
Improved communication	71	7%	21%	72%	1 of 18
Project teams that are trusting, proactive, collaborative, and good at problem-solving	71	7%	18%	75%	1 of 18

- Challenges
 - Culture, prior practices
 - High stakes situations
 - Partnering is only during construction and hasn't been universally embraced

“even a straightforward and simple project can become a headache if the project team does not get along” – a construction manager

Training

- Availability of training specific to capital projects is inconsistent
- Impacts: project budget and schedule performance, costs, coordination and communication
- Popular with practitioners (top 20%): general procedures, team culture and soft skills, and content tailored to their industry and context



- Challenges
 - Federated department structure, broad focus
 - Bureaucratic approval processes
 - Format (immersive, learning by doing preferred over slide deck in a conference room)

“it’s ridiculous that resources from tuition reimbursement sources are spent on the same types of resources repeatedly where if there was a central location for all City personnel to reference, less money would be spent, and all would have access to all the information” – a PUC engineer

Project Management

Decision-Making

Lessons Learned

Cost & Schedule Estimates

Decision-Making

- Making choices about how to proceed or solve a problem. Requires appropriate timing and stakeholder engagement.
- Impacts: schedule delays and cost increases, efficiency, project ownership
- Practitioners are most concerned about multi-departmental decisions, timeliness, and political interference.

Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
Making decisions involving more than one department is particularly difficult	76	3%	18%	79%	3 of 41
There is too much political interference in project designs, day-to-day decisions, and/or strategic decisions	67	8%	35%	57%	13 of 41
How realistic or achievable are the following goals?	Average Score	% Unrealistic or Very Unrealistic	% Neutral	% Realistic or Very Realistic	Rank
Decision-making that is timely and coordinated	64	16%	23%	60%	5 of 18
Break through silos and make decisions like we are one entity rather than separate departments or divisions. Decision-making should be guided by city-wide concerns.	55	28%	28%	44%	13 of 18

- Challenges
 - Top-down interference
 - Federated department structure

Lessons Learned

- Reflecting, sharing, and documenting project experiences for use on future projects is inconsistent
- Impacts: cost savings, efficiencies, and staff training/onboarding
- What did we find from practitioners?
 - Top 20% of problems, with Rec Park and MTA most dissatisfied
 - Approach is inconsistent and primarily verbal
 - Follow-through on findings can be limited
 - Prior attempts at formalization were tied to key sponsors



















Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
Project lessons learned are not being clearly documented or shared widely enough	70	8%	26%	66%	8 of 41

- Challenges
 - Culture
 - Actual or perceived time and resource constraints

“In construction, we solve problems every day, one day after another, until the end of our project. Then we are on to the next project. Project teams rarely step back and reflect on what was learned from the project” – SF’s Partnering Field Guide

Cost & Schedule Estimates

- Two key measures of project success are on-budget and on-time delivery
- Impacts: predictability, minimizing disruptions, efficient allocation of funds
- Practitioners are skeptical improvements can be made (but estimating, planning, scope development and management, and contingency assumptions should be prioritized)

How realistic or achievable are the following goals?	Average Score	% Unrealistic or Very Unrealistic	% Neutral	% Realistic or Very Realistic	Rank
Projects come in under budget	47	 41%	 24%	 35%	14 of 18
Projects delivered faster	46	 41%	 28%	 32%	15 of 18
Projects come in under schedule	45	 44%	 25%	 31%	16 of 18
Projects delivered for less money	39	 55%	 23%	 22%	18 of 18
Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
The way project budgets are estimated needs improvement	67	 5%	 34%	 59%	13 of 41
Project budget contingency assumptions are too low	62	 10%	 43%	 48%	23 of 41

- Challenges: optimism bias, early uncertainties, lack of resources for planning and early estimates, and a lack of control (100% accuracy is unrealistic)

“it is an unwritten rule that it is better to get a hand slapped for running late and over-budget for an excusable issue rather than honestly account for risks and issues in the original planning and budgeting” – a construction manager

Contracting & Procurement

Procurement Methods

Contract Language & Requirements

Contractor Performance

Procurement Methods

- Hiring a general contractor to complete the construction work.
 - Design-Bid-Build Low Bid → Design-Bid-Build Best Value → CM/ GC → Design-Build
- Impacts: schedule and cost savings; team culture; type of contractors participating
- Popular area for change in both the literature and among practitioners (top 10%)

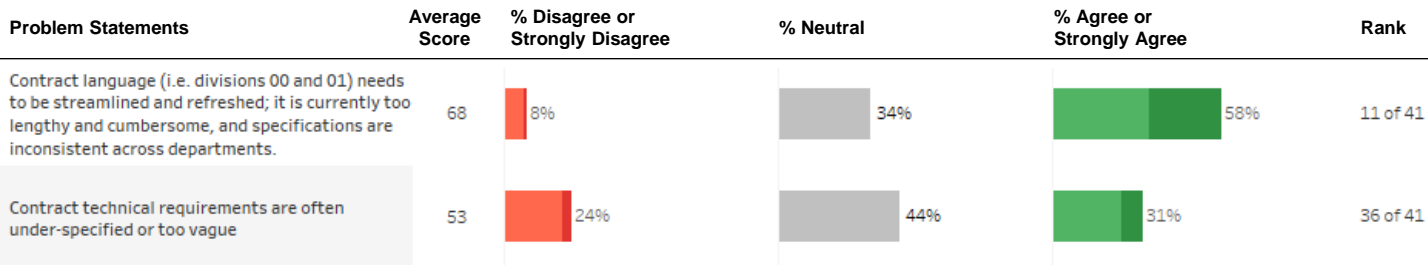
Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
Low bid contracting does not save money	72	8%	25%	67%	4 of 41

Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
More contract awards should consider technical merit/quality in addition to cost (move away from low bid)	73	8%	22%	70%	2 of 35
Develop an evaluation process to decide the best project delivery method (i.e. the best type of contract) for each project. Do not default to low bid.	72	10%	23%	67%	4 of 35

- Challenges
 - City readiness (practitioners and leadership)
 - Contractor education, sophistication
 - Evaluation is subjective and takes more time
 - Culture, willingness to change

Contract Language & Requirements

- Impacts: contractor quality and performance, schedule delays and cost increases
- Practitioners somewhat interested in streamlining (top 30%)



- Challenges
 - Ownership
 - Risk averse environment, exception-driven process

“Spec Divisions 00 and 01 are Frankenstein documents that are probably internally inconsistent, but no one knows because I don’t think any one person reads them all” – Port project manager

Contractor Performance

- Evaluating how well a contractor did their job and informing future contract awards
- Impacts: contractor caliber, quality
- Popular with survey respondents initially (top 10%), but not once details were shared

Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
Systematically evaluate contractor performance and use that information in future contract award decisions	73	6%	25%	69%	3 of 35

- Challenges
 - Release timing
 - Lack of authority and accountability
 - Fluid combinations of contractors, subcontractors, and personnel
 - Skepticism, limited buy-in

“If contractors are disqualified, they are disqualified; they shouldn’t be allowed to bid and then be found non-responsible. I would not want to make this call” – Public Works architect

Early Work, Planning, & Scoping

Project Selection

Stakeholder Engagement

Risk Management & Due Diligence

Project Selection







- Mindfully and methodically choosing the capital projects worthy of funding
- Impacts: scope changes, cost increases, schedule delays, mis-allocating our limited resources
- Practitioners see this as a realistic area to target for improvement, generally agree with the identified problems, but are less enthusiastic about the potential solutions

Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
We don't have sufficient resources for rigorous upfront planning and/or early cost estimating. Funding sources should be expanded and more time allotted for pre-planning efforts.	70	12%	21%	67%	9 of 41
Financial and political commitments to projects are made too early and we lock ourselves in too quickly. More time should be taken to evaluate and prioritize a project before fully committing to fund and deliver it.	68	9%	30%	61%	12 of 41
How realistic or achievable are the following goals?	Average Score	% Unrealistic or Very Unrealistic	% Neutral	% Realistic or Very Realistic	Rank
Plan and select the best, most impactful projects	67	9%	28%	63%	3 of 18

- What are the challenges?
 - Insufficient time and funding allocated planning before commitments are made
 - Decision-making based on political clout rather than objective metrics

Stakeholder Engagement

- Involving end users and maintenance staff or operators early and often
- Integrated project teams: bringing all team members together (including stakeholders) to jointly deliver a project through all phases
- Impacts: scope changes, cost increases, and schedule delays
- Practitioners are somewhat interested in creating integrated project teams (top 40%) but less concerned with stakeholder reviews (bottom 40%)

Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
Create more integrated project teams (bringing all stakeholders together as early as possible)	69	 8%	 31%	 61%	14 of 35
Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
Stakeholder reviews during design are inconsistent and/or inadequate	61	 16%	 38%	 46%	26 of 41

- Challenges
 - Culture, rush mentality
 - Stakeholder constraints

“control scope creep through better stakeholder engagement process” – Airport engineer

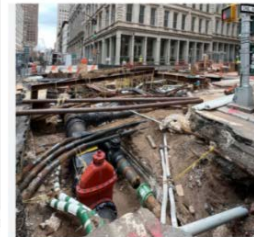
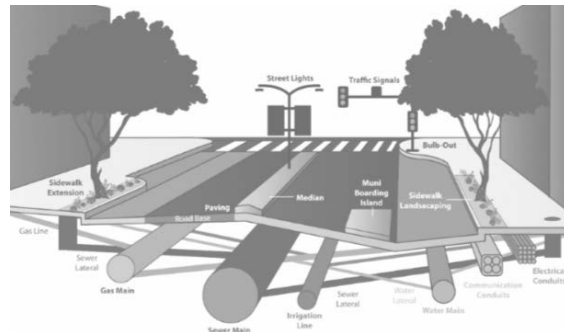
Due Diligence & Risk Management

- Identifying and evaluating project risks and taking action to minimize said risks
- Impacts: cost increases and schedule delays
- Practitioners are more concerned about due diligence than risk management (top 15% versus bottom 20%) – but have reasons for not doing more exploratory work

Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
We don't do enough due diligence during the planning phase (i.e. surveying, potholing, other exploratory work). Spending more money on these activities early on would save money later on.	71	12%	19%	69%	6 of 41
We insufficiently identify and manage project risks	57	19%	42%	39%	33 of 41

• Challenges

- Lack of time, money, and capacity for future hypotheticals
- Rational decision-making, cost-benefit analysis
- Culture
- Lack of as-builts
- Contracting challenges, regulatory restrictions



Design Phase

Constructability reviews

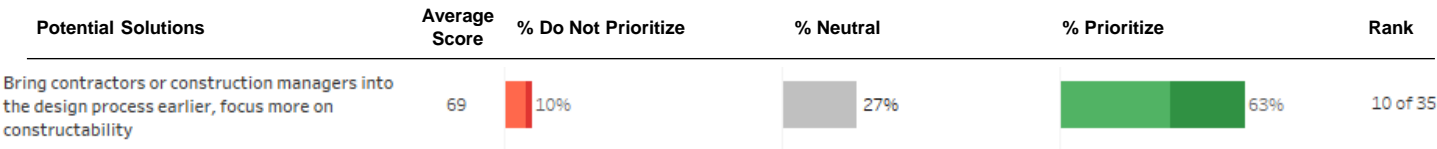
Last-minute changes

Standardization

Technology

Constructability Reviews

- Evaluating a project's design through a construction lens
- Impacts: cost and time savings, CM efficiency and effectiveness during construction
- Practitioners are in favor of bringing the construction perspective into design (top 30%)



- Challenges
 - Resource constraints
 - Timing of reviews, assignments, and turnaround expectations
 - Reception to feedback

“I would like to be brought into the project as early as possible, ideally with monthly updates on the design phase of the project” – PUC construction manager

Last-Minute Design Changes

- Introduction of additional features, tasks, or functionalities beyond the initially defined project scope during the later part of design or construction
- Impacts: cost increases, schedule delays, and deviation from original project goals
- Practitioners place this in the top 25% of problems

Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
There are too many last minute, unplanned design changes addressing new or different needs	69	9%	27%	64%	10 of 41




- Challenges

- Stakeholders (changed minds, inexperience, conflict resolution)
- General design issues
- Community concerns
- Some changes are legitimate

“You need to get to the right person early enough” – Port engineer

Standardization

- Design solutions that have been pre-defined, documented, and proven to be effective through previous implementations, allowing for consistent application across multiple projects or instances
- Impacts: cost increases and schedule delays
- Practitioners are relatively less interested (bottom 10% of solutions)




Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
Use more standardized designs	55	 28%	 32%	 40%	32 of 35

- Challenges
 - Time
 - Dissimilar projects
 - Aesthetic concerns

*“we should discuss consistent and repeatable processes and implementing design detail libraries that have gone through a rigorous QC/QA process”
– DPW architect*

Technology

- Tools such as Building Information Modeling (BIM), which digitally visualizes a project's design and serves as a collaborative platform for practitioners
- Impact: cost savings
- Practitioners are relatively less enthusiastic (bottom 10% of solutions)

Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
More use of Building Information Modeling (BIM) - even for infrastructure projects	55	 22%	 40%	 38%	31 of 35

- Challenges

- Cost
- Knowledge gaps
- Cost/benefit analysis for smaller projects

Construction Phase

Construction Phase

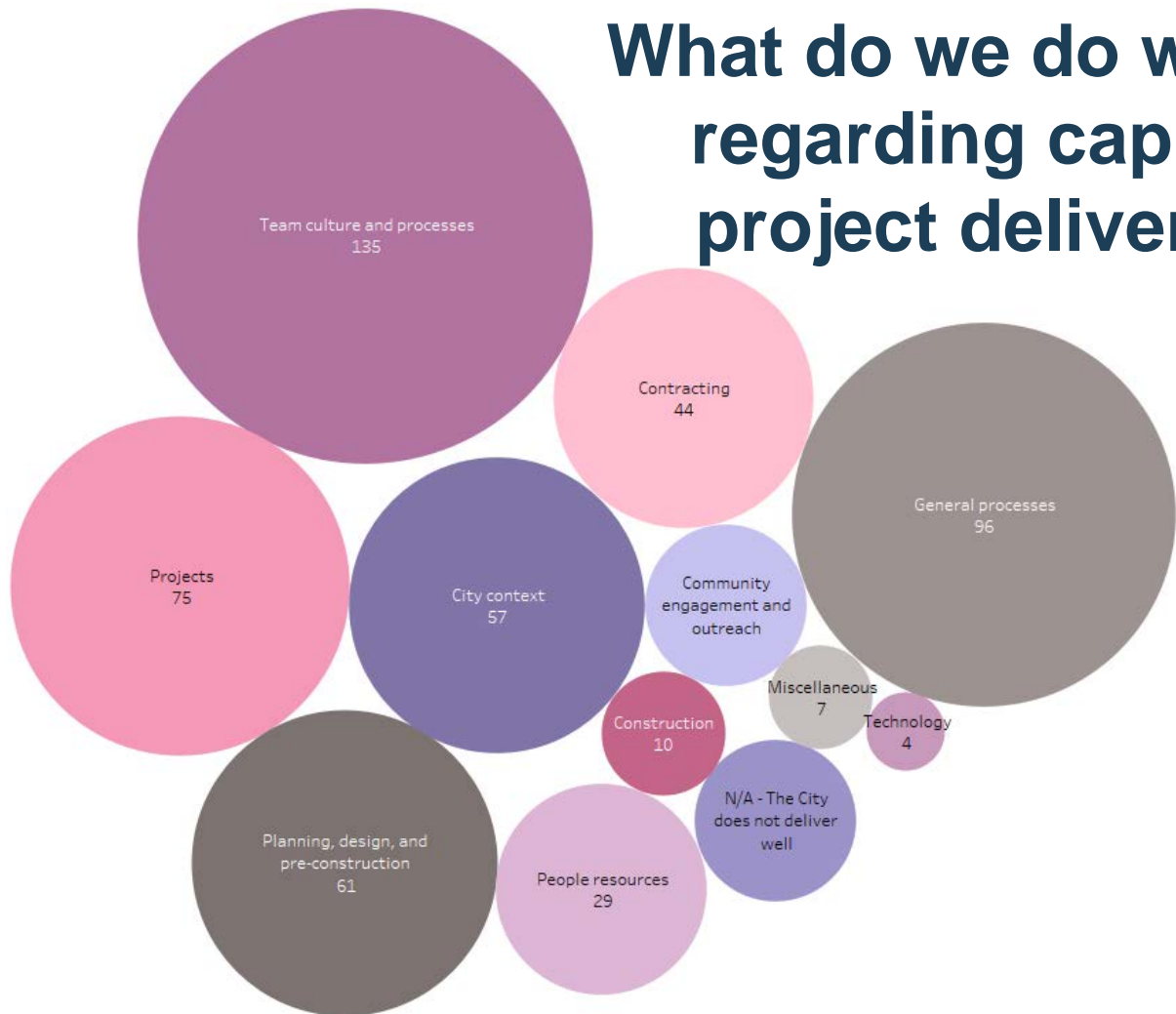
- The final major component of a project, when a contractor builds per the design. The City's influence is more limited than in earlier phases of work.
- Impacts: cost and schedule
- Practitioners are moderately interested in more collaborative problem-solving in the field between the City's construction managers and contractors (top 40%) but are not moved by construction's disruption on adjacent residents and business (bottom 20%)

Potential Solutions	Average Score	% Do Not Prioritize	% Neutral	% Prioritize	Rank
More consistently assign dedicated construction managers in the field to facilitate collaborative problem resolution	69	8%	29%	63%	15 of 35
Problem Statements	Average Score	% Disagree or Strongly Disagree	% Neutral	% Agree or Strongly Agree	Rank
Businesses and residences adjacent to construction projects suffer from construction-related disruption. Communication with these stakeholders and contractor housekeeping should be improved.	56	19%	42%	39%	34 of 41

- Challenges
 - More CM training
 - PMs stepping back

Conclusion

What do we do well regarding capital project delivery?



Conclusion



Questions?