Capital Delivery Review

Final Report

Prepared for the City of Toronto

--

March 2025

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1. Executive Summary

In April 2024, the City of Toronto (the City) engaged KPMG LLP (KPMG) to identify recommendations to improve the delivery of Infrastructure Services' capital program. This report presents our findings.

Infrastructure Services manages one of the largest capital programs in Canada. In 2025, the Service Area will spend approximately $2.2 billion on capital projects, an increase of more than 50% in the last ten years.[1] That number is expected to grow as the City makes critical investments in growth-enabling infrastructure while continuing to address its significant state of good repair backlog.

KPMG's review focused on four Divisions within Infrastructure Services: the City's primary capital delivery agent, Engineering & Construction Services (ECS), and its three primary asset owner clients, Toronto Water, Transportation Services, and Solid Waste Management Services (SWMS).[2] The three asset owning Divisions account for approximately 40% of the City's nearly $60 billion 10-year capital plan.[3] Our scope included an analysis of the full capital project lifecycle: design, procurement, project management, and delivery as well as community engagement and issues management activities.

Current State Assessment: Systems Not Aligned to Scale

Infrastructure Services has a mature capital delivery program. Strengths identified through our review include:

- On-time, on-budget delivery of the majority of capital projects included in our scope.[4]
- Several examples of leading practice, including project phasing, project charters, and foundational process documentation.
- A long-term view of capital projects.
- The implementation of new technology systems to support effective delivery, such as *Trimble Unity.*
- Recent and ongoing capital delivery improvement initiatives, including internal and external reviews as well as the establishment of a new Strategic Capital Coordination Office (SCCO).

At the same time, our review identified significant challenges impacting the effectiveness and efficiency of Infrastructure Services' capital delivery program.

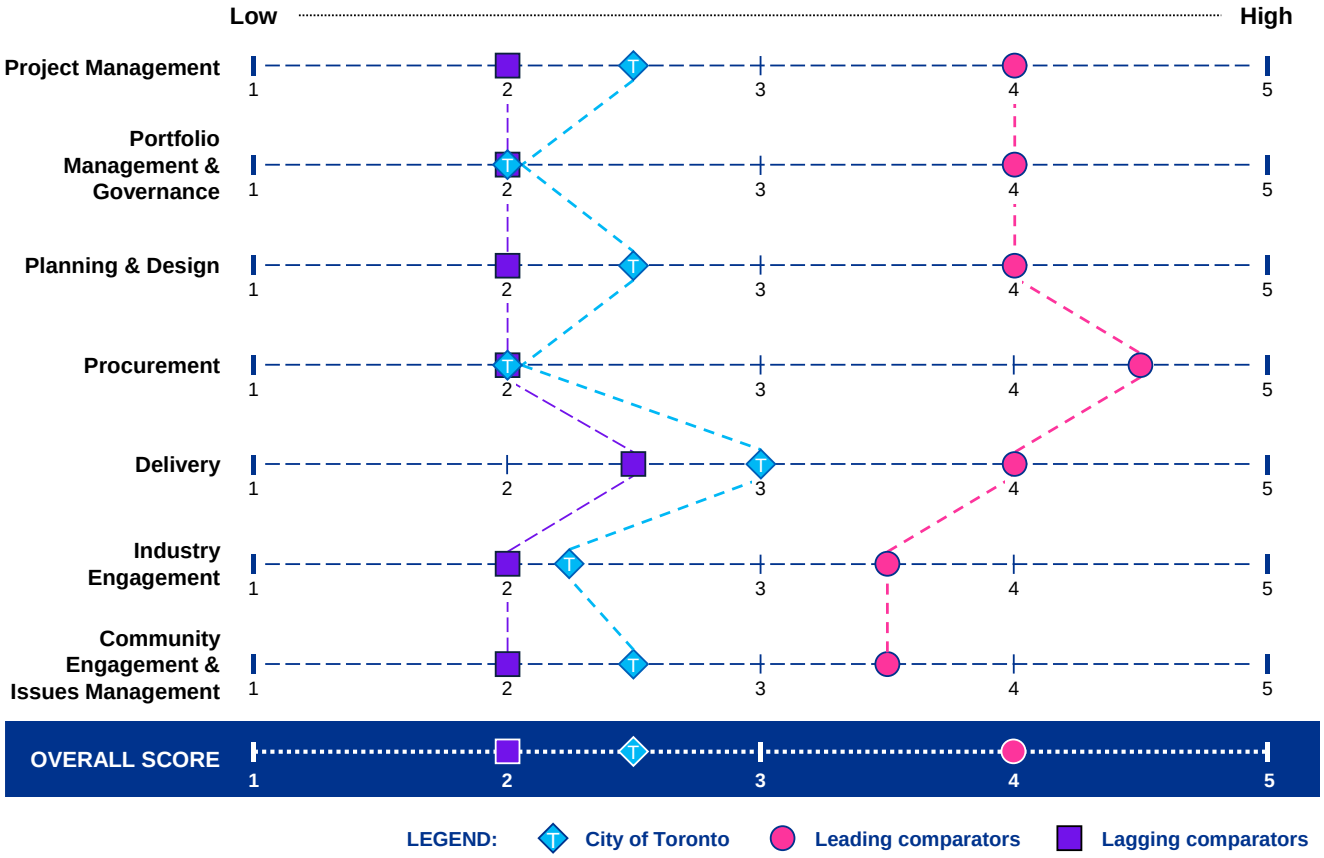
The systems that support capital delivery – processes, practices, procedures, structures, tools – are no longer adequate given the program's growing scale and complexity. The result is an increasingly inconsistent approach to delivery that is negatively impacting performance and, more broadly, confidence in the City's capacity to deliver its program.

Figure 1 presents our assessment of Infrastructure Services' capital delivery performance across each project lifecycle phase. Infrastructure Services consistently scored between a 2 and 3, slightly

[1] Information provided by the City based on the 2025 City Council-approved capital budget.
[2] Unless otherwise noted, in this report the term Infrastructure Services refers to these four Divisions.
[3] Information provided by the City based on the 2025 City Council-approved capital budget.
[4] Our review included an assessment of 30 capital projects from the four in-scope Divisions. See Section 2 for additional information.

ahead of lagging comparators but behind industry leaders. This is a Service Area-wide evaluation and individual Divisions may have scored higher or lower in particular areas.

Figure 1: Capital Delivery Performance Assessment



The core gap identified through our work is an effective project management framework. Each Division included in our scope has some form of project management framework in place; however, they are not integrated across Infrastructure Services, used inconsistently, and lack many of the core elements required to support a capital program on the City's scale and complexity, including stage gates, project categorization, and effective quality assurance controls.

Additional challenges identified through our research include:

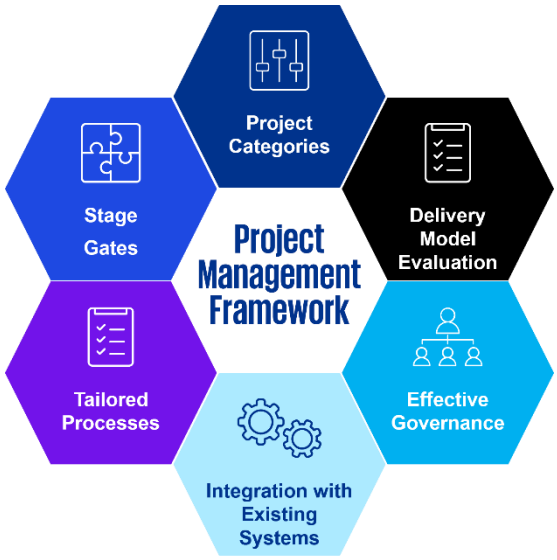
- Coordination and integration across Divisions, including design, procurement, and delivery.
- A generally one-size-fits-all approach to project delivery, predicated on the design-bid-build delivery model.
- Inadequate delegation of authority for project-related decisions, including procurement and project changes.
- Dated procurement processes, including challenges related to time-to-award, risk-sharing, the Bid Award Panel, single-stage tendering, and vendor performance evaluation.
- Inconsistent, often ineffective, processes, practices, and document management through all stages of design and construction within and across capital delivery groups.
- Unclear roles and responsibilities, particularly for community engagement and issues management activities.

Recommendations: An Effective Project Management Framework

This report identifies 31 recommendations for consideration by Infrastructure Services to address the gaps impacting performance and help ensure that it can successfully deliver an increasingly large and complex portfolio of projects.

Our primary recommendation is the development of an effective, enterprise-wide project management framework for capital projects, including:

Figure 2: Project Management Framework



- Comprehensive stage gates to enhance decision-making, accountability, and coordination.
- Project categorization by risk and complexity to enable controls and approaches that can be tailored to project needs.
- Effective governance aligned to project phases and categories.
- Formal delivery model evaluation to help identify the best model for different types of projects, including approaches for internal project delivery (i.e., with City resources) and external project delivery (i.e., with third-party resources).
- Standard processes, documentation, and reporting to improve consistency.
- A tailored approach to community engagement and issues management built on clearly defined roles and responsibilities.

Alongside the development of an effective project management framework, we have also identified supporting recommendations across each phase of the project lifecycle, including:

- Effective delegation of authority to empower Project Managers and Division Heads and support more effective decision-making.
- Streamlined procurement and improved vendor qualification processes to enable faster awards, enhance industry participation, and enable more effective vendor performance evaluations.
- New and enhanced processes to address gaps, including business case development, project chartering, quality control for internal and external design work, and scope and design changes.
- Improved contract and claims management.
- More effective industry engagement, including an industry-facing project pipeline and additional engagement mechanisms.

Taken together, these recommendations will help Infrastructure Services to:

- Improve the efficiency and effectiveness of its capital delivery program.
- Increase market interest and participation in City projects, reducing cost and risk.
- Strengthen project management and capital program delivery capabilities.

See page 6 for a summary of our recommendations. Additional details are included in Section 3.

Implementation Considerations: Building the Foundation

Successfully implementing the recommendations included in this report will take significant time and effort, including:

- Executive-level sponsorship and regular oversight.
- Dedicated resourcing from Infrastructure Services to support planning, delivery, and progress reporting.
- Effective governance that integrates existing improvement initiatives.
- Engagement with staff to ensure that implementation sticks and is grounded in day-to-day delivery.
- Engagement with industry to ensure implementation is aligned with market realities.

Page 8 presents a preliminary implementation schedule. It is based on a four-year implementation window and meant as a starting point for consideration by the City.

Successful implementation will also require interdivisional alignment with existing business improvement initiatives, specifically the Capital Delivery Improvements Project and the SCCO, which are currently developing aspects of the recommendations included in this report. As an immediate next step following the completion of this report, Infrastructure Services should develop an integrated work plan and appropriate governance to ensure these transformation initiatives are harmonized, identify opportunities to accelerate implementation based on work already completed, and reduce the risks associated with parallel projects.

While full implementation will take time, Infrastructure Services can demonstrate progress in the near-term. Incremental improvements will build a strong foundation for future success. The implementation schedule identifies several early actions that can be realized within six months:

- Modernizing delegations of authority.
- Developing more effective project charters.
- Implementing project outcome evaluations and strengthening lessons learned.
- Establishing effective deadlines for scope and design changes.
- Accelerating and broadening the implementation of *Trimble Unity*.
- Resetting the City's relationship with industry.
- Strengthening and applying tools to enhance contract delivery.
- Expanding community engagement and issues management tools.

These near-term recommendations will help demonstrate tangible benefits for staff, industry, and the public.

In addition to these actions, we anticipate that Infrastructure Services can develop a draft project management framework including stage gates and project categories within six months and begin testing it on a select number of capital projects.

How to Read this Report

The findings included in this report are based on an analysis of the following sources of information:

- A review of existing practices and procedures, including 20 data sets and 140 documents.
- A detailed assessment of 30 capital projects delivered by Infrastructure Services, including more than 1,000 project documents and interviews with associated Project Managers.
- Engagement with more than 100 City staff from six Divisions, including Project Managers, Managers, Directors, and Division Heads.
- Engagement with more than 80 industry representatives, including engineering consultants, contractors, and industry associations.
- Leading practice research of six comparator municipalities and infrastructure delivery agencies.
- A review of previously completed City studies, including the Capital Delivery Improvements Project.
- Workshops with more than 40 City staff to test and refine improvement opportunities.
- KPMG leading practice related to capital program delivery.

This report has two sections following this executive summary:

- Section 2 presents the project background.
- Section 3 presents our detailed recommendations.

Additional supporting material is included in the appendices:

- A current state assessment of Infrastructure Services' capital program delivery (Appendix A).
- A maturity assessment of Infrastructure Services' capital program delivery against leading and lagging comparators (Appendix B).
- Responses to the City Council and Committee motions related to this report (Appendix C).
- Supporting materials related to delivery models, including draft selection criteria (Appendix D).
- A draft construction contractor code of conduct (Appendix E).
- A list of documents and data reviewed as part of our work (Appendix F).
- A list of City projects reviewed as part of our work (Appendix G).
- A list of individuals and organizations engaged through our review (Appendix H).

Recommendations: Overview

Table 1, below, presents a summary of our recommendations. Additional detail about each recommendation is included in Section 3.

Table 1: Recommendations Summary

#	Recommendation
	Project Management
1	Develop and implement an effective enterprise-level project management framework
2	Establish an enterprise-level governance structure to improve oversight and accountability
3	Develop a stage gate process to enhance decision-making and oversight
4	Categorize projects by risk and complexity to enable tailored controls and delivery approaches
5	Develop and implement a project charter for all capital delivery projects
6	Establish a “Three Lines of Defence” oversight model to better manage risk and improve performance
7	Establish a formal process for evaluating project outcomes
	Portfolio Management & Governance
8	Update project approval thresholds and authority levels
9	Conduct a staff resourcing assessment of Infrastructure Services’ capital delivery groups
10	Update portfolio-level processes to align with the proposed project management framework
	Planning & Design
11	Use preliminary project planning and design meetings to integrate key stakeholder groups earlier in the project lifecycle
12	Standardize project design processes and align with stage gates to improve the consistency and quality of project design
13	Establish a more rigorous, standard project business case process to support capital projects
14	Enhance the QA/QC process for design work
15	Enhance scope and design change management processes
	Procurement
16	Develop a delivery model selection framework
17	Update solicitation award processes and authorities
18	Refresh project qualification requirements

#	Recommendation
19	Integrate existing vendor performance evaluation tools into the proposed project management framework
20	Consider developing a construction contractor code of conduct to help reduce the disruptions associated with construction activity
21	Establish a target timeline or “time-to-award” standard
22	Consider aligning procurement cycles to the construction season
23	Consider additional performance incentives
24	Standardize contract documents, terms, conditions, and language for capital projects
	Delivery
25	Implement an enterprise-wide project management information system across capital delivery
26	Establish and incorporate clear, standard requirements and enhance in-field decision making for on-site inspection and contract administration
	Industry Engagement
27	Develop and publish an enhanced industry-facing project pipeline
28	Expand industry engagement mechanisms
	Community Engagement and Issues Management
29	Embed community engagement and issues management practices into the recommended project management framework
30	Consider consolidating community engagement and issues management resources into area-based teams
31	Expand and enhance the City’s community engagement tools

Preliminary Implementation Schedule

Figure 3 shows an estimated timeline for the recommendations included in this report. Bolded recommendations are potential quick wins that can be delivered within six months.

Figure 3: Preliminary Implementation Schedule

Recommendation	2025				2026				2027				2028			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project Management																
1. Project management framework																
2. Governance structure																
3. Stage gate process																
4. Project categorization																
5. Project charter																
6. “Three Lines of Defense” oversight model																
7. Project outcome evaluation																
Portfolio Management & Governance																
8. Update approval thresholds																
9. Staff resourcing assessment																
10. Update portfolio-level processes																
Planning & Design																
11. Integrate key stakeholders																
12. Standard project design process																
13. Standard project business case processes																
14. Enhanced design QA/QC																
15. Enhanced scope/design change management																
Procurement																
16. Delivery model selection framework																
17. Solicitation award processes and authorities																
18. Project qualification requirements																
19. Vendor performance evaluation framework																
20. Construction contractor code of conduct																
21. Target “time-to-award” standard																
22. Align procurement cycles to construction season																
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30. Consider consolidated area-based teams																
31. Expand community engagement tools																

2. Background & Overview

In April 2024, the City engaged KPMG to conduct a review of Infrastructure Services' approach to capital delivery. The work was co-led by the Chief Engineer, ECS, and the Chief Procurement Officer, Purchasing & Materials Management Division (PMMD). The work was supported by a project management team from ECS, and a project steering committee comprised of representatives from ECS, Toronto Water, Transportation Services, SWMS, and PMMD.

Objectives and Scope

The objectives of the review were to identify recommendations to:

- Increase the effectiveness and efficiency of capital program delivery.
- Enhance industry participation and accountability in City capital projects.
- Maintain a high degree of expertise in the City related to project management and capital project delivery.

The scope included the design, procurement, project management and delivery of transportation, water and wastewater, and solid waste capital projects across the City. The work included:

- A review of existing Infrastructure Services practices and procedures across capital delivery.
- An assessment of engineering service delivery approaches for design and contract administration.
- An assessment of capital delivery models and the development of a capital delivery model decision framework.
- A review of industry engagement, community engagement, and issues management practices.

The review was in part a response to three City Council and Committee Motions. Additional information about the Council and Committee motions, including an overview of how the proposed recommendations in this report address each motion, is included in Appendix C.

Methodology

We used an assessment framework to structure our research and organize our findings, including the strengths, challenges, and recommendations presented in this report. The assessment framework used for the review had seven layers, and is described in Figure 4, below.

Figure 4: Assessment Framework

No.	Layer	Details / Description
I	Project Management	Day-to-day coordination and execution of individual capital projects, including project objectives, scope, schedule, resource management, financials, and quality assurance.
II	Portfolio Management & Governance	Management, coordination, governance, and oversight of the City's enterprise-wide portfolio of capital projects.
III	Planning & Design	Development of plans and designs for individual capital projects, including business cases, feasibility studies, and technical designs and specifications.
IV	Procurement	The process of planning, tendering, and acquiring goods and services necessary to delivery the City's capital projects.
V	Delivery	The actual construction or implementation of projects, ensuring they are completed according to plans, timelines, budget, and quality standards.
VI	Industry Engagement	Ongoing engagement and collaboration with industry related to the delivery of the City's capital projects.
VII	Community Engagement & Issues Management	Ongoing stakeholder coordination and community engagement to provide updates, gather feedback, and address concerns and issues throughout the project lifecycle.

Workplan

Work began in April 2024 and closed in February 2025. Our approach consisted of four phases, shown in Figure 5, below. Several components of the work were overlapping and iterative.

Figure 5: Project Workplan

	Phase 1: Current State	Phase 2: External Research	Phase 3: Recommendations	Phase 4: Reporting
Objectives	Establish evidence base and assess current state delivery approaches and community engagement practices.	Identify leading practices and determine application to the City, including gap assessment against current state.	Test and refine recommendations to improve performance.	Synthesize work performed, findings, and recommendations from all phases into concise final report.
Activities	• Data and document review • Project reviews • Staff engagement • Industry engagement	• Leading practice scan • Comparator assessment	• Co-design workshops to test and refine recommendations • Additional subject matter engagement to test and refine recommendations	• Final Report & Roadmap
Deliverables	• Current state presentation with findings on strengths, challenges, and opportunities	• Outputs to be incorporated into Phases 3 and 4	• Draft recommendations addressing scope of work • Draft delivery model framework • Draft code of conduct	• Final report and road map • Supporting materials (decision matrix, code of conduct)

Phase 1: Current State Assessment

During the first phase, we worked closely with the City's Project Team to establish a strong project foundation and complete a current state assessment of the City's approach to capital project delivery, including strengths, challenges, and opportunities for improvement. Additional information regarding our current state assessment is included in Appendix A.

Document and Data Review & Analysis

We conducted an in-depth review of more than 140 documents and 20 data sets provided by the City. Documents included organizational charts, process maps, guidelines and procedures manuals, policy documents, job descriptions and performance measures, as well as prior reviews, reports, and studies. Additional documents were identified and reviewed throughout our engagement. Internal and external stakeholders provided helpful direction on additional studies and background materials relevant to the review. A detailed list of documents reviewed is included in Appendix F.

Project Reviews

As part of the project, we conducted a review of 30 recently completed sample capital projects from four City Divisions (ECS, Toronto Water, Transportation Services, and SWMS) to develop a better understanding of the current state of capital delivery processes and practices. The project reviews included an analysis of over 1,000 project-specific documents, along with interviews with over 20 City Project Managers. For each project, our analysis included:

- Project procurements
- Project timelines and durations
- Productivity levels
- Financials and project costs
- Project management and documentation
- Project changes
- Claims

A detailed list of City projects reviewed is included in Appendix G.

Stakeholder Engagement

We conducted a comprehensive stakeholder engagement exercise, which included:

- One-on-one and group engagement with over 100 City staff from six Divisions, including Managers, Directors, Division Heads, Deputy City Managers, and City Councillors.
- Focus group engagement with six industry associations and one-on-one interviews with over 15 engineering consulting firms and six contractors with experience working with the City.
- Two online surveys for industry representatives as well as City elected officials.

To encourage open and constructive dialogue, interviews and focus groups were conducted confidentially and without attribution. Notes were taken to facilitate our analysis but were not shared externally. A complete list of stakeholders engaged is included in Appendix H.

One-on-one interviews were typically 45-90 minutes in length. We followed a semi-structured approach that included interview guides with questions distributed in advance and allowed interviewees to identify new issues. Focus groups were several hours in length, and followed a similar, semi-structured approach.

Phase 2: External Research

Comparator research involved the examination of capital project delivery practices across six municipal and government infrastructure delivery agencies to identify leading practices and lessons learned applicable to Toronto. Our research focused on success factors related to common challenges – identifying what each comparator does well, rather than a side-by-side comparison or analysis of each jurisdiction's capital delivery or equivalent processes.

Working closely with the Project Team, we identified six comparators based on criteria including: population size and growth, geography, annual capital spend, complexity of capital projects, organizational structure and governance, and reputation for innovation.

The following comparator agencies were included as part of our research:

- Ottawa, ON
- Peel Region, ON
- Calgary, AB
- Melbourne, Australia
- Infrastructure Ontario
- Ontario Ministry of Transportation

For each comparator, we conducted desktop research as well as phone-based interviews with one or more senior representatives. In several instances, insights were also included from previous KPMG stakeholder engagement and jurisdictional research efforts. Findings from the research helped refine the current state assessment and supported the identification of preliminary improvement opportunities.

Phase 3: Recommendations

During the third phase, we refined our preliminary improvement opportunities into recommendations included in this report. Findings and recommendations were reviewed and refined through workshops and discussions with the City Project Team, steering committee, and additional stakeholders.

Co-Design Workshops

Four opportunity co-design workshops were conducted to guide the development of improvement opportunities and ensure they addressed Toronto's unique capital delivery context. During the workshops, we worked alongside stakeholders to review and refine key improvement opportunities. Each workshop focused on specific components from the assessment framework:

- Project Management & Delivery
- Procurement
- Communications & Community Engagement
- Portfolio Management & Governance

Follow-up interviews were held to further refine improvement opportunities. Outputs from the workshops were incorporated into the recommendations in this report.

Phase 4: Reporting

The fourth and final phase involved the synthesizing of findings into this final report. Draft versions of this report were shared with and reviewed by the Project Team, senior leadership, and steering committee members. Revisions have been incorporated into this final report.

3. Recommendations

This section presents our recommendations to increase the effectiveness and efficiency of Infrastructure Services' capital program delivery. The recommendations are organized by the seven layers of our assessment framework. Additional information about our assessment framework is included in Section 2.

Project Management

#	Recommendation
1	Develop and implement an effective enterprise-level project management framework
2	Establish an enterprise-level governance structure to improve oversight and accountability
3	Develop a stage gate process to enhance decision-making and oversight
4	Categorize projects by risk and complexity to enable tailored controls and delivery approaches
5	Develop and implement a project charter for all capital delivery projects
6	Establish a "Three Lines of Defence" oversight model to better manage risk and improve performance
7	Establish a formal process for evaluating project outcomes

Recommendation 1: Develop and implement an effective enterprise-level project management framework

The core gap identified through our current state assessment is an effective, enterprise-level project management framework.

Infrastructure Services' existing project management framework is included in the Capital Works Procedures Manual.[5] It is not used consistently within or across capital delivery groups and does not have the core elements necessary to support the Service Area's increasingly large and complex capital program.

This gap is a primary driver of significant inconsistencies across and within delivery groups in core project management activities, including project planning, scope definition, schedule development, budget development, risk classification, document management, procurement, change management, decision making, delivery, and reporting.

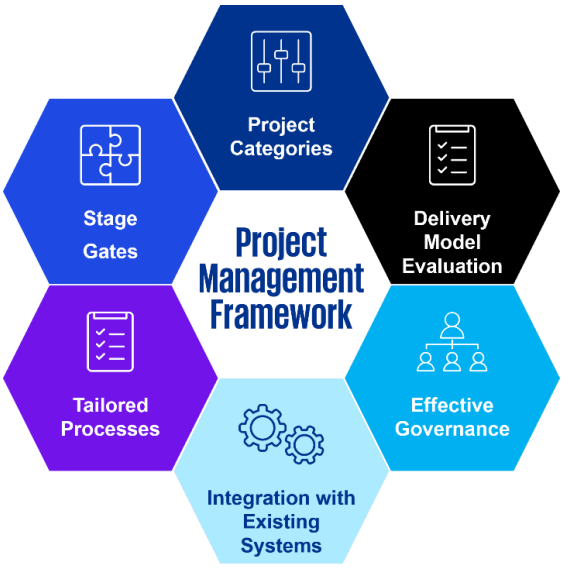
Inconsistent approaches to project management make it difficult to achieve predictable outcomes on projects. It also creates a significant barrier to effective project coordination and prioritization across projects and delivery groups because it is difficult to "roll up" individual projects into an enterprise-level system.

To address this gap, Infrastructure Services should consider developing and implementing an effective, enterprise-level project management framework.

[5] The Capital Works Procedures Manual was designed for ECS. Toronto Water developed a separate, web-based project management framework that builds off the Capital Works Procedures Manual.

A project management framework is a leading practice used by large infrastructure delivery agencies to ensure a consistent, enterprise-wide approach to capital project delivery. It achieves this by defining the activities, processes, and deliverables that are required at each stage of the capital project lifecycle. It acts as an overarching framework within which individual delivery agents, like different City Divisions, can develop more specialized, supplemental approaches.

Figure 6: Project Management Framework



An effective, enterprise-level project management framework should be set out in a concise, accessible document. The proposed project management framework should include the following elements at a minimum:

- Governance
- Stage gates
- Project categories
- Project charters
- Project oversight and controls
- Project evaluations

Recommendations 2-7 provide additional information about each of these elements.

In some cases, the proposed framework will replace existing practices by setting new, more effective standards. In other cases, it will sit above those practices, ensuring they are consistent across projects and Divisions. Following the development of the new framework, existing divisional policies, processes, and procedures will need to be updated to incorporate or align with the new enterprise-level direction.

The proposed framework should also outline the processes, tools, and templates to support capital delivery.

Recommendation 2: Establish an enterprise-level governance structure to improve oversight and accountability

The proposed project management framework should include a governance structure that identifies:

- The different parties involved in capital delivery, including project sponsors, project managers, delivery teams, support services, senior management, steering committees (if required), and City Council (as needed).
- Each party's roles, responsibilities, accountabilities, and authorities.
- How those roles, responsibilities, accountabilities, and authorities vary across project stages and project categories.
- How decisions will be delegated based on project characteristics like size, complexity, and risk.

The proposed governance structure is meant to provide a standard, enterprise-level model to guide the development of project-specific governance structures, which may vary depending on project type, delivery model, client need, or other factors. It also emphasizes a full-lifecycle view of the project, from initiation to handover, promoting a more consistent, Service Area-wide approach.

Put simply, the proposed governance structure will help ensure that the right people, in the right roles, make the right decisions. Project-specific governance should be included in the project charter (Recommendation 5).

Recommendation 3: Develop a stage gate process to enhance decision-making and oversight

Stage gates divide a project's lifecycle into distinct parts separated by decision points or "gates." Each stage involves specific activities and deliverables that must be completed before proceeding to the next stage.

The decision point or gate allows the project team and other stakeholders, as required, to decide whether to proceed, modify, pause, or terminate a project based on an evaluation of progress against predetermined criteria and overall project objectives. Stage gates will help Infrastructure Services:

- Add rigour to project oversight activities and allow for better, more consistent decision-making within and across projects.
- Define the roles and responsibilities of different stakeholders and how those roles and responsibilities change across the project lifecycle.
- Align stakeholder expectations, ensuring that all parties understand what is required and when across the project lifecycle.

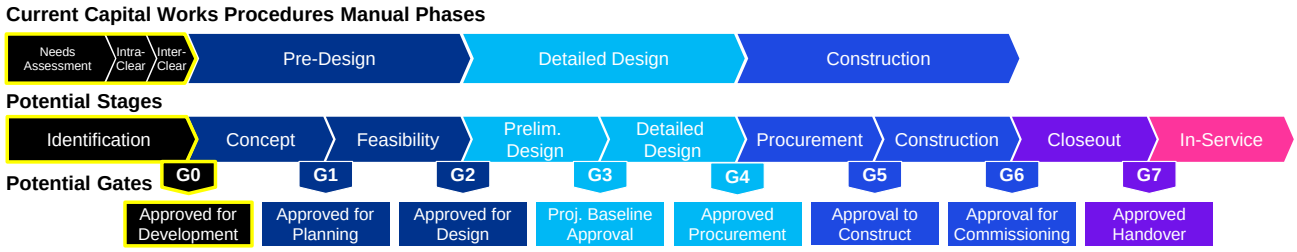
The stage gate process should be aligned to the proposed project categories (Recommendation 4). Each category of project should include:

- Cleary articulated project lifecycle phases, including the activities and deliverables that typically take place during each phase.
- The number, timing and sequencing of stage gates separating the phases, including decision-making criteria to assess project progress at each gate.
- The roles, responsibilities, and authorities of different stakeholders across each phase and gate.

Like the governance structure, the proposed stage gate process is meant to provide a standard, enterprise-level process to guide the development of project-specific stage gates, which may vary depending on delivery model, client need, or other factors. Project-specific changes to the stage gate process should be included in the project charter (Recommendation 5).

Figure 7 provides an example stage gate process adapted from the Capital Works Procedures Manual. It is meant as a starting point for consideration.

Figure 7: Sample Stage Gate Structure



Recommendation 4: Categorize projects by risk and complexity to enable tailored controls and delivery approaches

Project categorization is a leading practice in portfolio and project management. It helps organizations tailor project management approaches to different types of capital projects, increasing or decreasing the level of controls and oversight to reflect project needs. Many of the municipalities and infrastructure agencies included in our leading practice research use a multi-tier system to categorize projects, including Ottawa, Calgary, Vancouver, and the TTC.

Factors typically used to categorize projects include:

- Technical complexity.
- Interdependencies or interfaces with existing infrastructure or adjacent capital projects.
- Community impacts.
- Schedule requirements.
- Contractual complexity.
- Regularity of delivery (i.e., how often a particular type of project is delivered).
- Estimated cost.
- Institutional knowledge.
- Stakeholder complexity.

Factors can be weighted according to their relative importance to different projects and different capital delivery groups.

Project categories can be used to help determine a variety of outputs related to project delivery, including:

- Governance structures.
- Project phasing and stage gates.
- The suitability of different delivery models, including internal or external delivery.
- The required skillsets and competencies of the project team.

Figure 8, below, provides an illustrative example of a project categorization framework. It is meant as a starting point for consideration.

Project categorization can also be used to accelerate projects identified as City priorities. For example, a separate category can be established for priority projects that sets out the stage gates and project management considerations to help fast-track delivery.

Projects should be categorized as early as possible in the project lifecycle. Categorization decisions should be re-evaluated at key stage gates, ensuring that the chosen project category remains appropriate alongside any scope or other changes.

The standardized processes, tools, and templates used to support capital delivery should be tailored according to each level of project complexity and categorization.

Figure 8: Example Project Categories

		Category 1	Category 2	Category 3	Category 4
Factors	**Technical Complexity**	Low level of complexity; common understanding of outcomes	Medium level of complexity	High level of complexity or new initiatives at the City	High level of complexity; significant involvement of external stakeholders
	Interdependencies	Simple internal interfaces	Complex internal interfaces	Complex internal & external interfaces	Extremely complex internal & external interfaces
	Community Impacts	Minimal disruption to surrounding community	Moderate disruption to surrounding community	High disruption to surrounding community	Very high disruption to surrounding community
	Schedule Requirements	Minimal urgency; straightforward schedule	Moderate urgency; some schedule complexity	High urgency; high schedule complexity	Very high urgency; very complex schedule requirements
	Contractual Complexity	Low risk and low complexity	Medium level of risk and complexity	High uncertainty and risk	Very high uncertainty and risk
	Regularity of Delivery	Routine / annual	Every 2-5 years	Every 5-10 years	Every 10+ years or new major infrastructure initiative
	Estimated Cost	Less than $5 million	$5 million - $20 million	$20 million - $100 million	Over $100 million
	Institutional Knowledge	Fully capable of internal delivery	Minor external knowledge/expertise required	High external knowledge/expertise required	Significant external knowledge/expertise required
	Project Management Team	Medium experience and understanding of project management	Medium to high experience and understanding of project management	High level of experience and understanding of project and strategic management	Very high level of experience and understanding of project and strategic management; experience working closely with external stakeholders
Outputs	**Delivery Model**	Traditional	Traditional CM@R Progressive DB	Traditional Progressive DB Collaborative	Progressive DB Collaborative
	Governance Structure	Manager-level Sponsor	Senior-level Sponsor Project Steering Committee	Director-level Sponsor Project Steering Committee	GM-level Sponsor Project Steering Committee External governance stakeholders
	Communications Requirements	Standard communications	Expanded communications	Comprehensive communications	Interactive communications

Recommendation 5: Develop and implement a project charter for all capital delivery projects

To further enhance project management practices, Infrastructure Services should consider developing and implementing a standard project charter for all capital projects.

A project charter typically sets out a project's scope and objectives, the initial committed resources, and identifies the internal and external stakeholders who will interact with and influence the outcomes of the project. Benefits include:

- Clear project definition and alignment, ensuring all stakeholders have a shared understanding of the project's objectives and how it aligns with organizational priorities.
- Linking each project to broader strategic goals, ensuring that resources are allocated to initiatives that deliver maximum value.
- Identifying key stakeholders and their roles early in the process, fostering collaboration and ensuring alignment on expectations and responsibilities.
- Establishing clear boundaries for scope, budget, timelines, and risks, reducing ambiguity and the potential for mistakes, misunderstandings, and unrealistic expectations throughout the project lifecycle.
- Documenting assumptions, risks, constraints, and potential challenges to enable proactive planning.
- Formalizing expectations for deliverables, milestones, budgets, and performance metrics, enabling better tracking of progress.
- Serving as an authoritative document that can be referenced throughout the project lifecycle to ensure activities remain aligned with project goals.

A standard template should be developed as part of the project management framework. As a starting point, the template should include the following elements, aligned with the proposed project categorization approach:

- **Project purpose / business case:** Why the project is being undertaken and its expected benefits.
- **Project objectives:** The project goals and how they align with municipal strategic priorities.
- **Scope definition:** What is included in the project as well as exclusions to limit scope creep.
- **Interdependencies:** Any known or potential interdependencies with other projects or programs of work.
- **Roles and responsibilities:** Key stakeholders (e.g., project sponsor, project manager) along with their roles and authority levels.
- **Project schedule:** Key milestones and target completion dates.
- **Budget overview:** High-level cost estimates for planning purposes.
- **Risks and assumptions:** Known risks, constraints, and assumptions that may impact the project.
- **Success metrics:** How success will be measured.
- **Approval signatures:** Signatures from key stakeholders to formally authorize the project.

The project charter should be developed at the onset of the project, prior to design and coinciding with initial project identification. Project managers should participate in the development of the project charter whenever possible to enable a deeper understanding of project elements and ensure that they can align their approach with the project's strategic goals and stakeholder expectations.

The project charter should be referenced as an informational document throughout the project's lifecycle. The project charter should also be reviewed prior to each stage of the project lifecycle and updated as required.

Recommendation 6: Establish a "Three Lines of Defence" oversight model to better manage risk and improve performance

As part of the proposed project management framework, Infrastructure Services should consider developing a three-layer project oversight model. Often described as the "Three Lines of Defence" model, it provides a structured approach to managing risk across three lines or layers of project oversight – execution, assurance, and audit – helping avoid overruns for project scope, cost, and schedule. Additional details are provided below and are meant as a starting point for further development.

Execution

The first line of defence comes from the execution staff – the team accountable for managing the planning and execution of projects, including the Project Manager and supporting staff. This control layer relies on staff skills and experience as well as established processes and procedures in project delivery, such as the proposed project management framework, established business case development processes, and project charters. A strong execution layer means that the right people are in the right roles, supported by the right processes and training. Within the execution layer, the team is also controlling quality, adding further confidence to delivery. Roles and responsibilities for the execution layer should be defined in the project management framework (see Recommendation 1) as well as the project charter (see Recommendation 5).

Assurance

Assurance means providing support to the project team in-flight to help the project course correct as necessary throughout the lifecycle. There are typically two types of assurance as part of the secondary layer of control: project-level assurance (i.e., project decisions) and enterprise-level assurance (i.e., effectiveness of process across multiple projects).

Assurance relies on a dedicated layer of review that is independent of the project team. The project management framework would help identify appropriate assurance reviews based on the categorization of a project and what stage it is in, but they could include:

- Peer reviews.
- Internal quality reviews (e.g., design, legal, etc.).
- Externally conducted reviews (e.g., by external consultants).
- Independent reviews (e.g., requested by steering committee or other governance bodies).

Audit

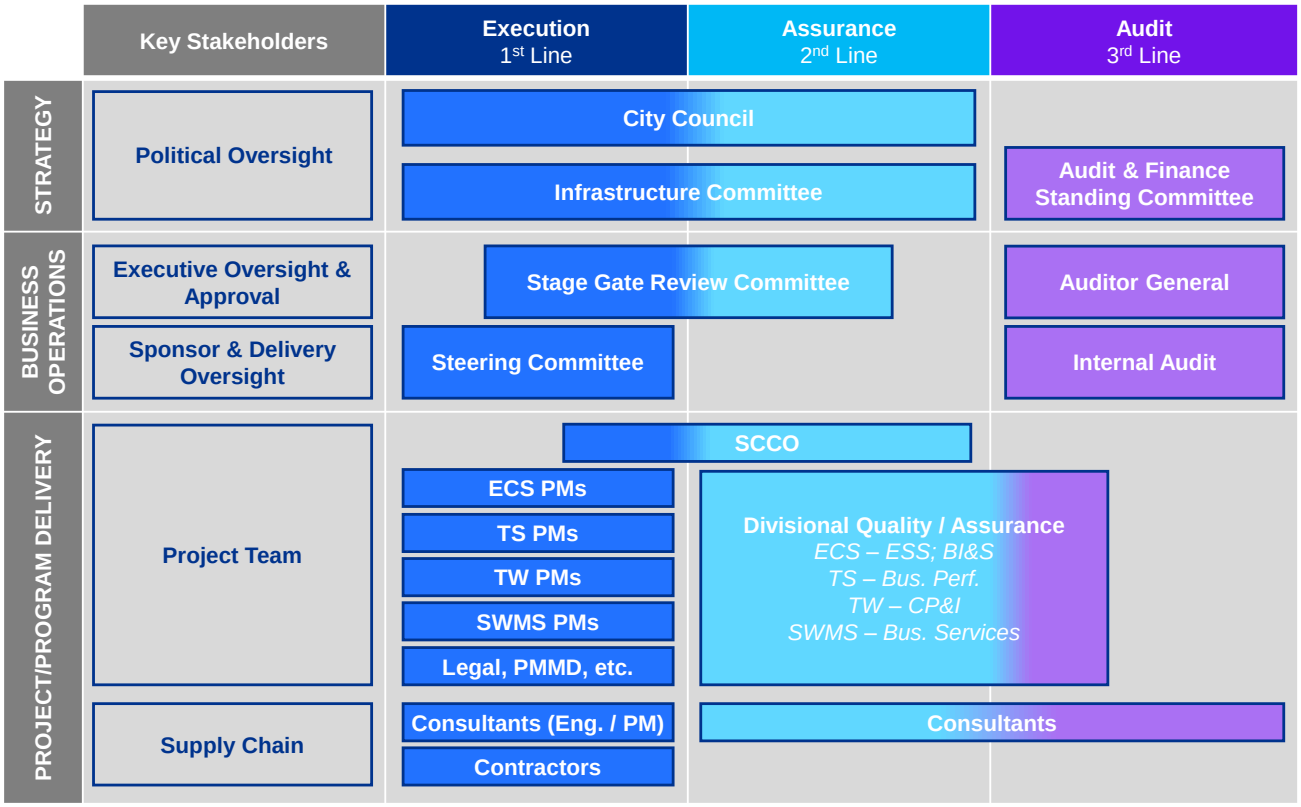
The third layer of project control, audit, typically has a backwards or forensic view, analyzing how processes were managed. This can be delivered either by dedicated internal audit functions (i.e., a unit within the City's SCCO or another oversight body such as the City's Internal Audit Division) or, at the direction of Council, through the Auditor General. In assisting the project team on an ongoing basis, audits can be particularly helpful at a contract-management level, including:

- Assessing risk management programs and internal controls.
- Reviewing third-party relationships.
- Reviewing vendor billing and payments.
- Assessing compliance with regulations, project governance, and sustainability initiatives.

Depending on the level of project categorization (Recommendation 4), different degrees of oversight may be more appropriate.

Figure 9 provides an overview of the *Three Lines of Defence* model applied to Infrastructure Services' context.

Figure 9: Project Oversight - Three Lines of Defence



Recommendation 7: Establish a formal process for evaluating project outcomes

Infrastructure Services does not have a standard process to evaluate project performance on completion. Although some Divisions have versions of "lessons learned" sections in their project closeout processes, most projects are closed without an assessment of project outcomes, experiences, or lessons learned. As a result, many known challenges re-occur across projects, negatively impacting performance and contributing to staff and industry frustration.

To address this challenge and as part of the project management framework, Infrastructure Services should consider establishing a process for post-project evaluations. The process should include:

- A formal assessment of whether the project achieved its intended goals and objectives as defined during the planning phase and set out in the project charter (Recommendation 5).
- Key challenges experienced on the project, including an assessment of impacts from each challenge.
- Areas for improvement, including inefficiencies, gaps in processes, or areas where resources were underutilized or overallocated.
- Actions to address the challenges on subsequent projects.

The post-project evaluation process should be incorporated into the final closeout stage of the updated stage gate process (Recommendation 3). The process should include a comprehensive

project close-out meeting with key project stakeholders, depending on project category (e.g., design team, consultants, contractors, project management team).

In addition to project-specific evaluations, Infrastructure Services should consider establishing recurring review mechanisms at the portfolio level, including:

- An annual review with leadership, managers, and project managers to discuss challenges, opportunities, and lessons learned on projects recently completed or underway.
- A bi-annual review with industry (i.e., contractors, engineering consultants, industry associations) to solicit feedback on challenges and improvement opportunities with capital projects recently completed or underway.

The external-facing review can be integrated into additional industry engagement improvements (Recommendation 27 and Recommendation 28).

Portfolio Management & Governance

#	Recommendation
8	Update project approval thresholds and authority levels
9	Conduct a staff resourcing assessment of Infrastructure Services' capital delivery groups
10	Update portfolio-level processes to align with the proposed project management framework

Recommendation 8: Update project approval thresholds and authority levels

Infrastructure Services project delivery staff are not sufficiently empowered to make timely, appropriate project-level decisions, including in-field decisions. Specific gaps identified through our research include:

- Low approval thresholds for project managers regarding project-related changes (e.g., Change Orders related to scope, schedule, budget) and Purchase Order Amendments (POAs).
- Administratively burdensome, time-consuming approval processes.

These gaps:

- Increase project timelines and often result in schedule delays.
- Increase staff workloads.
- Disincentivize beneficial procurement and project changes.
- Contribute to staff and industry frustration.

To address these gaps, the City should consider i) increasing delegated approval thresholds and authority levels; and, ii) streamlining the escalation process for approvals requiring additional oversight.

As a starting point, the City should consider aligning its approval thresholds and authority levels with other large Ontario municipalities. Several municipalities included in our research delegate all project approvals within the approved project budget to the project manager, while others base approval limits on established project contingency levels (e.g., delegate all approvals up to the equivalent value of the project's contingency budget).

The updated thresholds should be aligned to the recommended project management framework (Recommendation 1), including project phase and category. Delegated approval thresholds should

be consistent across Infrastructure Services. They should also be reviewed regularly to reflect the Service Area's evolving project management capabilities as well as relevant sectoral and legislative changes. Approval thresholds and authority levels should be included in the project charter (see Recommendation 5).

Recommendation 9: Conduct a staff resourcing assessment of Infrastructure Services' capital delivery groups

A detailed resourcing assessment was outside of the scope of work for this review; however, Infrastructure Services staff consistently indicated that existing staffing levels are insufficient given the increasing size and complexity of the City's capital program. Inadequate resourcing can negatively impact morale and contribute to staff fatigue, frustration, and turnover. It also leaves limited capacity for continuous improvement initiatives.

The project management framework and many of the other recommendations included in this report will change how staff work through streamlining processes and shifting effort to higher value activities. The implementation of these recommendations creates an opportunity to undertake a resourcing assessment of Infrastructure Services' capital delivery program.[6] The assessment should consider:

- Current and anticipated work volumes.
- Span of control.
- Organizational structure (where relevant).
- The distribution of resources and functions across the different capital delivery groups.
- Project resourcing, including how staff skills and experience are matched to projects.
- Utilization (how effectively staff time is being used) and workload distribution (teams that are over and understaffed).
- Skills and gaps, particularly those associated with project management and a broader use of project delivery models.

In lieu of a comprehensive bottom-up resourcing assessment, Infrastructure Services could also consider a more approximate approach. Typically, project management and oversight staff costs for capital projects amount to approximately 3-5% of overall capital budgets. Considering the average direct and indirect costs of a full-time equivalent position, the City could use this as a rough approximation to assess current resourcing levels. Using the City's 2025 capital budget of approximately $2.6 billion for Transportation Services, SWMS, and Toronto Water projects, that would imply a theoretical budget of approximately $78 million to $130 million for project management and oversight staff costs.

Recommendation 10: Update portfolio-level processes to align with the proposed project management framework

The portfolio-level processes that support Infrastructure Services' capital program were consistently identified as ineffective by internal and external stakeholders (e.g., capital planning and prioritization processes). This gap reduces Infrastructure Services' ability to:

- Prioritize capital projects across Divisions, as well as with external delivery partners as appropriate.

[6] Improved project delivery methods and tools can be expected to increase staff effectiveness and efficiency while also reducing pain points and staff frustration.

- Coordinate the design, procurement, and delivery of capital projects across Divisions and with external delivery partners, exacerbating the neighbourhood impacts associated with construction.
- Proactively manage the performance of its capital program (e.g., understand relative delivery performance across delivery groups and project types).

The recommended project management framework (Recommendation 1) will provide a foundation for improving portfolio-level processes by ensuring consistent approaches across projects that can be rolled up to support effective, portfolio-level oversight, decision making, and reporting. To achieve these benefits, Infrastructure Services should consider reviewing and updating portfolio-level processes to align with the project management framework and its supporting components (Recommendations 1-7).

Planning & Design

#	Recommendation
11	Use preliminary project planning and design meetings to integrate key stakeholder groups earlier in the project lifecycle
12	Standardize project design processes and align with stage gates to improve the consistency and quality of project design
13	Establish a more rigorous, standard project business case process to support capital projects
14	Enhance the QA/QC process for design work
15	Enhance scope and design change management processes

Recommendation 11: Use preliminary project planning and design meetings to integrate key stakeholder groups earlier in the project lifecycle

Key stakeholder groups are not always engaged or able to commit time and resources sufficiently early in the project planning and design stage to provide effective direction and advice. Specific examples include the points in the project planning and design stage that client Divisions engage ECS and, similarly, PMMD.

Alongside ineffective direction and advice, late engagement of key stakeholders can prevent project teams from:

- Identifying gaps or issues in preliminary designs that will need to be addressed prior to proceeding to the next stage of delivery.
- Incorporating delivery model considerations into project design.
- Aligning with other active procurements or establishing economies of scale in procurement.

To address this challenge, Infrastructure Services should consider clearly delineating integration points for key stakeholders during the planning and design phase. Stakeholder integration should be clearly set out as part of the proposed stage gate process (Recommendation 3), with built-in time for stakeholder review at key design definition points.

Initial integration should consist of a preliminary project planning meeting(s) prior to the first stage gate. This meeting should include:

- Project Sponsor
- Project Owner (if different from Sponsor)
- Project Manager (if identified)
- ECS (if not the project manager)
- PMMD
- Community Engagement representation

The preliminary project planning meeting and subsequent integration points will help ensure key stakeholder input is considered from project outset. Committed stakeholder engagement at the initial planning stages (i.e., business case and project charter development) allows for earlier identification of potential issues, improving communications and initial decision-making, and mitigating against late-stage scope and design changes.

A separate meeting may also be beneficial for engaging relevant elected officials.

Outputs from preliminary project planning meetings should serve as key inputs into subsequent business case and/or project charter development, including agreed upon roles and responsibilities, delivery model, and procurement considerations.

Recommendation 12: Standardize project design processes and align with stage gates to improve the consistency and quality of project design

Infrastructure Services does not have a consistent process for the development of project design, including the development of detailed design documents. City stakeholders consistently indicated that design materials are developed inconsistently by internal or external design teams and can vary significantly in terms of quality and content, sometimes resulting in preliminary designs missing key considerations or being insufficient for procurement.

Additionally, Infrastructure Services does not have criteria for determining which projects will be designed internally (by ECS or client Divisions) or externally. Similarly, for externally delivered design work, Infrastructure Services does not have criteria for determining which contracts are managed by ECS or by client Divisions.

To address this gap, Infrastructure Services should consider anchoring project design within the stage gate process. To do so, the Service Area should develop a standard operating procedure for capital project design that aligns with the project stages (see Recommendation 3). Using the stage gates to ensure consistency and rigour throughout the process, the standard design process should include the following:

- Cover the end-to-end design development process, from project identification to needs assessment through to delivery.
- Identify process steps and milestones (e.g., concept, feasibility, preliminary design, detailed design).
- Specify the roles and responsibilities of City staff, design team members, and other stakeholders, including specific roles and responsibilities at each stage of design development.
- Outline criteria and supporting process steps to determine the appropriateness of internal or external delivery.
- Specify minimum design requirements for each milestone.
- Align to the recommended project management framework, including project categories and stage gates (e.g., distinct procedures may be required for different project categories).

Infrastructure Services should also include consideration for pre-design extensions on projects with coordinated pre-design work (e.g., with TTC) to enable ongoing integration of design support.

The standard design process should clearly set out the processes, procedures, roles and responsibilities, and expectations related to design depending on the party responsible for completing the design (i.e., ECS or client Divisions such as Toronto Water or Transportation Services). The City previously considered establishing ECS as a centre of excellence for in-house City design, supporting multiple client Divisions. Although this may be appropriate in some circumstances, an effectively matrixed project team can also enable ECS to play a project manager role in earlier stages of the project lifecycle, with asset owners (i.e., client Divisions) performing their own design. In such cases, it is important that roles and responsibilities are clearly set out in the governance framework (see Recommendation 2), alongside clear standards and design requirements.

As a starting point, Infrastructure Services should consider building the standard operating procedure off the ECS engineering design appendices for setting out design requirements. Standard procedures can be tailored to align to different project size or complexity categorizations.

Recommendation 13: Establish a more rigorous, standard project business case process to support capital projects

Infrastructure Services does not have clear and consistent guidelines to support the development of business cases for capital projects. The structure and content of business cases varies significantly across projects and, in many cases, does not contain sufficient detail to support the next stages of project design and delivery. While some delivery groups have processes in place to support business case development, they are not consistent Service Area-wide.

As part of the project management framework, Infrastructure Services should consider developing a more rigorous, standard business case for capital projects. The business case should set out the rationale for key project planning and design decisions, including delivery model selection and, in projects that warrant it, an assessment of internal versus external delivery.

The business case should be treated as a living document that is continuously updated as information becomes available throughout the project lifecycle (e.g., after initial planning studies or procurement processes), evolving with each stage in the stage gate process.

As a starting point, the business case should include:

- Project rationale, drivers, and objectives.
- An overview of project scope and schedule.
- Financial analysis, including preliminary cost estimates and an overview of funding sources.
- Demonstration of strategic alignment to municipal plans, policies, or priorities.
- Anticipated project benefits.
- Risk assessment, including identification of potential risks and proposed mitigation strategies (including risks associated with not undertaking the project).
- Project priorities (e.g., speed of delivery, cost, integration with other capital projects / infrastructure).
- Stakeholder engagement strategies.
- Preliminary implementation considerations, including:
    - Procurement strategy, including considerations for timing and initial delivery model assessment (Recommendation 16).

    - High-level roadmap for project delivery/execution.
- Operational considerations, including how the asset will be managed post-delivery (e.g., maintenance plans).
- Decision request with justification for preferred delivery option.

Initial business case development should be the responsibility of asset owners (i.e., client Divisions); however, for higher risk or complex projects, earlier involvement of ECS Project Managers may be required, such as shepherding the business case through initial stages of the project lifecycle in support of client Divisions.

Project business cases should be developed according to a standard set of processes, including the use of a standard template structure. Once developed, they should serve as foundational documents for the subsequent development of the project charter (Recommendation 5) as well as initial project design considerations (Recommendation 12).

Recommendation 14: Enhance the QA/QC process for design work

Infrastructure Services does not have a formal process to ensure effective oversight of both internally and externally delivered design work. City staff indicated that design work was often below standard and missing key details, such as existing site conditions like utilities, TTC tracks, hydro poles, and hydrants. Design quality was identified as a challenge for both internally and externally delivered design work, though was more often associated with the latter.

To address this gap, Infrastructure Services should consider developing an enhanced QA/QC process for internal and external design work. As a starting point, Infrastructure Services should consider the following steps:

- Develop a comprehensive QA/QC framework that outlines the processes, standards, and responsibilities for overseeing internally and externally delivered design work. This framework should include:
    - Standard procedures for reviewing and approving design work, ensuring consistency across projects.
    - Checklists and templates that must be completed to ensure all critical aspects of the design are addressed upon submission.
- Integrate QA/QC into the new design development process outlined in Recommendation 12.
- Implement regular QA/QC reviews at key milestones during the design process. Reviews should involve City project management staff as well as external consultants.
- Establish terms of reference for external consultant design work to hold consultants accountable to expected service levels and standards, which can also be incorporated into vendor performance evaluations.

Additionally, Infrastructure Services should consider developing guidance for Project Managers on how to ensure external design consultants comply with QA/QC requirements.

Recommendation 15: Enhance scope and design change management processes

Our research indicates that scope and design changes can be made very late in the design process and that project teams are not sufficiently empowered to reject inappropriate changes. In some instances, scope confirmation is supposed to occur nine months prior to design completion; however, stakeholders consistently indicated that changes continue to occur after that deadline. Late scope and design changes cause project delays, result in additional project costs, and are a significant contributor to stakeholder frustration.

To address this gap, Infrastructure Services should consider enhancing scope and design change management processes. Specifically, it should:

- Establish an enforceable deadline for stakeholders to submit scope or design change requests.
- Establish a consistent, formal cut-off and sign-off for scope or design changes during the project planning phase.
- Communicate the requirements for scope and design changes clearly in project governance documents, contracts, and agreements with stakeholders.
- Include the deadline as part of the stage gate framework (Recommendation 3).
- Ensure that all stakeholders (e.g., City Councillors, stakeholder Divisions, contractors, etc.) are aware of the scope and design change processes as part of project approvals processes.
- Develop a standard process for requesting, evaluating, and approving changes before and after the established deadline.[7]

In some cases, exceptions may need to be made for unforeseen or critical circumstances (e.g., regulatory requirements, safety issues, etc.). In such instances, rigorous justification and approvals should be required.

Infrastructure Services should also build contingency plans into budgets and schedules to accommodate potential late-stage adjustments and mitigate against potential adverse impacts.[8]

Procurement

#	Recommendation
16	Develop a delivery model selection framework
17	Update solicitation award processes and authorities
18	Refresh project qualification requirements
19	Integrate existing vendor performance evaluation tools into the proposed project management framework
20	Consider developing a construction contractor code of conduct to help reduce the disruptions associated with construction activity
21	Establish a target timeline or “time-to-award” standard
22	Consider aligning procurement cycles to the construction season
23	Consider additional performance incentives
24	Standardize contract documents, terms, conditions, and language for capital projects

[7] Stakeholders identified the Client Change Request process from Toronto Water as an effective method for eliminating late, disruptive changes. The City should consider this as a starting point.
[8] Stakeholders identified several different “slippage” amounts typically included in budget and schedule to account for external project impacts – typically 20% – however this is not implemented City-wide.

Recommendation 16: Develop a delivery model selection framework

Infrastructure Services delivers the majority of its capital projects using the Design-Bid-Build (DBB) delivery model. While DBB is appropriate for most City projects, other delivery models such as Design-Build, Construction Manager at Risk, Progressive Design-Build, or Alliance / Integrated Project Delivery offer distinct advantages may be appropriate for some project types.

Alternative delivery models can accelerate project timelines, improve cost certainty, address unique project risks, and deliver higher value for the City and the community by leveraging collaboration and innovation throughout the project lifecycle.

Barriers to using alternative models identified through our research include:

- The City does not have a process or supporting criteria for evaluating the suitability of different delivery models.
- Roles and responsibilities related to delivery model selection are not well defined (e.g., the role of PMMD and client Divisions).
- Procurement-related issues are often considered too late in the project lifecycle to enable a broader discussion of delivery model options and advantages that might be realized for the project.
- All existing processes and standards are designed around the DBB model.
- Staff have limited knowledge and experience with alternative delivery models.

It may benefit the City to have access to alternative delivery models to more efficiently and effectively deliver a select group of projects. To address these barriers, Infrastructure Services should consider developing a framework to support a more rigorous and consistent approach to delivery model selection. The framework should include:

- Descriptions of each delivery model, including advantages and disadvantages, considerations for implementation, governance, and which project risk profiles are most suitable for each model.
- Selection criteria for identifying the most appropriate delivery model for the project, including internal versus external delivery of various project elements.
- A formal process to guide users on how to apply the selection criteria and identify delivery models that best align with the objectives of a given project.
- Procurement templates for each of the models included in the framework.

A five-step draft delivery model selection framework is included below in Figure 10. Example selection criteria are included below in Table 2. These criteria would be used to shortlist delivery model options during Step 2 in the proposed delivery model selection framework. The framework and selection criteria are based on industry leading practice and aligned with the proposed project management framework. Additional detail is included in Appendix D.

The delivery model selection process should be undertaken as part of the initial project business case process (see Recommendation 13).

Figure 10: Draft Delivery Model Selection Framework

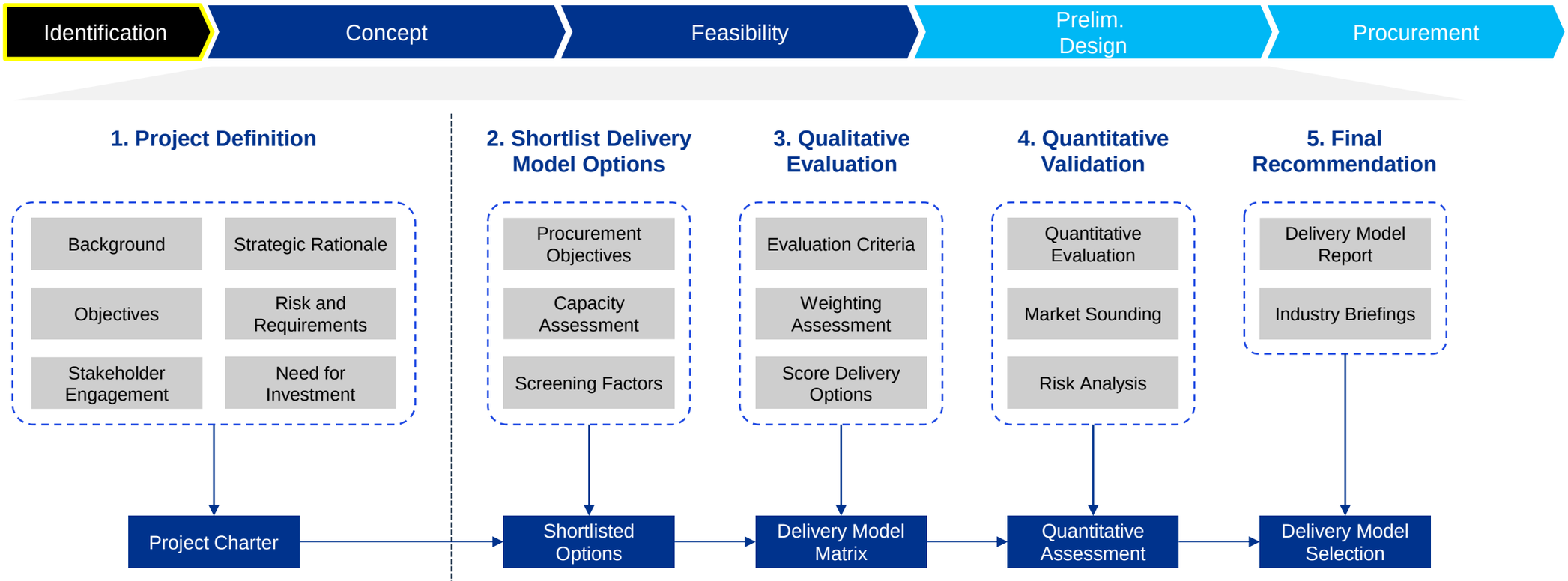


Table 2: Draft Delivery Model Evaluation Criteria

Evaluation Criteria	Delivery Models					
	Self Delivery	**Design Bid Build (DBB)**	**Design Build (DB)**	**Construction Management at Risk (CM@R)**	**Progressive Design Build**	**Alliance / IPD**
Owner Expertise	• High • Requires significant in-house expertise to manage and deliver all phases	• Moderate • Owner must manage separate design and construction contracts	• Moderate • Owner defines performance requirements but delegates execution	• Moderate to high • Owner collaborates with CM during pre-construction and monitors execution	• High • Owner actively collaborates with the design-build team during iterative design phases	• High • Requires a collaborative mindset and expertise in shared governance structures
Owner Resourcing Capacity	• High • Owner must resource all design, procurement, and construction components	• Moderate • Requires capacity to oversee bidding, design, and construction phase	• Moderate • Less involvement required due to single-point accountability	• Moderate • CM takes on some responsibilities, reducing owner's burden during construction	• High • Requires sustained involvement during early stages of design development	• High • Significant involvement required throughout all project phases due to collaboration demands
Project Complexity	• Low to moderate • Suitable for straightforward projects	• Low to high • Suitable for wide range of traditional capital projects	• Moderate to high • Suitable for projects requiring integrated solutions	• Moderate • Suitable for projects requiring early contractor input (e.g., for cost and constructability)	• High • Suitable for projects with evolving risk requirements	• High • Suitable for large-scale, high-risk projects with many interdependencies or uncertainties
Scope Definition	• Well-defined • Owner must clearly articulate scope	• Moderate definition (for design) • Well-defined (for construction)	• Low definition initially • Flexibility in early stages	• Moderate definition • Can be refined during pre-construction phase	• Low definition • Can be refined collaboratively over time	• Low definition or undefined • Can be refined collaboratively over time
Owner Risk Tolerance	• High • Owner assumes nearly all risks	• Moderate • Owner retains design risks and some construction risks	• Moderate to low • Significant risk transferred to the contractor	• Moderate • CM shares some cost and schedule risks with the owner under GMP agreements	• Moderate • Risks are better managed through collaboration before finalizing GMP	• Moderate • Risks are shared among all parties rather than transferred entirely
Schedule Urgency	• Low • Not ideal for fast-track projects	• Low • Sequential phases result in longer timelines	• High • Concurrent design and construction accelerate delivery	• Moderate to high • Faster than DBB but slower than DB or PDB models	• High • Early works can begin before finalizing designs, accelerating delivery	• High • Real-time issue resolution supports accelerated schedules when needed

Recommendation 17: Update solicitation award processes and authorities

Most City construction solicitations cannot be awarded by Division Heads or the Chief Procurement Officer.

Open, competitive awards valued between $500,000 and $20M require Bid Award Panel approval,[9] which meets weekly. Open, competitive awards valued over $20M and non-competitive awards valued over $500,000 require either Standing Committee or City Council approval, determined based on conditions set out in the City's Procurement Bylaw. Standing Committee and City Council meet on regular cycles, but typically less than monthly. These authorities to award apply to all solicitations, including those within planned budgets and those already included in the City's approved 10-year Capital Budget and Plan.

In its current form, the Bid Award Panel contributes limited value in terms of oversight and accountability while increasing procurement and award timelines and adding administrative cost. In some cases, potentially ineffective project decisions are made to avoid Bid Award Panel and Standing Committee review requirements, such as splitting larger scopes into smaller scope packages, which could be less efficient.[10]

To address this challenge, the City should consider removing the requirement to obtain Bid Award Panel approval for all capital projects within the approved 10-year Capital Budget and Plan and within approved project budgets. The City should also consider increasing approval thresholds for Standing Committee and City Council approval to better align with typical capital delivery contract values. In addition, the City could consider establishing pre-approved project budgets prior to solicitation for projects within the approved Capital Budget and Plan, and providing award authority for bid amounts up to a pre-determined limit (e.g., +/-10-15% from the approved budget).

The City should also consider refreshing authority limits for internal Divisional approval processes as well as POAs. A review of authorities for purchase orders and POAs was not included as part of this assessment.

Recommendation 18: Refresh project qualification requirements

Industry stakeholders indicated that capital project qualification requirements can often be overly specific and restrictive. Examples include:

- Requiring specific project experience within a very recent timeframe.
- Requiring specific project experience for work that is typically not completed within Canada.
- Grouped combinations of specific requirements that could not be reasonably expected of bidders.

Additionally, industry stakeholders noted that project requirements are not always applied consistently across projects and that similar Infrastructure Services' projects were found to require different sets of project qualification requirements.

These requirements decrease market interest in City solicitations and the pool of potential bidders. To address this challenge, Infrastructure Services should consider refreshing project qualification requirements for capital projects by:

[9] Bid Award Panel is an administrative committee that awards contracts under limits established by Toronto City Council and set out in Municipal Code Ch. 195. Bid Award Panel (2022-2026).
[10] In some cases, there may be legitimate business reasons to split larger scopes into smaller packages, such as increasing the number of potential suppliers.

- Developing a standard set of requirements for capital projects that can be used across similar projects, which is often referred to as a "qualification bank." Different sets of requirements can be developed for different types of capital projects and aligned to the project categorization framework (Recommendation 4).
- Clearly delineating how qualification requirements should be applied to different projects.
- Promoting existing mechanisms for bidders to challenge overly specific requirements.[11]

PMMD, along with several capital delivery Divisions and participating construction associations, established a standard supplier qualification process several years ago. This should be used as a starting point and implemented across Divisions.

Alongside refreshing project qualification requirements, Infrastructure Services should also consider limiting single-stage tendering processes, which require respondents to submit qualifications alongside their bid. Two-stage tendering processes are less resource intensive for respondents and typically allow more flexibility to address qualification requirements. For example, the City might consider establishing pre-qualified lists of contractors for specific disciplines/scopes that are refreshed regularly (i.e., bi-annually) and can be used City-wide (similar to existing rosters).[12]

Recommendation 19: Integrate existing vendor performance evaluation tools into the proposed project management framework

The City's current vendor performance evaluation framework – the Contractor Performance Evaluation (CPE) and Professional Services Performance Evaluation (PSPE) – and accompanying processes can be improved.

CPE and PSPE evaluations are conducted by City Project Management staff with oversight from Senior Division Management and PMMD.[13] The City recently updated the CPE and PSPE frameworks to implement refreshed, objective evaluation criteria, providing Project Managers with clear guidance to conduct performance evaluations based on established contract language.[14] CPE and PSPE completion is mandatory for City Project Managers; however, our research indicates that evaluations are not completed consistently or on time.[15] Additionally, with the exception of a few extreme cases where vendors are banned for major violations (e.g., safety or fraud), evaluations are not incorporated into procurement decisions and do not meaningfully impact vendors. As a result, poor performing vendors have limited incentive to significantly improve their performance.

Integrating the CPE and PSPE into the proposed project management framework can help address this gap by:

- Identifying when evaluations should take place across the project lifecycle.
- Identifying the different parties involved in the evaluations as well as their respective roles and responsibilities.

[11] Bidders can challenge project qualifications as part of the solicitation question period as well as through the City's existing bid dispute process.
[12] Our research identified the pre-qualification system in place at the Ministry of Transportation (MTO) to be very effective. As a starting point, the City could look to MTO to better understand how a pre-qualification list could work for capital projects.
[13] City of Toronto Contractor Performance Evaluation Form; City of Toronto Professional Services Performance Evaluation
[14] Contractor Performance Evaluation Criterion; Professional Services Performance Evaluation Criterion
[15] Stakeholders noted insufficient diligence and enforcement, as well as frustrations with the application of the City's procurement system (Ariba) processes as potential reasons.

- At a minimum, making vendor performance management a mandatory component of project management practices, including the recommended project closeout procedures.

In addition, the City should consider establishing a mechanism to objectively incorporate vendor performance evaluations into future procurement processes and decisions. Past vendor performance data could be used as a weighted criterion in bid evaluations for new contracts. To ensure accountability and maintain transparency, the City should clearly communicate how past performance will influence future contract awards to reward high-performing vendors while holding underperforming vendors accountable. As a starting point, the City could build off existing RFSQ processes that already incorporate CPE scores.

Alongside these enhancements, the City should also ensure the following proactive steps are included as part of the refreshed framework so that evaluations are effective:

- **Set clear expectations early:** Clearly communicate evaluation criteria and performance expectations during the procurement process and project initiation phase (e.g., pre-construction or project kick-off meetings) to ensure alignment across all stakeholders. Establish how evaluations will be performed and provide vendors with documentation outlining how their performance will be assessed. Obtain consensus approval from vendors confirming their understanding.[16]
- **Conduct regular evaluations:** Evaluate vendor performance at key project milestones as well as at project completion. Use interim evaluations to identify issues early and implement corrective actions. The criteria that set out evaluation intervals should align with the project stage gate process (Recommendation 3).[17]
- **Engage stakeholders:** Involve project managers, inspectors, procurement staff, and other stakeholders in the evaluation process to ensure comprehensive assessments.
- **Provide constructive feedback:** Share evaluation results with vendors to highlight strengths and areas for improvement as a part of regular evaluations and project closeout. Maintain open communication with vendors throughout the project lifecycle to address concerns proactively. Provide opportunities for vendors to provide their own feedback on assessments, including corrective actions in cases of sub-optimal assessments. Use evaluations as a tool for collaboration rather than solely punitive measures.

These elements are based on our leading practice research activities and discussions with internal and external stakeholders. As noted above, many of these elements are in place already but not used consistently.

Recommendation 20: Consider developing a construction contractor code of conduct to help reduce the disruptions associated with construction activity

The City has many different rules, standards, and guidelines in place to minimize the disruption associated with construction activity, including City-led construction projects. These include, among others:

- A Supplier Code of Conduct.[18]

[16] Our research identified that internal City pre-construction training from 2021-2022 includes clear communication of evaluation criteria and performance expectations as part of standard project kick-off procedures.
[17] The City's current CPE and PSPE processes provide high-level guidelines for frequency of evaluation, however the frequency/interval of evaluations are not aligned to standard project stage gates.
[18] The Toronto Municipal Code Chapter 195, Procurement, Article 13 – Supplier Code of Conduct that is integrated into City solicitations.

- Site condition requirements.[19]
- Noise restrictions.[20]
- Road occupancy requirements.[21]

For the most part, these rules are located in several different places (e.g., contract documents, the Municipal Code), owned by several different Divisions (e.g., ECS, Transportation Services, PMMD) and not fully integrated into existing vendor performance evaluation tools. As a result, they are not always clearly communicated to contractors, subcontractors, members of the public, or other stakeholders.

To help address this gap, Infrastructure Services should consider developing a simple, public-facing code of conduct for construction contractors performing work for the City. Rather than creating new rules, the code of conduct would bring together and clearly communicate existing rules related to site conditions, contractor behaviour and the impacts of construction activity on the immediate surrounding area. The code of conduct would also communicate the City's roles and responsibilities to contractors to support compliance.

To ensure the code of conduct is effective, Infrastructure Services should consider:

- Incorporating it into all solicitations related to construction.
- Ensuring that it is reviewed by contractors and City project managers as part of the project solicitation or initiation process.
- Incorporating it into the vendor performance evaluation framework as an additional evaluation metric (see Recommendation 19).

Appendix E includes a draft sample code of conduct. It is based on the City's existing rules, standards, and guidelines and is provided as a starting point for consideration. As an immediate next step, Infrastructure Services should consider engaging with industry and members of the public on appropriate content as well as how to communicate that content in plain and accessible language.

Recommendation 21: Establish a target timeline or "time-to-award" standard

The City's procurement framework does not include an established standard or target timeline for the award of contracts. Several municipalities and infrastructure delivery agencies included in our research have established target award standards – some as low as two weeks from solicitation close to award.

Award times for City contracts are inconsistent and often exceed 30 days from solicitation submission deadline. The average award time for projects reviewed as part our work was 64 days. In several instances, contract award timelines extended beyond originally scheduled project start dates. Several industry stakeholders indicated that the City's award timelines are the longest of any municipality in the Greater Toronto Area. Additionally, stakeholders highlighted that many bidders are unable to provide bid bond periods greater than 60 days.

The impacts of long, inconsistent award timelines include:

[19]Toronto Municipal Code - Chapter 363, Building Construction and Demolition; Chapter 743, Streets and Sidewalks, Use Of
[20] Toronto Municipal Code, Chapter 591, Noise
[21] Toronto Municipal Code - Chapter 743, Streets and Sidewalks, Use Of; Chapter 925, Permit Parking; Chapter 950, Traffic and Parking

- Reducing market interest in City projects, particularly given the faster, more consistent timelines of other municipalities in the Greater Toronto Area.
- Reducing the time available during the construction season to deliver the work once awarded.

To address this challenge, the City should consider establishing a target timeline or "time-to-award" standard as part of its procurement process. The standard would define the desired duration from the solicitation submission deadline to the contract award. A time-to-award standard aligns with leading practice and would help set market expectations. It can also be used as a key performance indicator to proactively manage the performance of the City's capital delivery procurement function.

Different time-to-award standards can be established based on procurement or project characteristics, such as project categorization (Recommendation 4), delivery model (Recommendation 16), and tendering/qualification process (Recommendation 18). A potential breakdown could include:

- Simple procurements: routine maintenance or small-scale projects; traditional delivery model (e.g., DBB); two-stage solicitation with pre-qualified vendors (15 days).
- Moderate procurements: mid-sized, moderately complex infrastructure projects; established delivery model (e.g., CM@R, DB); single-stage solicitation (15-30 days).
- Complex procurements: large-scale, complex capital projects requiring detailed evaluations; novel delivery model (e.g., Alliance) (30-60 days).

Alongside the time-to-award standard, the City should also consider opportunities to streamline existing processes to reduce time-to-award, including:

- Conducting an analysis of current procurement processes to identify bottlenecks (including POA processes).
- Simplifying procurement processes to eliminate unnecessary steps or redundancies.
- Leveraging templates for commonly used documents specific to capital delivery procurements to reduce preparation time.
- Building capacity within the procurement team to address resourcing constraints and enable higher volumes of procurement processing.
- Developing a Procurement Plan that sets out and staggers procurement calls for resource levelling where possible.
- Enhancing training on efficient procurement practices for City staff involved in capital procurement.

Recommendation 22: Consider aligning procurement cycles to the construction season

The City typically issues most of its capital project procurements in the winter or spring proceeding the construction season while most other larger Greater Toronto Area municipalities typically issue solicitations in the fall. As a result:

- Project schedules are often poorly aligned with the construction season. For example, utility/underground and pre-works that could otherwise be completed in the off-season must take place in the regular construction season, effectively shortening the time available for the remainder of the project.
- Contractors end up committing themselves to projects with other municipalities before the City's solicitations are released, which reduces the number of bidders on City solicitations and increases bid prices. This is exacerbated by limited transparency on the City's capital project pipeline (see Recommendation 27).

Similarly, internal and external stakeholders indicated that the City does not evaluate the number of City solicitations in the market at any one time, often reducing bidders given market capacity constraints.

To address this challenge, the City should consider explicitly aligning its procurement process for capital projects to take full advantage of the construction season. Solicitations for weather-sensitive projects should be issued in the fall such that planning and pre-works can take place in the winter months to maximize the remaining construction season (spring, summer, fall). Similarly, timing for internal project planning and design should be adjusted to align with the revised procurement timing.[22]

Alongside aligning procurement cycles with the construction season, the City should also consider opportunities to take a broader view of market activity into consideration when determining procurement timing, including the procurement activity of other municipalities and infrastructure delivery groups operating in the Greater Toronto Area as well as the market's capacity to participate in solicitations and/or deliver the projects.

Recommendation 23: Consider additional performance incentives

Performance incentives are contractual mechanisms or reward structures designed to align the objectives of project owners, contractors, and consultants. Incentives encourage vendors to meet or exceed specific performance goals, typically related to schedule, cost, or quality. They are a leading practice mechanism to drive desired behaviours, encourage innovation, and help achieve project success.

While there are exceptions, Infrastructure Services does not currently use performance incentives effectively. Schedule or quality-based performance incentives are rarely used. Contracts typically use liquidated damages as non-punitive measures to motivate contractors to recover costs associated with completion delays and/or breach of contract, which were noted by both City and external stakeholders as ineffective.

To help incentivize desired behaviours Infrastructure Services should consider a broad ranger of performance incentives. Example performance incentives for capital projects include:

- Schedule-based incentives (e.g., financial rewards for achieving project milestones ahead of target completion dates).
- Quality-based incentives (e.g., qualification for expedited approvals/inspection requirements for demonstrably exceeding predefined quality standards).[23]
- Cost-based incentives (e.g., sharing savings achieved for identifying ways to reduce costs, such as through value engineering).

Incentives can be stacked or escalated to reward repeated behaviours. Performance incentives should be integrated into the vendor performance evaluation framework as well as project contract documents (Recommendations 19 and 24).

To mitigate against potential disagreements (e.g., disagreement on eligibility for performance incentives), expectations for performance should be established and agreed to at the outset of the project as part of the initial performance evaluation processes. Performance expectations should also be set out as part of the project charter (Recommendation 5).

[22] Our research indicates that several capital delivery units are actively guiding delivery units to submit the following year's procurement plan in advance to better align the procurement cycle with the construction season. This work is a helpful starting point and should be expanded to all capital delivery groups / Divisions.
[23] Quality-based incentives rely on robust quality standards.

Additionally, indicators used to assess performance should be well-defined and set out either within the contract and/or within a document referenced by the contract. Example indicators include:

- Milestone achievement rate
- Advance/delay duration (days)
- Inspection pass rate
- Rework rate
- Number of defects
- Time to rectify defects
- Working hours (extended vs. normal)
- Downtime rate
- Traffic impacts (e.g., lane closure duration)
- Safety meeting attendance
- Number of accidents / incident rate
- Site waste by volume

Recommendation 24: Standardize contract documents, terms, conditions, and language for capital projects

Infrastructure Services' contract documents, terms, and language are not always consistent across capital projects. Industry stakeholders noted that Infrastructure Services solicitation documents and contracts are often modified with additional clauses and conditions, and that the changes are often difficult to identify or determine. In several instances, stakeholders also suggested that additional conditions were added to transfer certain project risks rather than addressing the root causes of those risks.

In addition, internal stakeholders indicated that contract templates are not always maintained, managed, or stored consistently, with some engineering and construction contract templates stored on Divisional intranet pages separate from the broader procurement templates managed by PMMD.

Inconsistent solicitation and contract documents require additional time and resources to review from bidders, contributing to increased bid costs and reduced market interest in City projects.

Infrastructure Services should consider utilizing standardized contract documents, terms, conditions, and language across capital projects. The City previously developed standard language and templates for capital contracts and special provisions. This work should be considered as a starting point for this recommendation. Alternatively, Infrastructure Services should consider adopting industry accepted contract standards.

Additionally, Infrastructure Services should consider limiting the use of "special conditions" and modified, additional clauses. In instances where modified clauses are necessary, develop a standardized list of "template clauses" for Infrastructure Services to add to contracts in a more consistent manner across projects.

Standardized contract documents and templates should be stored in a centralized location and made accessible to all procurement staff and Project Managers.

Delivery

#	Recommendation
25	Implement an enterprise-wide project management information system across capital delivery
26	Establish and incorporate clear, standard requirements and enhance in-field decision making for on-site inspection and contract administration

Recommendation 25: Implement an enterprise-wide project management information system across capital delivery

The tools and platforms that support Infrastructure Services' project management activities are ineffective:

- Different Divisions use different, non-integrated tools, including *Project Tracking Portal*, *ProjectWise* and *Content Service*.
- Nearly all internal stakeholders indicated that existing tools and platforms were ineffective and time consuming.
- There is no consistent internal filing structure for project documents and materials. In several instances, City staff noted that project files were stored on their desktops.

Ineffective project management tools and platforms create several challenges, including:

- Inefficiencies in communication and document management, which limits the effectiveness of project management, contributing to increased project timelines and staff frustration.
- Difficulty in retrieving or tracking project information or files, such as contracts, change management, and communications.
- Challenges evaluating and managing projects against one another.

To address these challenges, Infrastructure Services should consider implementing an enterprise-wide project management information system (PMIS) platform to improve workflow management, improve consistency, and increase service levels across the capital delivery process.

The City is currently in the process of implementing a new PMIS within ECS, *Trimble Unity*. As part of this work, the City should consider extending the implementation of *Unity* to other capital delivery Divisions.

An analysis of business and system requirements was outside the scope of our assessment; however, stakeholder engagement and leading practice research identified the following capabilities that the City should consider incorporating into the new platform:

- **Process-wide integration:** The PMIS platform should be integrated into the updated processes and procedures outlined in the newly developed project management framework (Recommendation 1). All stakeholders involved in capital project delivery and project management should have their workstreams connected to the same system. Similarly, the system should provide a common online platform for stakeholder communications, change management, and digital recordkeeping (including tracking of project cost/schedule metrics, spending forecast, project milestones).

- **Automation:** Routine business processes and data entry should be automated to reduce the administrative burden on staff. Similarly, the system should provide automated time-based notifications for key tasks and upcoming deadlines.
- **Standardization:** The system should support and enforce standard processes, such as data entry and information recording. Stakeholders across the system should follow the same processes and procedures to increase consistency and reduce administrative burdens on City staff.
- **Document management:** The system should include a central document management function. Project-related documents should be centrally stored and accessible for all relevant stakeholders. Standard taxonomy structures should be built in to maintain consistent document management practices.[24]
- **Data and information:** The system should be capable of capturing high quality data to support enhanced performance management.
- **Information sharing:** The system should be capable of producing reports for project stakeholders, including stakeholders not directly involved in the project (e.g., City Manager's Office, City Councillors, and the public).

Recommendation 26: Establish and incorporate clear, standard requirements and enhance in-field decision making for on-site inspection and contract administration

Our research indicates that on-site inspection is not performed consistently across projects or Divisions and is often insufficient. Similarly, many stakeholders indicated that contract administration personnel were frequently absent from project sites often due to competing job requirements (City staff) or contract terms (external consultants). Impacts include:

- **Extended decision-making processes:** Infrequent site visits or involvement from inspectors and contract administrators can delay project-related decisions, impact the quality of work performed, extend work schedules, increase project costs, and negatively impact the surrounding community.
- **Site conditions:** Construction site issues (e.g., untidy sites, traffic disruptions, etc.) can remain ongoing without the inspector or contract administrator being aware.

Contract administration and onsite inspection requirements are set out in ECS' Field Services Manual.[25] Toronto Water and Transportation Services have similar documents.

To address the current gaps with onsite inspection and contract administration, Infrastructure Services should consider updating these documents to ensure that they are consistent and contain the following information:

Contract Administration

- Pre-construction and project initiation:
  - Pre-construction meetings
  - Permits and related project planning documentation
  - Communications protocols and reporting structures

[24] Internal stakeholders indicated that the document management system *Content Server* is in the process of being implemented City-wide. Should the systems remain distinct, the City should explore integration opportunities between *Trimble Unity* PMIS and *Content Server* document management systems.
[25] City of Toronto, Engineering & Construction Services Division (2023). Field Services Manual, 3rd Edition, 2nd Revision

- Documentation and record-keeping:
  - Shop drawings, change orders, submittals, and meeting minutes
  - Inspection reports and approvals
- Progress monitoring:
  - Detailed, up to date construction schedules
  - Cost reporting and expenditures
- Quality assurance:
  - Quality control measures
  - Third-party testing arrangements
- Safety compliance:
  - Health and safety plans
  - Enforcement of health and safety regulations
- Project Closeout:
  - Preparation of as-built drawings, warranties, manuals, and final documentation (as required)
  - Certification for substantial performance
  - Handover and maintenance requirements (if applicable)

On-Site Inspection

- Role of on-site inspector in supporting the project manager in areas including design development, commercial management (e.g., claims, quality assurance)
- Inspection scheduling and frequency
- Inspection duties, roles, and responsibilities
- Inspection reporting and documentation requirements, including records of deficiencies or non-conformance
- Inspection standards, including site condition requirements, quality standards or minimums, etc.
- Communication requirements
- Processes for final inspections and acceptance
- Processes for maintenance period oversight

The “Three Lines of Defence” model can help ensure the updated documents are followed consistently across projects and divisions (Recommendation 6). Specifically, the assurance layer can be used to ensure contract administration and inspection procedures are being followed and help the project team course correct, as needed.

Requirements should be well known by City project managers and apply to both internal and external construction contract administrators and inspectors.

Industry Engagement

#	Recommendation
27	Develop and publish an enhanced industry-facing project pipeline
28	Expand industry engagement mechanisms

Recommendation 27: Develop and publish an enhanced industry-facing project pipeline

Industry stakeholders consistently indicated that, in comparison to other municipalities, they do not have a clear picture of the City's capital project pipeline. While the City's 10-year capital program is publicly available, industry stakeholders indicated that it is not easy to understand or to use as a planning tool.

To address this gap, the City should consider developing and publishing a comprehensive, industry-facing project pipeline. The pipeline should provide a clear, easy-to-understand breakdown of capital projects slated for delivery within the next one, two, and three years, including basic project details like project descriptions and anticipated timelines.

An easy-to-use project pipeline will help increase market interest in City projects by allowing vendors to better anticipate and plan for City projects.

This recommendation should be considered alongside the SCCO's current review of *TO.INview*, which includes an assessment of stakeholder needs as well as system functionalities.

Recommendation 28: Expand industry engagement mechanisms

Industry stakeholders indicated that existing industry engagement, while helpful, could be more effective. Issues identified with the Broader Construction Associations Consultation Group (BCACG), the City's current industry forum, include infrequent meetings, the large number of participants, and the inclusion of both consultants and contractors in the same forum.

To align with leading practice and comparator municipalities, the City should consider expanding on existing mechanisms to establish dedicated forums for specific industry stakeholder groups, including:

- Contractors.
- Consultants.
- Other vendors (as applicable).

Forums should meet regularly and bring together industry associations, industry representatives, and City staff, including project managers, to share insights, challenges, and best practices in capital delivery. The forums should include:

- Encouraging open and productive communication with industry.
- Providing opportunities for industry to provide feedback on challenges and areas for improvement in capital delivery.
- Discussing the City's capital project pipeline and other market-sounding activities.
- Sharing ideas and innovations in the spirit of collaboration and continuous improvement.

Community Engagement & Issues Management

#	Recommendation
29	Embed community engagement and issues management practices into the recommended project management framework
30	Consider consolidating community engagement and issues management resources into area-based teams
31	Expand and enhance the City's community engagement tools

Recommendation 29: Embed community engagement and issues management practices into the recommended project management framework

Robust, proactive community engagement and issues management is a foundational element of effective capital project delivery. Like project management, our research indicates that Infrastructure Services' current approach to community engagement and issues management is inconsistent and often ineffective across projects and Divisions. Specific gaps include:

- There is no formal process or criteria to identify i) the community engagement and issues management needs of different capital projects or ii) when to engage Infrastructure Services' community engagement and issues management teams.
- When community engagement and issues management teams are engaged, it is often too late in the project lifecycle to be fully effective.
- Inconsistent use of Field Ambassadors (they are typically only used on projects with external contract administration, but it is unclear why).
- Unclear roles and responsibilities, particularly between staff in i) ECS, including Project Managers, Issues Coordinators, and Field Ambassadors; and, ii) Policy, Planning, Finance & Administration's Public Consultation Unit.
- Limited formal practices or documentation to support community engagement and issues management activities.
- Limited, often ineffective handoffs between project lifecycle phases, particularly between the design and delivery stages as projects transition from consultation-related activities (gathering input on a project) to engagement-related activities (communicating that a project will be taking place).

To address these gaps, Infrastructure Services should consider embedding community engagement and issues management practices into the proposed project management framework (Recommendation 1). Specifically, it should:

- Clearly define roles and responsibilities related to community engagement and issues management, including delivery teams (e.g., the City's Project Manager) and community engagement and issues management teams (e.g., Issues Management Coordinators, Public Consultation Unit, Field Ambassadors).
- Develop criteria to identify the community engagement and issues management needs of different capital projects, aligned to the proposed project categorization approach (Recommendation 4), including the use of Field Ambassadors.
- Develop consistent procedures for community engagement and issues management that are customizable based on project size, complexity, community impacts, and other factors.

- Identify the role of community engagement and issues management teams at each stage gate in the project lifecycle, focusing in particular on opportunities for early-stage involvement and the transition between design and delivery (Recommendation 3).
- Integrate community engagement and issues management into supporting project governance, including project charters and project close-out activities.

Embedding community engagement and issues management into the proposed project management framework will help eliminate redundancies, enhance accountability, and create the foundation for a more tailored, proactive approach.

Recommendation 30: Consider consolidating community engagement and issues management resources into area-based teams

Community engagement and issues management services are primarily provided by teams located within ECS (Project Managers, Issues Coordinators, and Field Ambassadors) and Policy, Planning, Finance & Administration's Public Consultation Unit (dedicated Senior Public Consultation Coordinators and a Program Manager). For the most part, these teams are organized around specific projects or project types (e.g., bridges, roads, basement flooding).

Infrastructure Services should consider consolidating its core community engagement and issues management teams into a single unit organized into area-based teams. These teams would act as "one window" resources for local communities and City Councillors, providing regular briefings about area-specific construction activities and more responsive issues management.

Potential benefits include:

- A broader neighbourhood-wide perspective that can help identify and mitigate the cumulative impacts of multiple construction projects within a single area.
- A better understanding of the unique needs and characteristics of different communities, helping build trust and tailor activities to community needs.
- A closer connection between delivery and community engagement, improving the flow of information.
- Clearer roles, responsibilities, and accountabilities between various community engagement and issues management staff.
- Clearer distinction between community consultation activities, which take place before construction, and community engagement and issues management activities, which take place during construction.

In addition to area-based teams, Infrastructure Services should also consider retaining specialized roles to support City-wide programs with unique community engagement needs, such as the Gardiner Strategic Rehabilitation Program and the Basement Flooding Protection Program.

To support the implementation of area-based teams, Infrastructure Services should consider including community engagement and issues management in the proposed resourcing assessment (Recommendation 9).

Recommendation 31: Expand and enhance the City's community engagement tools

Public-facing community engagement materials are not always accessible, user-friendly, or responsive. Internal and external stakeholders indicated that project-specific communications can be overly technical and difficult to understand for the general public.

To address these gaps, Infrastructure Services should consider expanding and enhancing its community engagement tools by:

- Conducting a plain language review of all public-facing communications related to capital delivery. The review should focus on opportunities to simplify communications, including construction notices, newsletters, and web content, to ensure clarity and accessibility for all audiences.
- Developing an enhanced, centralized, user-friendly web platform to share capital project communications and provide real-time updates on project plans, status updates, timelines, impacts, benefits, and adjacent projects.
- Taking advantage of new or revised online mapping tools, such as those developed by the SCCO to further enhance engagement efforts.
- Implementing a centralized customer relationship management system to track and manage inquiries, concerns, communications, and project updates. The system should be integrated with the City's 311 system for streamlined issue tracking, management, and resolution.

Appendix A: Current State Assessment

This appendix presents the challenges identified through our current state assessment for each layer of our assessment framework. These findings were shared with the City Project Team as part of our Interim Report.

Project Management

Table 3: Challenges - Project Management

#	Challenge	Description
1.1	No city-wide project management framework	• The current approach to project management and delivery varies across Divisions. Different Divisions undertake various components of project management differently, including project planning, scope definition, schedule development, budget development, risk classification, document management, procurement, change management, and delivery. For example, Toronto Water has established a project charter process, while Transportation Services described an ad-hoc approach for business case development. • While the City has the Capital Works Procedures manual, it is used inconsistently across Divisions. For example, Toronto Water and SWMS both developed their own supporting standard operating procedures and documents/forms to support project management and/or to supplement the manual. • Different approaches to project management result in inconsistent approaches to decision making, documentation, and reporting. This limits the City's ability to compare performance across different projects or Divisions, and also creates challenges with inter-Divisional coordination/collaboration (see also Challenge 2.5).
1.2	Inefficient contract change process	• The contract change process is inconsistent and inefficient. In some of the cases included in our research, it could take several months. • City staff and consultants indicated they are not empowered to accept/approve changes in the field (see also Challenge 2.4). As a result, changes must go through additional layers of approval. • City staff also identified a culture that disincentivizes change orders by evaluating staff performance against the number of changes approved on file. • Lengthy internal approvals for changes contributes to project delays and result in extended payment periods for contractors.

#	Challenge	Description
1.3	Lack of modern project management information system (PMIS)	• The City does not have a modern PMIS to support capital delivery. • While the City uses the *Project Tracking Portal* (PTP), internal stakeholders indicated that it is not effective at tracking/documenting/recording all aspects of the project management process. • As a result, project documents and materials are stored inconsistently, making it difficult to track or retrieve relevant project information, such as contracts, change management, and communications. • This hinders efficient project management, further contributing to project timelines and staff frustration. • Note: *Trimble Unity* is expected to address some of these challenges, but a careful review of the platform was not included within the scope of our current assignment.
1.4	Inconsistent storage and management of project documentation and materials	• The City uses *ProjectWise* for document management, however City staff indicated there is no consistent internal filing structure for project documents and materials. • City staff noted they often store project files on their desktop for extended periods due to challenges using ProjectWise. • Our review of City projects identified significant variation in project documentation type, format, content, and volume. • Inconsistent document management creates challenges for retrieving project information or files at a later date, and makes it difficult to evaluate/manage projects against one another.
1.5	No formal process to assess/evaluate project performance	• There is no process to evaluate project performance following completion, including gathering feedback from project stakeholders. • Contributes to the recurrence of well-known challenges across projects.

Portfolio Management & Governance

Table 4: Challenges - Portfolio Management & Governance

#	Challenge	Description

2.1	No enterprise-wide framework for capital portfolio management	• The City does not have an enterprise-level framework to support capital portfolio management.
		• Internal and external stakeholders indicated that while processes and procedures to support portfolio management do exist, they are not effective or inconsistently followed.
		• Specific gaps identified through our research include:
		  ○ Coordination in design, procurement, and delivery of capital projects across Divisions and with external delivery partners.
		  ○ Prioritization and planning of capital projects across the City.
		  ○ Identification of impacts of construction projects on other projects and/or adjacent City services (e.g., adjacent roadways, transit, etc.).
		• The lack of standardized approach leads to inconsistencies in project delivery, contributes to project delays, and exacerbates neighbourhood impacts such as traffic management.
		• The newly created Strategic Capital Coordination Office is expected to address some of these challenges though its mandate and functions are still developing.

2.2	Sometimes unclear governance structure	• Inconsistent application of project sponsor role and lack of clarity between roles and responsibilities of delivering/client Divisions and sponsoring Divisions. • In the design and planning phases, capital projects were often described as “managed by committee”, with unclear decision-making processes. • Contributes to further inconsistencies in capital delivery processes described in Challenge 2.1.
2.3	No framework to determine when to use external consultants	• The approach to when and how external consultants are used for design, contract administration, and/or issues management varies across Divisions and projects. • There is no clear guidance on which services or projects are best suited to internal or external delivery. • Contributes to unclear roles and responsibilities across the project delivery lifecycle.

#	Challenge	Description
2.4	Ineffective delegation of authority	• Delegation of authority limits are generally low and ineffective across the capital delivery lifecycle. • City staff lack sufficient authority to approve project-specific decisions, including approvals related to procurement and project changes. For example, capital project contracts must pass through the Bid Award Panel for approval including those already included in the City's 10-year capital plan. • A majority of project decisions require senior-level approval (at times multiple levels of approval), which hinders efficiency of project delivery and causes delays in project timelines in both procurement and project execution. • Additionally, sub-optimal project management decisions are sometimes made as workarounds to current delegation of authority limits. For example, City stakeholders indicated that capital projects are sometimes split into smaller, separate, less efficient scopes to fit under the Bid Award Panel approval thresholds to expedite approval, increasing procurement workloads and removing efficiencies of scale in delivery.
2.5	Ineffective process for inter-Divisional collaboration/delivery	• Ineffective processes in place for collaboration/working between different Divisions related to project design, delivery, and project management. • Staff described that some service level agreements exist between certain Divisions, however they are not always followed and/or don't exist for all Division collaboration relationships/scenarios. • Contributes to extended project timelines and causes frustration with City staff and external parties as roles, responsibilities, and expectations are unclear. • No formalized process for coordinating communications for simultaneous/adjacent projects in the City.
2.6	Developing quality assurance function	• The City does not yet have an effective, portfolio-wide assurance function that addresses design, procurement, project management, contract administration, communications, and issues management. • Internal and external stakeholders consistently indicated that many well-known challenges remain unaddressed, often contributing to decisions to not bid on City projects.
2.7	Workload and resourcing constraints	• City staff consistently indicated that existing staffing levels were ineffective, particularly given the increasing volume of capital projects.

#	Challenge	Description
2.8	Some instances of adversarial culture	• Our assessment highlighted several instances of a sometimes adversarial relationship between City Divisions and between the City and external vendors. • Reasons identified by stakeholders include misaligned objectives or priorities, unclear roles and responsibilities, limited opportunities for effective collaboration and relationship building, and a City-wide aversion to risk. • Instances of adversarial cultures negatively impact effective project delivery, create inefficiencies in internal and external working interfaces, and discourage industry participation on City capital projects.

Planning & Design

Table 5: Challenges - Planning & Design

#	Challenge	Description
3.1	No standardized process or framework for project design	• The process for project design, including development of project business cases, briefing materials, and detailed design documents, is not standardized (see also Challenge 1.1). Mechanisms such as stage-gate processes to enforce a certain level of design and document development quality are lacking. • ECS staff noted that, as a result, design materials are developed inconsistently and in varying levels of quality and content, sometimes missing key details and/or aspects. • Insufficiently detailed and/or standardized design materials require additional revisions and coordination with ECS and/or client Divisions, which contributes to project delays and staff frustration.
3.2	No framework for QA/QC oversight for external design work	• City staff noted that there is no framework and supporting processes for QA/QC oversight on externally delivered design work. • With projects becoming more complex, design work of consultants requires more rigorous QA/QC. City staff noted several examples where designs were delivered by consultants with insufficient oversight, and subsequently missed key details (e.g., existing site conditions, such as utilities, TTC tracks, etc.) • Design omissions can lead to delays in subsequent stages of capital delivery, as well as increased costs.
3.3	No deadline for scope or design changes	• Scope and design changes can be made very late in the design process, with no formal deadline or limit for incorporation into design. • Late requests for scope/design changes cause delays and lead to additional project costs.

#	Challenge	Description
3.4	No mechanism for pre-design extensions to support coordination work	• For projects with coordinated pre-design engineering work (e.g., with TTC), contracts for the original design work sometimes expire by the time of design/delivery without provision for integration or support. • Original pre-design firms are unable to offer subsequent design support without a contract in place, which was noted by City staff as being a time-intensive process, contributing to project timelines.

Procurement

Table 6: Challenges - Procurement

#	Challenge	Description
4.1	No process for delivery model evaluation/selection	• There is no process for evaluating the suitability of capital delivery models available for specific projects. • City processes, standards, experiences, and training are focused on the DBB model only. City staff indicated that they do not possess the capabilities nor the resources to consider alternative models.
4.2	Disproportionate project risk allocation	• Internal and external stakeholders consistently indicated that a disproportionate amount of risk is increasingly being placed on contractors and proponents, increasing cost implications (i.e., bid prices) and reducing market interest in City procurements.
4.3	Overly specific qualification requirements	• Project qualification requirements are sometimes overly specific (e.g., requiring project experience within a very short/recent timeframe, for work that is rarely completed in Canada, or combinations of requirements that could not be reasonably expected of bidders). • Additionally, project requirements are inconsistently applied across projects – similar City projects will require different sets of project requirements. • Inconsistently applied and overly specific requirements decrease market interest in City tenders and unnecessarily limit the pool of potential bidders, leading to less competition and higher prices.
4.4	Inflexible and resource-intensive single-stage tendering process	• The single-stage tendering process is time-consuming and resource-intensive for applicants, requiring contractors to submit their qualifications alongside their bid. • External stakeholders indicated that when bids are disqualified, the City does not provide opportunities to address corrections – bids are simply disqualified (at times for overly specific reasons – see Challenge 4.3). Contractors noted that in such scenarios, had they known about the qualification issues, they may not otherwise have decided to prepare a bid submission, thereby not expending as many resources. • The current tendering process results in increased bid costs and reduced market interest in City projects.

#	Challenge	Description
4.5	Inconsistent contract documents	• City contract documents, terms, and language are not consistent across projects, without indication as to where materials differ from prior and/or standard versions (e.g., date/version stamps). • Industry stakeholders noted that City tender contracts are continually modified with additional clauses to address unforeseen conditions. In several instances, industry representatives suggested that additional special conditions were added to transfer additional risks, rather than addressing the root causes of the project risks outright (see Challenge 4.2). • Inconsistent documents require additional time and resources to review from bidders, contributing to increased bid costs and reduced market interest in City projects.
4.6	Insufficient tender/RFP information shared with bidders	• The level of information provided in RFPs/tenders is often insufficient for bidders to prepare high-quality submissions. Bidders must make assumptions and interpretations on project scope and specifications within tender materials, because it is not clear exactly what the City is looking for. • Numerous amendments are often required to clarify ambiguities within tender documents, increasing procurement timelines and bid costs. • Many industry stakeholders indicated that information typically shared by comparator municipalities is often withheld by the City (e.g., low bid price, RFP takers, list of bidders, etc.). • Lack of clarity around RFP/tender requirements creates additional administrative burden on vendor and City staff, decreases market interest in City tenders, and results in higher bid price submissions due to uncertainties in City expectations/requirements.
4.7	Limited performance incentive options	• City procurement processes lack effective methods to incentivize performance or desired behaviours from vendors. • Schedule or quality-based performance incentives are rarely used. Contracts typically only use liquidated damages as “sticks” to motivate contractors, which was noted by both City and external stakeholders to be ineffective; they also increase the costs of contracts as contractors include them within their bids.
4.8	Ineffective vendor performance evaluation framework	• Internal and external stakeholders indicated that the vendor performance evaluation process is ineffective. Evaluations are not completed consistently and according to the required schedule. Additionally, the framework lacks clear, objective criteria, resulting in unclear expectations and/or subjective evaluations. • Vendor evaluations are not robust enough to be meaningfully incorporated into procurement decisions, except for cases where vendors are banned due to major violations. Poor performing vendors continue to win work and have limited incentive to significantly improve their performance (see Challenge 4.7).
4.9	No established “time-to-award” standard or process	• The City’s procurement policy does not include an established standard or target timeline for the award of contracts. • Award times for City contracts are inconsistent and often exceed 30 days (average award time for projects reviewed as part our work was 64 days). In several instances, contract award timelines extended beyond originally scheduled project start dates. This is exacerbated by ineffective delegation of authority limits for procurement (see Challenge 2.5). • Delays in contract award result in reduced time available within the construction season for contracts to be completed. Long and inconsistent award times also create challenges for contractors, who either end up losing time/resources while waiting for award notice or committing themselves elsewhere.

#	Challenge	Description
4.10	Ineffective procurement timing and market alignment	• The City issues most of its RFPs in the new year (as a result of the City's budget cycle). This timing of RFPs is not optimally aligned with the City's construction season nor of that of other municipalities (who typically issue RFPs late in the prior year). • The resulting project schedules cannot be optimally aligned with the construction season (e.g., utility/underground and pre-works that could be completed in the off-season to extend the normal construction season). • Contractors also often end up committing resources to projects with other GTA municipalities, which reduces the number of bidders on City tenders and increases bid process. This is exacerbated by the City not publishing its planned project pipeline (see Challenge 6.2). • Additionally, the City does not evaluate or limit the number of tenders on the market prior to or as part of the project procurement process. This can exacerbate challenges with bids by overloading vendors with tenders, further limiting their ability to respond to tenders and reducing the number of submissions received.
4.11	Ineffective engagement with PMMD	• City staff consistently indicated that PMMD's current role is more transactional than strategic. Specific challenges impacting the effectiveness of PMMD include: late engagement from client Divisions; insufficient communication related to project changes (scope, timing); process gaps related to delivery model selection; and insufficient PMMD resourcing. • By not being included/engaged more comprehensively, PMMD is limited in its ability to coordinate with other procurements or establish economies of scale in procurement. It also hinders PMMD's ability to resource teams effectively to meet demand from client Divisions.

Delivery

Table 7: Challenges - Delivery

#	Challenge	Description
5.1	Inconsistent contract administration	• Internal and external stakeholders described the City's contract administration process to be inconsistent and largely dependent on the entity/person performing the work (across both internally and externally delivered contract administration). • Inconsistent approaches and experience of contract administrators make it difficult for contractors to anticipate what expectations will be.
5.2	Insufficient on-site oversight/inspection	• On-site oversight/inspection (both by City staff and external consultants) is inconsistent, and in some cases lacking. • City staff described contract administration personnel (both internal and third party) as not being on site enough to enable effective decision making nor oversight for quality.
5.3	Holdback requirements are limiting bidders	• Contractors and consultants indicated that the City's holdback requirements are limiting bidders' ability to deliver on contracts. • As contracts increase in value, the City's practice of holding back 10% of project value challenges contractor and consultant cash flow, particularly with larger value, longer term projects. This is exacerbated in situations where holdbacks have increased (some contractors reported holdback as high as 20%). • Consultants indicated that the City is one of their only clients that applies holdback to their work.

Industry Engagement

Table 8: Challenges - Industry Engagement

#	Challenge	Description
6.1	Existing forums for industry engagement are ineffective	• Industry stakeholders indicated that existing industry engagement, while helpful, could be much more effective. Specific challenges related to BCACG, the City's existing industry forum, include: the high number of participants; and the inclusion of both consultants and contractors together, which can hinder frank dialogue.
6.2	Limited visibility on City project pipeline	• Industry stakeholders consistently indicated that, in comparison to other GTA municipalities, they did not have a clear picture of the City's capital project pipeline. While the City's 10-year capital program is publicly available, external stakeholders indicated that it was not easy to use. • Similarly, industry stakeholders indicated that they did not have a clear picture of work planned for the City's various rosters. • The unclear pipeline reduces market interest in City tenders.

Community Engagement & Issues Management

Table 9: Challenges - Community Engagement & Issues Management

#	Challenge	Description
7.1	Informal/inconsistent/ ineffective communications practices	• Limited formal processes or documentation to support communications and community engagement related to capital project delivery. • There is existing guidance on roles and responsibilities for project communications in the Customer Experience Manual, however it is not consistently known or followed by City staff. • Lack of established, formal communications processes results in communications and community engagement happening on an inconsistent, sometimes ad-hoc basis. Public/community communications are sometimes managed by Project Managers, and at other times by SPEC/PCU.
7.2	Ineffective communications materials and systems	• Internal and external stakeholders indicated that project-specific communications can be overly technical and difficult for the general public to understand. • Similarly, internal and external stakeholders indicated that *TO.Inview* is not an effective communications tool for external audiences, including contractors, consultants, and members of the public.
7.3	Ineffective, non-standardized issues management practices	• Issues management varies significantly across projects and Divisions, including the use of field ambassadors, the roles and responsibilities of City staff and consultants, and supporting issues management practices. • Many stakeholders indicated that the recently created issues management groups within Toronto Water and Transportation Services appeared to be a significant improvement over the status quo.

Appendix B: Maturity Assessment

This appendix presents our maturity assessment of Infrastructure Services' capital delivery program.

Figure 11, below, presents a summary of the assessment across each layer of our assessment framework. Additional detail is included in Table 10. The assessment also includes the relative maturity of leading and lagging comparators. It is based on information from our current state assessment, leading practice research and broader industry knowledge and experience.

The maturity assessment has five levels, from informal (level 1) to optimized (level 5), broadly aligning with PMI's Organizational Project Management Maturity model. See Table 11 for a description of each level.

Based on our findings, Infrastructure Services consistently scored between 2 and 3 across each layer. Overall:

- Basic processes, practices, and procedures are typically established and documented, allowing for some repeatability in outcomes, yet are not standardized across the organization.
- Activities tend to be reactive, with several examples of technology incorporated into processes, however not always consistently and at times with limited effectiveness.

Figure 11: Capital Program Delivery Maturity Assessment

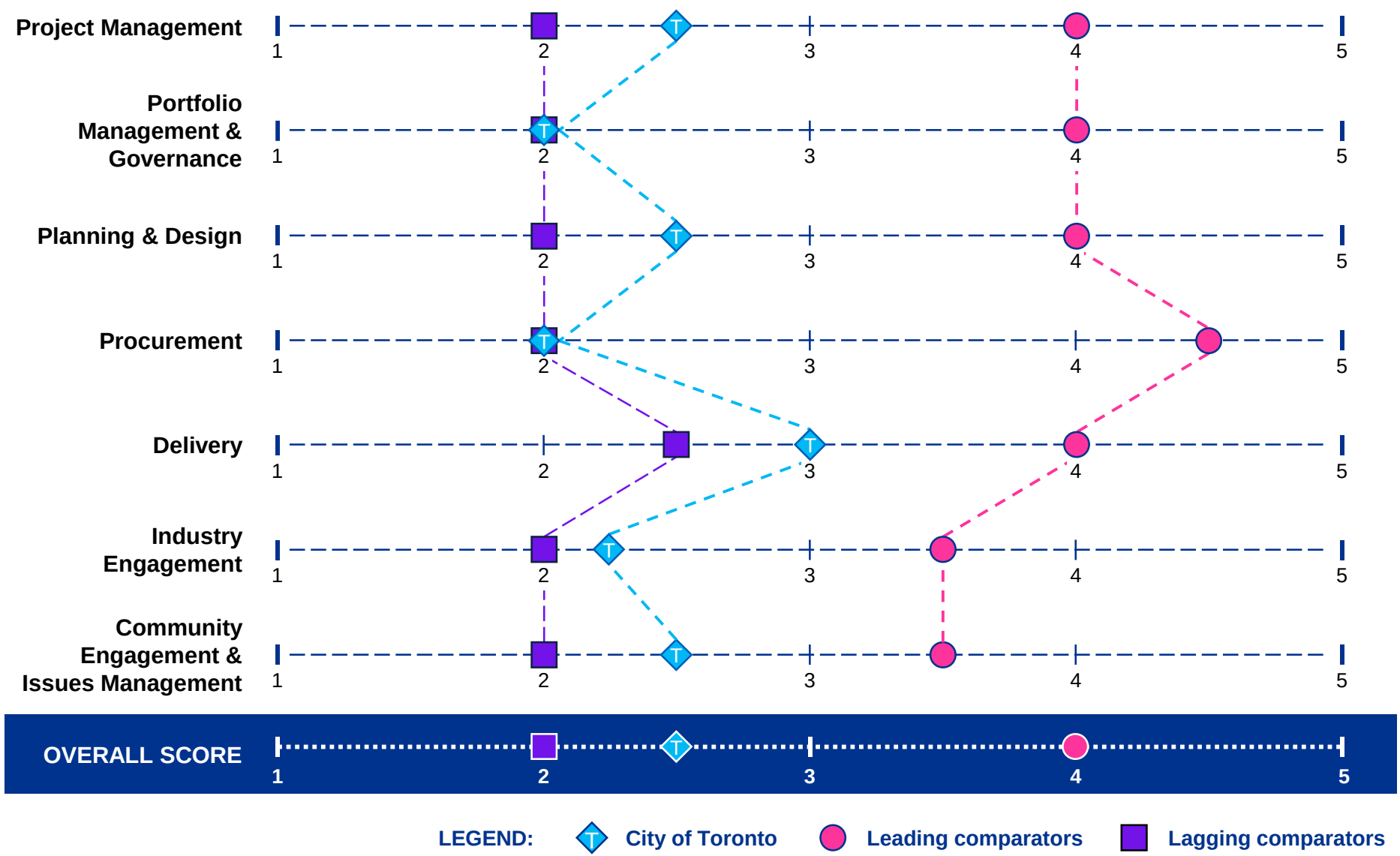


Table 10: Maturity Assessment Details

No.	Layer	Maturity Assessment
I	Project Management	• Different Divisions undertake various components of project management differently, including project planning, scope definition, schedule development, budget development, risk classification, document management, procurement, change management, and delivery. • Capital Works Procedures manual is in place but is used inconsistently across Divisions. • Lack of modern PMIS in place to support capital delivery. PTP is not effective at tracking/documenting/recording all aspects of the project management process. • Delegation of authority limits are generally low and ineffective across the capital project lifecycle. • Inconsistent storage and management of project documentation and materials. • No process to evaluate project performance following completion, including gathering stakeholder feedback.
II	Portfolio Management & Governance	• No enterprise-wide framework to support capital portfolio management. Some processes and procedures exist to support portfolio management, however they are ineffective or inconsistently followed. • Limited coordination in prioritization, design, procurement, and delivery of capital projects across Divisions and with external delivery partners. • Sometimes unclear governance structure – inconsistent application of Project Sponsor role and lack of clarity between roles and responsibilities of delivering/client Divisions and sponsoring Divisions. • Ineffective processes in place for collaboration/working between different Divisions related to project design, delivery, and project management. • Effective, long-term view of capital delivery. • The newly created Strategic Capital Coordination Office is expected to address some of these challenges though its mandate and functions are still developing.

No.	Layer	Maturity Assessment
III	Planning & Design	• The process for project design, including development of project business cases, briefing materials, and detailed design documents, is not standardized. • Mechanisms to enforce a certain level of design and document development quality are lacking. • Design materials are developed inconsistently and in varying levels of quality and content, sometimes missing key details and/or aspects. • Scope and design changes can be made late in the design process; no formal deadline for incorporation into design.
IV	Procurement	• No process for evaluating the suitability of capital delivery models available for specific projects. • Project qualification requirements are sometimes overly specific and inconsistently applied across projects (e.g., similar City projects will require different sets of project requirements). • City contract documents, terms, and language are not consistent across projects, without indication as to where materials differ from prior and/or standard versions (e.g., date/version stamps). • The level of information provided in RFPs/tenders is often insufficient for bidders to prepare high-quality submissions. Numerous amendments are often required to clarify ambiguities within tender documents. • The vendor performance evaluation process is ineffective, not completed consistently and according to the required schedule, and lacking sufficiently clear and objective criteria to be robust enough to be meaningfully incorporated into procurement decisions. • Projects already approved and in the 10-year capital plan still need to go to Bid-Award Panel for approval. • Ineffective procurement timing and market alignment. Time to award is inconsistent and often exceed 30 days (average time for projects reviewed was 64 days). • Disproportionate amount of risk is increasingly being placed on contractors and proponents, increasing cost implications (i.e., bid prices) and reducing market interest in City procurements.

No.	Layer	Maturity Assessment
V	Delivery	• Delivering significant volume of increasingly complex capital projects. • Majority of projects are delivered without major issue. • Contract administration process noted to be inconsistent and largely dependent on the entity/person performing the work (across both internally and externally delivered contract administration). • On-site oversight/inspection (both by City staff and external consultants) is inconsistent, and in some cases lacking.
VI	Industry Engagement	• Examples of leading community engagement practices exist from project-to-project, however they are inconsistently applied across Divisions and capital delivery more broadly. • Limited use of formalized practices for gathering industry feedback related to capital project delivery practices (including design, project management, and procurement). • Existing forums for industry engagement are ineffective. • Limited visibility on City project pipeline (particularly in comparison to other GTA municipalities) as well as various rosters.
VII	Community Engagement & Issues Management	• Examples of leading community engagement practices exist from project-to-project, however they are inconsistently applied across Divisions and capital delivery more broadly. • Limited formal processes or documentation to support community engagement and issues management related to capital project delivery. Existing guidance on roles and responsibilities for project communications exists in the Customer Experience Manual, however it is not consistently known or followed by City staff. • Project-specific communications/information sharing can be overly technical and difficult for the general public to understand. • *TO.Inview* is not an effective communications/information sharing tool for external audiences, including contractors, consultants, and members of the public. • Issues management varies significantly across projects and Divisions, including the use of field ambassadors, the roles and responsibilities of City staff and consultants, and supporting issues management practices.

Table 11: Maturity Assessment Levels

	Lvl. 1: Informal	Lvl. 2: Repeatable	Lvl. 3: Defined	Lvl. 4: Managed	Lvl. 5: Optimized
Project Management	Project management is reactive and lacks formal structure, with no standardized processes or methodologies; projects are managed independently by divisions, leading to inconsistencies and inefficiencies in achieving project objectives.	Basic project management processes exist, allowing for some predictability in outcomes; however, these processes are not yet standardized across divisions, resulting in varied approaches to project execution and limited use of structured methodologies and standardized tools/platforms.	Standardized project management methodologies, including stage gates and other structured frameworks, are implemented across all divisions, ensuring consistency in project execution and facilitating better control over project scope, schedule, and resources; integration of PMIS platforms into primary project management workflows.	Projects are managed with comprehensive metrics and controls, leveraging standardized processes to ensure objectives are met efficiently; cross-divisional collaboration is enhanced through the consistent application of methodologies like stage gates, enabling proactive risk management and quality assurance; full integration of PMIS platforms into all project management workflows.	Project management processes are continuously refined and improved through the integration of best practices and innovative approaches; advanced tools and techniques support adaptive project management across divisions, fostering a culture of continuous improvement and excellence in capital delivery; full integration of PMIS platforms into all project management workflows as well as internal and external information sharing.
Portfolio Management & Governance	Portfolio management is ad hoc and reactive, characterized by minimal coordination among capital projects and an absence of formal governance structures, leading to siloed decision-making without strategic alignment.	Basic governance processes are in place, allowing for some repeatability and coordination; however, inter-divisional collaboration remains inconsistent, with limited mechanisms for integrated oversight of projects across the portfolio.	Portfolio management processes are standardized and documented, ensuring coordinated decision-making across divisions with clearly defined roles for governance and oversight, promoting consistent project alignment with municipal objectives.	The portfolio is actively managed using performance metrics, emphasizing strong interdivisional collaboration and alignment with strategic goals to optimize project delivery; cross-functional teams work together to address portfolio-wide challenges and opportunities.	Portfolio management is continuously improved through innovative practices that foster a culture of strategic alignment and collaboration across the municipality; adaptive frameworks enable responsive adjustments to changing community needs and priorities, ensuring optimal resource allocation and project synchronization.

	Lvl. 1: Informal	Lvl. 2: Repeatable	Lvl. 3: Defined	Lvl. 4: Managed	Lvl. 5: Optimized
Planning & Design	Planning and design efforts are unstructured and vary significantly between divisions, with little to no formal documentation or standardized procedures; the use of external design consultants is ad hoc and lacks strategic oversight, leading to inconsistent project outcomes.	Some planning and design processes are repeatable within divisions, but there is limited standardization across the municipality; external consultants may be engaged sporadically, with processes for their integration not yet fully developed or consistent.	Standardized planning and design procedures are established across all divisions, ensuring consistency in the development of business cases, feasibility studies, and technical specifications; clear protocols are in place for engaging and managing external design consultants to ensure alignment with municipal standards and objectives.	Planning and design processes are managed through rigorous analysis and validation, with standardized methodologies applied consistently across divisions; strategic use of external consultants is optimized through well-defined contracts and performance metrics, enhancing project quality and efficiency.	Planning and design processes are continuously improved through feedback loops and innovative practices; divisions collaborate with external consultants using advanced tools and techniques, ensuring that designs are not only aligned with municipal goals but also incorporate cutting-edge solutions to meet community needs effectively.
Procurement	Procurement activities are conducted on an ad hoc basis without formal planning or standardized procedures, resulting in inconsistent practices across divisions; there is little consideration for capital delivery model options or strategic alignment with market conditions.	Basic procurement processes exist within divisions, allowing for some consistency; however, these processes are not standardized across the municipality, and strategic considerations such as aligning procurement with market conditions or exploring alternative delivery models are limited.	Procurement processes are standardized and well-documented across all divisions, ensuring compliance and efficiency; there is a structured approach to evaluating various capital delivery models, and initial efforts are made to align procurement timing with market conditions through regular market engagement exercises.	Procurement is strategically managed with performance metrics to optimize cost-effectiveness and supplier relationships; divisions consistently apply standardized processes and actively engage in market sounding exercises to align procurement strategies with market dynamics and explore delivery model options to obtain the best value for the project.	Procurement processes are continuously enhanced through strategic sourcing, advanced analytics, and innovative practices; there is a proactive approach to aligning procurement activities with market conditions, leveraging alternative delivery models effectively, and fostering strong partnerships with suppliers to maximize value and project outcomes.

	Lvl. 1: Informal	Lvl. 2: Repeatable	Lvl. 3: Defined	Lvl. 4: Managed	Lvl. 5: Optimized
Delivery	Project delivery is unstructured and varies significantly between divisions, with no standardized processes or formal mechanisms for managing budgets, schedules, or contract changes; delegation of authority is unclear, leading to inefficiencies and delays.	Some delivery processes are repeatable within divisions, allowing for more predictable outcomes; however, these processes lack standardization across the municipality, and strategic considerations such as budget management and schedule adherence are inconsistently applied.	Standardized delivery processes are established across all divisions, ensuring consistency in managing project timelines, budgets, and quality standards; clear protocols for contract change management and delegation of authority are in place to streamline decision-making.	Delivery is strategically managed with comprehensive metrics and controls to ensure projects meet objectives efficiently; standardized processes facilitate proactive management of budgets and schedules, while robust contract change management procedures minimize disruptions and enhance adaptability.	Delivery processes are continuously improved through innovative practices and advanced project management tools; strategic delivery considerations are fully integrated, enabling dynamic budget and schedule management, effective contract change handling, and empowered delegation of authority to optimize project outcomes and resource utilization.
Industry Engagement	Industry engagement is ad hoc and uncoordinated, with limited communication or collaboration across divisions; there are no formal processes for sharing capital project information (e.g., project pipeline, procurement information, etc.), gathering industry feedback, or maintaining constructive relationships with industry stakeholders.	Basic industry engagement practices exist within some divisions; however, these efforts are inconsistent and lack standardization across the municipality, with limited opportunities for structured feedback or collaboration with industry.	Standardized processes for industry engagement are established across all divisions, ensuring consistent communication and collaboration; the municipality provides regular updates on the capital project pipeline and creates structured opportunities to gather feedback and input from industry stakeholders.	Industry engagement is strategically managed with formalized plans and performance metrics to foster strong relationships with industry; divisions consistently apply standardized practices to maintain open communication, provide regular pipeline updates, host industry forums or market sounding exercises, and actively incorporate feedback to improve project delivery.	Industry engagement processes are continuously improved through innovative practices and advanced tools to enhance collaboration; the municipality maintains dynamic and transparent relationships with industry stakeholders by providing real-time updates on the capital project pipeline, proactively seeking input through structured engagements (e.g., workshops, consultations), and aligning practices with best-in-class standards to ensure mutual value in delivering high-quality capital projects.

	Lvl. 1: Informal	Lvl. 2: Repeatable	Lvl. 3: Defined	Lvl. 4: Managed	Lvl. 5: Optimized
Community Engagement & Issues Management	Community engagement is ad hoc and inconsistent, with no formal processes for providing updates, gathering feedback, or addressing concerns; information sharing is limited, and community members face significant barriers to accessing project information or sharing feedback/issues.	Basic community engagement practices exist, including providing occasional updates and limited opportunities for sharing feedback; however, these efforts are inconsistent across the municipality and from project-to-project, and there are few structured mechanisms to address community concerns or ensure ease of access to information or feedback channels.	Standardized processes for community engagement and issues management are implemented across all divisions and capital projects, ensuring consistent communication and proactive outreach to local communities; regular project updates are provided through accessible channels; structured opportunities for gathering feedback are established; initial steps are taken to address concerns systematically throughout the project lifecycle, including the use of on-site City representatives.	Community engagement is strategically managed with comprehensive plans that include regular updates, accessible feedback mechanisms, and proactive issue resolution; best practices such as on-site City representatives and user-friendly platforms (e.g., websites or apps) for sharing information or submitting concerns are consistently implemented to foster trust and transparency with local communities.	Community engagement processes are continuously improved through innovative practices and advanced tools to enhance transparency, responsiveness, and collaboration; the municipality maintains dynamic relationships with local communities by providing real-time updates, hosting regular engagement sessions to gather input, addressing concerns promptly through dedicated on-site representatives or digital platforms, and aligning practices with leading standards to ensure community needs and expectations are consistently met throughout the project lifecycle.

Appendix C: Council Motion Overview

As part of our work, the City asked us to consider three City Council and Committee motions related to capital program delivery. Our analysis, summarized in the body of this report, resulted in various findings and recommendations related to the motions. Table 12, below, provides a summary of the motions as well as relevant findings and recommendations from our analysis.

Table 12: Council Motion Overview

Motion	Description	Relevant Findings	Relevant Recommendations
GG3.21 Request for Review of Engineering Services Capital Delivery Models	• Review engineering services capital delivery models, including in-house, program management, traditional consultant design and construction and hybrid models. • Consider the composition, size, and complexity of contracts as well as opportunities to increase competition and favourable process from delivery partners.	• Infrastructure Services does not have a framework, process or criteria to help determine when to use different delivery models, including the use of external consultants for design and contract administration. There is significant variation across Divisions and projects. • Infrastructure Services uses a traditional DBB model for nearly all projects. The Service Area's use of the DBB model is generally effective but exclusive, and there are opportunities to consider using additional models. • The proposed delivery model selection framework will help Infrastructure Services rigorously and consistently evaluate the effectiveness of different delivery models for particular projects, including whether to use internal or external resources for design and contract administration. • The proposed project management framework, particularly the use of stage gates and project categorization, will also support delivery model selection by clearly identifying when it takes place and who is involved. • Creating a standard project design process and enhancing QA/QC for design work will also support the use of a broader range of delivery models.	4, 12, 14, 16

Motion	Description	Relevant Findings	Relevant Recommendations
IE6.7 Military Trail Road Reconstruction	• Evaluate the contract management model used by the City to oversee infrastructure work done by contractors, including how past performance is taken into account on future contracts.	• The City's vendor performance evaluation tools – the Contractor Performance Evaluation and Professional Services Performance Evaluation – are not used consistently across Infrastructure Services nor effectively incorporated into future procurement decisions. Similarly, with few exceptions, the City does not use performance incentives to encourage contractors to meet or exceed performance goals. • The City recently updated its vendor performance evaluation tools, including the introduction of objective evaluation criteria and guidance to Project Managers on how to conduct performance evaluations. • The proposed project management framework can help improve the effectiveness of existing vendor performance evaluation tools by identifying when evaluations should take place, clarifying roles and responsibilities and making vendor performance evaluations a mandatory component of project closeout procedures. • The City should also consider opportunities to integrate vendor performance evaluations into future procurement decisions as well as a broader range of performance incentives to improve contractor performance.	7, 19, 20, 23
MM11.10 Code of Conduct	• Develop an enforceable Code of Conduct to be adhered to and singed by all companies doing construction, repair or maintenance work under contract to the City.	• The City has many different policies and guidelines in place to minimize the disruption associated with construction activity and encourage good behaviour on its construction sites. • These rules are not always clearly communicated to contractors, subcontractors or members of the public. • A construction contractor code of conduct can help address this gap by clearly communicating expectations for contractors and subcontractors in plain language. • Appendix E includes a draft construction contractor code of conduct for consideration. As an immediate next step, Infrastructure Services should engage industry and the public to gather feedback on the draft. To ensure its effectiveness, it should be integrated into the City's existing vendor performance evaluation tools.	19, 20

Appendix D: Delivery Model Assessment Framework

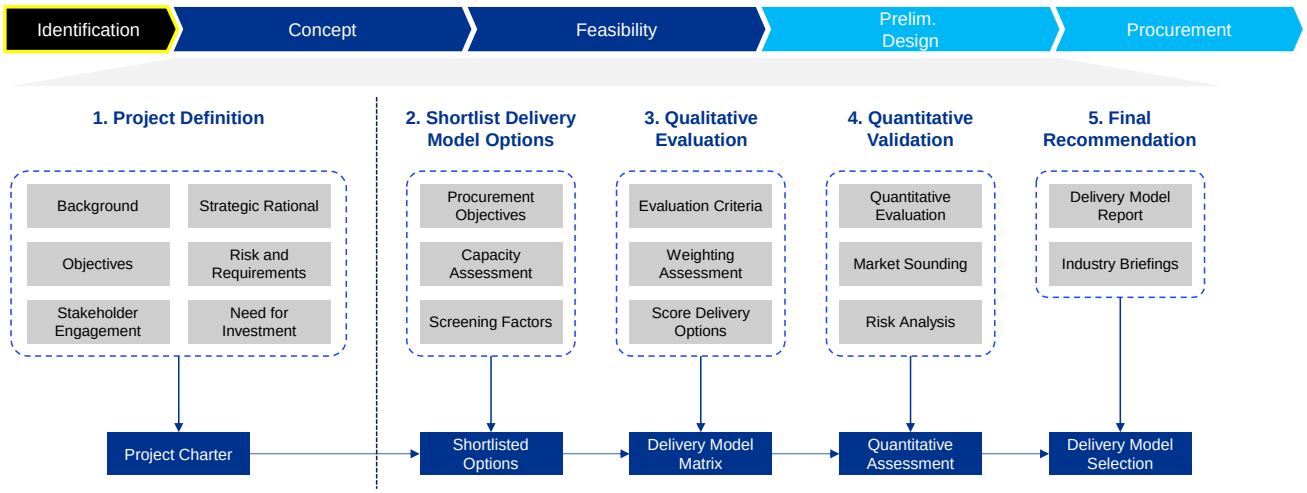
Selecting an appropriate delivery model is critically important to the successful delivery of capital projects and to achieve project objectives. Delivery model selection is project specific and should involve a combination of qualitative and quantitative assessments of available delivery model options.

Delivery model selection should be supported by an established delivery model assessment framework that provides a structured, consistent approach to help identify the most effective delivery option for a given project. A typical delivery model assessment framework consists of five steps:

1. **Project Definition:** Identify and document foundational aspects of the project, including project scope and characteristics, procurement objectives, policy context, project stakeholders, and risk requirements.
2. **Shortlist Delivery Model Options:** Identify a shortlist of viable delivery models for detailed evaluation.
3. **Qualitative Evaluation of Viable Options:** Evaluate each shortlisted delivery model against a series of weighted evaluation criteria.
4. **Quantitative Validation:** Verify the initial evaluation through quantitative analysis (e.g., value for money, risk analysis) and market analysis.
5. **Delivery Model Selection:** Combine results from qualitative and quantitative assessments to select the most suitable delivery model.

Figure 12 outlines an example delivery model framework for municipal capital projects. Example selection criteria are included in Table 2 as part of Recommendation 16.

Figure 12: Draft Capital Delivery Model Framework



The timeframe and effort associated with delivery model selection varies by project but can take up to several months, including project definition to delivery model selection.[26] It is a collaborative process that includes team members with expertise in the relevant sector and asset class of the project as well as the shortlisted delivery models.[27]

Table 13, below, provides an overview of delivery model characteristics, focusing on delivery models that are most relevant to Infrastructure Services.[28] These characteristics are meant for additional consideration by the City and should be embedded in a broader delivery model assessment framework, as noted above. [29]

[26] More complex projects typically require a more comprehensive delivery model assessment process, and thus require more time and stakeholder involvement. For more straightforward, "typical" capital projects, the process can be less involved.
[27] For projects that are more complex in nature, project sponsors may wish to consider engaging third parties to support delivery model selection.
[28] In addition to delivery models, it is important that the City consider the underlying contracting strategy (e.g., fixed price, cost reimbursable, etc.) as part of the assessment. Contracting strategy plays an equally important role in incentivizing behaviours of different parties, as well as influencing various project outcomes, including risk transfer, cost certainty, etc.
[29] The City Project Team provided direction on the types of delivery models applicable to Infrastructure Services.

Table 13: Delivery Model Characteristics

Characteristics	Delivery Models					
	Self Delivery	**Design Bid Build (DBB)**	**Design Build (DB)**	**Construction Management at Risk (CM@R)**	**Progressive Design Build**	**Alliance / IPD**
Owner Responsibilities	• Owner assumes full responsibility for all aspects of the project. • Owner oversees all aspects of the project. including design, construction delivery, and operations.	• Owner delegates responsibility for design, construction, or both to external parties via separate contracts. • Owner responsible for developing project scope, overseeing design, managing procurement, overseeing construction. • Owner responsible to manage the interface between contracts. • Opportunities for self delivery of specific components (i.e., design, construction, or contract admin.) as necessary.	• Owner delegates design and construction responsibilities to a single entity. • Owner responsible for setting project objectives and requirements, monitoring progress, and approving key deliverables.	• Owner delegates responsibility for design and construction management. • Owner responsible for defining the scope and ensuring coordination between the designer and construction manager. • Opportunities for self delivery of design component.	• Owner works closely with a single Design-Build team through iterative phases of design development. • Owner remains involved in decision-making but delegates execution responsibilities during construction. • Opportunities for self delivery of specific design components.	• Owner is an integral participant in IPD/alliance team. • Owner shares responsibilities collaboratively collaborative contract structure.
Owner Controls	• Maximum degree of control over all aspects of the project.	• High degree of control over design and construction phases.	• Low; less direct control over design details. • Single-point accountability simplifies management.	• High degree of control during pre-construction phase. • Reduced control during construction as construction manager manages site activities.	• Moderate degree of control throughout design and construction phases. • Owners collaborate closely with contractors during early stages.	• Collaborative control shared among all stakeholders under an integrated governance structure. • Owner retains the right to direct the alliance.
Risk Transfer	• Minimal risk transfer. • Owner assumes nearly all risks, including cost, schedule, and performance.	• Limited risk transfer. • Most risks (e.g., design errors, constructability, schedule delays) remain with the owner.	• Significant risk transfer. • Design and construction risks transferred to the contractor.	• Shared risk. • Contractor assumes some risks under a Guaranteed Maximum Price (GMP), but many risks remain with the owner.	• Moderate risk transfer. • Gradual transfer as risks are better defined during development phases.	• Risks are shared among all parties rather than transferred entirely. • Incentivized risk management is key.

Characteristics	Delivery Models					
	Self Delivery	Design Bid Build (DBB)	Design Build (DB)	Construction Management at Risk (CM@R)	Progressive Design Build	Alliance / IPD
Flexibility	• High level of flexibility to make changes during the project.	• Moderate flexibility. • Changes can be made but may lead to additional costs via change orders.	• Lower flexibility after contract award due to fixed-price agreements.	• Moderate flexibility. • Changes allowed during pre-construction but less so after GMP is set.	• High level of flexibility during early stages. • Target pricing allows scope adjustments.	• High level of flexibility. • Adaptation to scope changes or unforeseen challenges possible during design and execution.
Integration / Constructability	• Limited integration unless the owner has strong internal coordination mechanisms.	• Minimal opportunity for integration between design and construction. • Reduced constructability optimization.	• High opportunity for integration. • Integrated teams enhance constructability.	• Improved opportunity for integration compared to DBB. • Contractor able to provide input during design.	• High opportunity for integration. • Early contractor involvement enhances constructability.	• Maximum integration. • Continuous collaboration between designers, contractors, and owners fosters constructability.
Efficiency & Cost Savings	• Potential for efficiency and cost savings if owner's team is experienced. • Inefficiencies may arise from lack of market competition.	• Opportunities for cost savings through competitive bidding and well-defined design. • Low bid scenarios may compromise quality or innovation.	• Improved efficiency through integrated processes. • Opportunities for cost savings via improved constructability, focus on value engineering, and reduced duplication of efforts.	• Improved efficiency due to increased contractor input. • Opportunities for cost efficiency through construction manager involvement through design to improve constructability and value engineering. • Additional cost savings opportunities through incentive structures related to GMP.	• Potential for efficiencies through collaborative risk management. • Potential for higher costs due to less competitive tension in pricing.	• Efficiencies possible through shared incentives. • Lack of competitive pricing mechanisms upfront can impact overall costs.

Characteristics	Delivery Models					
	Self Delivery	**Design Bid Build (DBB)**	**Design Build (DB)**	**Construction Management at Risk (CM@R)**	**Progressive Design Build**	**Alliance / IPD**
Cost Certainty	• Low degree of cost certainty due to retained risks and potential for unforeseen issues.	• Low degree of cost certainty until construction contracts are awarded. • Moderate cost certainty throughout construction save for unforeseen change requirements.	• Higher cost certainty. • Price is typically fixed early in the process.	• Higher cost certainty. • GMP provides some certainty but may include risk premiums.	• Lower initial cost certainty through initial design phases. • Cost certainty improves as project progresses.	• Lower initial cost certainty initially as design is pre-concept. • Cost certainty improves through development up to target cost setting but remains low due to the cost-reimbursable nature of the model. • Cost outcomes often eventually align with targets through collaborative effort.
Delivery Schedule	• Delivery timeline dependent on the owner's capacity and management efficiency. • Delays are possible without strong oversight.	• Delivery timeline can be longer due to sequential design and construction phases.	• Accelerated delivery compared to DBB due to concurrent design and construction phases.	• Accelerated delivery compared to DBB since construction can begin before finalizing all design.	• Delivery timeline typically longer due to extended procurement and development phases.	• Delivery timeline typically longer due to extended procurement and development phases. • Potential to accelerate delivery via collaborative issue resolution in real-time (rather than sequentially).
Opportunities for Innovation	• Limited opportunities for innovation.	• Minimal opportunities for innovation. • Separation of design and construction responsibilities inhibit innovative approaches.	• Moderate opportunities for innovation. • Contractors can propose innovative solutions during design.	• Limited opportunities for innovation. • Construction manager involvement in design can introduce innovations related to constructability.	• High potential for innovation. • Open-book collaboration and iterative design refinement encourage innovative thinking.	• Very high potential for innovation. • Collaborative culture encourages innovative solutions across all phases of delivery.

Characteristics	Delivery Models					
	Self Delivery	Design Bid Build (DBB)	Design Build (DB)	Construction Management at Risk (CM@R)	Progressive Design Build	Alliance / IPD
Market Experience	N/A	• Well-established and widely used delivery model for smaller-to-medium size projects. • Significant market experience.	• Common and well-established delivery model. • Significant market experience.	• Well-established delivery model. • Significant market experience.	• Growing adoption in Canadian infrastructure projects. • Moderate market experience.	• Limited but growing adoption in large-scale Canadian infrastructure projects. • Limited market experience.
Example Project Type	• Small capital maintenance projects (e.g., sidewalk repair, pothole repair).	• Small-to-medium capital projects (e.g., road resurfacing, trunk sewer line replacement, traffic signal replacement).	• Large capital projects (e.g., Gardiner Expressway Strategic Rehabilitation).	• Complex, multi-scope capital projects (e.g., transit maintenance facility, water treatment facility).	• Large infrastructure projects with complex stakeholder needs (e.g. Gardiner Expressway Strategic Rehabilitation).	• Large, high-risk, or complicated infrastructure projects often with brownfield components (e.g., Union Station Enhancement Project).

Appendix E: Code of Conduct

This appendix presents a draft sample construction contractor code for conduct. It is based on our comparator research activities and a high-level assessment of existing City policies, including the Supplier Code of Conduct. It is meant as a starting point and requires additional analysis as well as engagement with industry and the public.

City of Toronto – Infrastructure Services

DRAFT SAMPLE CONSTRUCTION CONTRACTOR CODE OF CONDUCT

To minimize the impact of capital project construction on residents, communities, and businesses, the City of Toronto developed this Construction Contractor Code of Conduct. It describes how the contractor and the contractor's representatives will conduct themselves as well as the steps that the contractor will take to minimize the impacts of construction activity on the surrounding community. It also describes the City's responsibilities to the contractor and its representatives.

The expectations contained within this Code of Conduct are based on existing City rules, standards, and guidelines identified in Schedule A.

Site Conditions

The contractor is committed to maintaining a clean, safe, and respectful construction site. To achieve this, the contractor will:

- Ensure materials are neatly and securely stored, fenced, and do not spill or blow from trucks.
- Ensure all garbage and debris are removed from the site and adjacent areas promptly.
- Provide designated garbage containers for workers to dispose of debris and other waste.
- Schedule sanitation pickups regularly to prevent the accumulation of waste.
- Keep small tools and equipment off private property to prevent damage and obstruction.
- Ensure that temporary walkways are installed, maintained, clearly marked, and clear of obstacles.
- Maintain barrier-free access of all public areas in accordance with relevant regulations.
- Sweep and wash the project site and adjacent or impacted roadways at the end of each day to control dirt and dust.
- Provide a portable toilet(s) for workers and ensure it is maintained and cleaned regularly.
- Maintain existing catch basins to prevent stormwater pollution.
- Take measures to prevent unauthorized dumping on the site.
- Remove all equipment and materials from the site as soon as possible upon completion of work.
- Do not leave construction sites abandoned under any circumstances.

Community Engagement & Relations

The contractor is committed to maintaining open communications with the adjacent community. To achieve this the contractor will:

- Ensure construction personnel are courteous and respectful when interacting with the public.
- Ensure that all construction personnel refrain from using inappropriate language.
- Ensure access is maintained for mail delivery and other essential community services.
- Provide prompt notice in the event of any unforeseen schedule impacts.
- Provide public notification signs, as directed by the City Project Manager, to inform the public of impending work at least 48 hours in advance, including:
    - Water shutdowns

    - Road occupancy and/or traffic pattern changes
    - Access restrictions
    - Parking interruptions
- Accommodate personal and commercial deliveries, where possible.
- Promptly refer all questions and concerns from the public to the designated City Project Manager or Community Construction Liaison.

Project Safety

The contractor is committed to conducting construction work activities in a safe and responsible manner. To achieve this, the contractor will:

- Ensure site fencing and traffic barriers are installed and maintained in an acceptable condition at all times.
- Operate vehicles and construction equipment in a safe manner, including maintaining safe operating speeds.
- Ensure uninterrupted access to active fire hydrants.
- Provide safety flagging whenever equipment is moved and/or work must take place in active, high-volume pedestrian and/or vehicular areas.
- Ensure that Contractor representatives at no time consume and/or work under the influence of alcohol or drugs during the work shift.

Road Occupancy & Traffic Disruptions

The contractor is committed to minimizing traffic disruptions during construction. To achieve this, the contractor will:

- Provide advance notice of lane closures and traffic disruptions.
- Ensure that traffic control measures, such as detours and lane shifts, are clearly signed and safely implemented.
- Ensure that all construction vehicles are properly permitted and comply with City of Toronto regulations, including restrictions on oversized vehicles and idling.
- Ensure that construction vehicles and equipment are properly stored and do not obstruct traffic flow or pedestrian paths.
- Always maintain unobstructed access for Emergency Medical Services and other emergency responders.
- Designate specific loading and unloading zones to reduce congestion and minimize disruptions.
- Secure road plates to prevent damage and ensure public safety.

Noise Disruptions

The contractor is committed to minimizing noise during construction. To achieve this, the contractor will:

- Conduct construction activities only during permitted hours of Monday to Friday 7:00 a.m. to 7:00 p.m., Saturdays 9:00 a.m. to 7:00 p.m., unless granted an exception by the City.
- Ensure workers on site before construction begins respect the community's need for quiet.
- Avoid unnecessary idling of equipment to reduce noise and air pollution.

- Operate equipment in a way that minimizes noise and disruptions, such as avoiding sudden impacts when unloading materials.

General Conduct

The contractor is committed to conducting themselves in a professional manner and being responsible for events on site. To achieve this, the contractor will:

- Promote a culture of respect, courtesy, and professionalism among all site personnel.
- Endeavour to collaborate and work with the City in good faith throughout execution of the work.
- Take all reasonable measures to complete the project as early as possible, and not delay completion without justifiable cause.
- Be responsible for the behaviour and conduct of any subcontractors or suppliers employed on site.

City Responsibilities

The City is committed to supporting the successful delivery of the project and the contractor's compliance with this Code of Conduct. To achieve this, the City will:

- Collaborate in good faith throughout the delivery of the project.
- Establish and maintain clear communication channels with all stakeholders, ensuring timely updates on project information, requirements, changes, and community feedback.
- Proactively coordinate related work with City Divisions, agencies and other levels of government, as required.
- Promote a culture of respect, courtesy, and professionalism in working with the contractor and site personnel.

Signature of Principal of Contractor Date

Name of Contractor Entity

Signature of City Project Manager Date

Name of City Project Manager

SCHEDULE A: REFERENCES

General

- City of Toronto Construction Requirements & Guidelines
- O.Reg. 213/91: Construction Projects
- Toronto Municipal Code, Chapter 195, Procurement

Site Conditions

- Toronto Municipal Code, Chapter 743, Streets and Sidewalks
- Toronto Municipal Code, Chapter 363, Building Construction and Demolition

Minimize Noise

- Toronto Municipal Code, Chapter 591, Noise

Traffic Disruptions

- Toronto Municipal Code, Chapter 925, Permit Parking
- Toronto Municipal Code, Chapter 950, Traffic and Parking
- Toronto Municipal Code, Chapter 517, Idling of Vehicles and Boats

Appendix F: Document Register

This appendix presents the documents reviewed during the assessment.

Table 14: Document Register

#	Document Name	Date Received
1	Chapter 195 - Purchasing Bylaw	5/14/2024
2	Complaint Handling Guidelines	5/14/2024
3	Capital Works Procedures Manual	5/15/2024
4	Customer Experience Manual	5/6/2024
5	Field Services Manual	5/6/2024
6	Quality Control Plan - Contractor	5/14/2024
7	Quality Control Plan - Road Construction	5/14/2024
8	Quality Control Plan - Sewer & Watermain Construction	5/14/2024
9	Notification Guide	5/14/2024
10	Communication, Design, and Layout Tip Sheet	5/14/2024
11	Construction Notice Checklist	5/14/2024
12	De-Escalation Guide for Engaging with the Public	5/14/2024
13	Notice Email Template for Councillors	5/14/2024
14	Notifying & Consulting with Impacted Property Owners	5/14/2024
15	Sample Briefing Note	5/14/2024
16	Contractor Performance Evaluation	5/14/2024
17	CPE Sample	5/14/2024
18	Performance Evaluation Incidents	5/14/2024
19	Professional Services Performance Evaluation	5/14/2024
20	PSPE Sample	5/14/2024
21	Supplier Performance Evaluation	5/14/2024
22	PMMD Complaint Handling Procedure	5/14/2024
23	PMMD Complaint Tracking Form	5/14/2024
24	TW Complaint Form	5/13/2024
25	ACE23_Boychuk Supply and Escalation	6/5/2024
26	Contractor Performance Evaluation Paper	6/5/2024
27	Customer Care Quality Management System Manual	5/28/2024
28	Customer Initiated Feedback Service Request Procedure	5/28/2024
29	Customer-Initiated Feedback Process Participant Guide_V1.0	5/28/2024

#	Document Name	Date Received
30	Customer-Initiated Feedback Service Request Process Flow	5/28/2024
31	Customer Service Charter	5/6/2024
32	Digital Customer Services Strategy	5/6/2024
33	Why Capital Under Delivers	6/5/2024
34	Organizational Chart	5/6/2024
35	Improving the Tendering Process Audit	6/25/2024
36	Detection of Warning Signs for Potential Bid Rigging	6/25/2024
37	ECS Phase 1: Substantial Performance and Warranty Inspection	6/25/2024
38	ECS Phase 2: Construction Contract Change Management	6/25/2024
39	PMMD Organization Chart	7/15/2024
40	Toronto Water Organizational Chart	7/15/2024
41	TS Org Chart	7/18/2024
42	ECS Org Chart	8/1/2024
43	2024 Program Summary	8/1/2024
44	Wastewater Program	8/1/2024
45	Water Program	8/1/2024
46	Capital Works Delivery 2024 Q2 Forecast	7/31/2024
47	2024 Program Summary_SWMS	8/8/2024
48	2024 SWMS_10yr Capital	8/8/2024
49	SWMS Workflow and Process Review - Final Report - vFINAL (03312020)	8/6/2024
50	Milestonetimelines	8/6/2024
51	Tender-Mark-Ups	8/6/2024
52	3.03 Consultant & Contractor Project Management Procedure	8/6/2024
53	Addendum No.2 to CWP Manual	8/6/2024
54	3.05 Scope and Change Management	8/6/2024
55	Change Order Management Quick Reference Guide	8/6/2024
56	Change Directive Form	8/6/2024
57	CO greater than 50k - Letterhead	8/6/2024
58	CO less than 50k - Letterhead	8/6/2024
59	CO over 50 Signing Approval Memo	8/6/2024
60	CO summary	8/6/2024
61	Consultant Change Order Form	8/6/2024
62	Contractor Change Order Form	8/6/2024

#	Document Name	Date Received
63	Document Checklist	8/6/2024
64	POA Template GM Signing Approval Memo	8/6/2024
65	Purchase Order Amendment	8/6/2024
66	3.06 Cost Management	8/6/2024
67	cwp-50-CD form	8/6/2024
68	cwp-51-CO Form	8/6/2024
69	cwp-55-CO-summary	8/6/2024
70	Engineering Cost Est DU Tip Floor Replacement_rw	8/6/2024
71	LD Calculation Template	8/6/2024
72	Price Form Template	8/6/2024
73	Schedule-Cost_Template	8/6/2024
74	UBA Template	8/6/2024
75	3.07 Schedule Management	8/6/2024
76	Schedule_Template	8/6/2024
77	3.08 Risk Management_2021_09_17	8/6/2024
78	15- June-2021 SWMS Risk Register	8/6/2024
79	QAQC 3.09	8/6/2024
80	PROCESSES FOR QUALITY MANAGEMENT	8/6/2024
81	QAQC PR-SWM-3.09 Engineering Design Checklist	8/6/2024
82	QAQC PR-SWM-3.09 Project Closeout Checklist	8/6/2024
83	Quality Assurance and Control Chart Template	8/6/2024
84	2024 Budget Notes	8/28/2024
85	Capital Program Resource Plan	9/9/2024
86	TW01A_Project_checklist_dc	9/16/2024
87	TW01B_Project_checklist_sp	9/16/2024
88	TW02_EDOCSLIB-9088-v2-PCS_Guideline_-_Checklist	9/16/2024
89	TW03_Project_Charter	9/16/2024
90	TW04_Risk_Register	9/16/2024
91	TW05_Decision_log	9/16/2024
92	TW06_084_Memo to PMMD Recommending Award for RFQ	9/16/2024
93	TW06A_084A_Memo to PMMD Recommending Award for RFQ - 3 POs	9/16/2024
94	TW07_085_Memo to PMMD Recommending Award for Tender	9/16/2024
95	TW08_Ariba Part 3-Drawings and specifications_html link	9/16/2024

#	Document Name	Date Received
96	TW011_Client_Change_Request_Form	9/16/2024
97	TW012	9/16/2024
98	TW013_Certified_of_Insurance	9/16/2024
99	TW014_CWD-Award Checklist for Tender	9/16/2024
100	TW014A_CWD Award Checklist for RFP	9/16/2024
101	TW015_CAF_TW template	9/16/2024
102	TW016_New_Routing_Slip_GM	9/16/2024
103	TW017_Capital_Project_Operations_Review_form_blank	9/16/2024
104	TW018_Legal_Assistance_Request	9/16/2024
105	TW019_CWD-Execuation Checklist	9/16/2024
106	TW020_Project_Request_Form	9/16/2024
107	TW021_ CWD Transmittal Form	9/16/2024
108	TW022_Contract_Change_Summary	9/16/2024
109	TW023_RFQ Form	9/16/2024
110	TW024_POA_Form	9/16/2024
111	TW025_Change Order Form	9/16/2024
112	TW026_Change Directive Form	9/16/2024
113	Contract Drawing Number - Memo	9/17/2024
114	Master_PID_Update_Procedure	9/17/2024
115	Master_SLD_Update_Prcedure	9/17/2024
116	PR_TW_6301_construction-health-safety-management-procedures	9/17/2024
117	PR_TW_7300_Capital_Project_Request	9/17/2024
118	PR_TW_7310_Capital_Project_Initiation	9/17/2024
119	PR_TW_7315_Capital_Project_Engineering_Services_Procurement	9/17/2024
120	PR_TW_7320_Capital_Project_Preliminary_Design_and_Studies	9/17/2024
121	PR_TW_7325_Capital_Project_Detailed_Design	9/17/2024
122	PR_TW_7330_Capital_Project_Tender_and_Award	9/17/2024
123	PR_TW_7335_Capital_Project_Construction	9/17/2024
124	PR_TW_7340_Capital_Project_Payment	9/17/2024
125	PR_TW_7341_Capital_Project_Ancillary_Cost	9/17/2024
126	PR_TW_7345_Capital_Project_Commissioning	9/17/2024
127	PR_TW_7350_Capital_Project_Closeout	9/17/2024
128	PR_TW_7355_Capital_Project_Claim_and Lien_Resolution	9/17/2024

#	Document Name	Date Received
129	PR_TW_7360_Capital_Project_PO_Amendment	9/17/2024
130	PR_TW_7365_Capital_Project_Lessons_Learned	9/17/2024
131	PR_TW_7370_Blanket_Contract_Development_and_Administration	9/17/2024
132	PR_TW_7380_Capital_Project_Operations_Review	9/17/2024
133	PR_TW_7385_Single line diagram management_html_link - Copy	9/17/2024
134	PR_TW_7386_Master P&ID_Documents_link_html_link	9/17/2024
135	PR_TW_7388_SOP-SL-2 01_Communications	9/17/2024
136	2016-04-19 eCity PM WG Meeting Draft GNB	9/17/2024
137	AM Maturity	9/17/2024
138	CWD Radar Map	9/17/2024
139	CWD Status	9/17/2024
140	KPIs and Metrics	9/26/2024
141	Foundational Recommendation Matrix 2024-01-31	10/15/2024
142	Capital Delivery Improvements Project: Foundational Recommendations	10/15/2024

Appendix G: Project Register

This appendix presents the projects reviewed during our assessment.

Table 15: Project Register

#	Project	Type	Division	Duration
1	Engineering Services Contract	Consulting	ECS	Jan. 2018 – Ongoing
2	Basement Flooding Protection Program - Phase 4 - Program Management	Consulting	ECS	Sept. 2015 – Ongoing
3	Basement Flooding Protection Program - Phase 4 - Preliminary Design	Consulting	ECS	Sept. 2015 – Ongoing
4	Multi-Year Program for Watermain Replacement - Catmgmt	Consulting & Construction	ECS	June 2022 – Ongoing
5	Multi-Year Program for Watermain Replacement - Traditional	Consulting & Construction	ECS	Aug. 2024 – Ongoing
6	Major Roads	Construction	ECS	Oct. 2022 – Dec. 2023
7	Local Roads	Construction	ECS	Nov. 2019 – July 2020
8	Reconstruction of King Street West, Queen Street West, The Queensway and Roncesvalles Avenue (KQQR)	Consulting & Construction	ECS	Sept. 2020 – Oct. 2023
9	Humber Wastewater Treatment Plant Secondary Process Upgrades	Consulting & Construction	ECS	Feb. 2017 – Nov. 2022
10	Watermain Structural Lining Program	Consulting & Construction	TW	April 2022 – Nov. 2022
11	Watermain Structural Lining Program	Consulting & Construction	TW	April 2022 – March 2023
12	CCTV	Consulting	TW	April 2019 – Jan. 2024
13	BF Mega EAs & Pre-Design	Consulting	TW	Oct. 2019 – July 2024
14	Permanent Surface Reinstatement	Construction	TW	Aug. 2022 – Nov. 2023
15	Permanent Surface Reinstatement	Construction	TW	Aug. 2022 – Nov. 2023
16	Permanent Surface Reinstatement	Construction	TW	Aug. 2022 – Nov. 2023
17	Permanent Surface Reinstatement	Construction	TW	Aug. 2022 – Oct. 2023
18	Permanent Surface Reinstatement	Construction	TW	Sept. 2022 – Nov. 2023

#	Project	Type	Division	Duration
19	Repair and Replacement of Water Services, on-demand lead water, curb boxes, stops and large diameter valve box	Construction	TW	Sept. 2022 – Ongoing
20	Hydraulic Flushing, Cleaning and CCTV Inspection of Service Lateral Drains and Main-Line Sewers for Emergency Work	Construction	TW	Jan 2024 – Ongoing
21	Design and CA Assignment for New Signals	Consulting & Construction	TS	Unknown – Feb. 2024
22	Design and CA Assignment for New Signals	Consulting & Construction	TS	Unknown – May 2024
23	Design and CA Assignment for New Signals	Consulting & Construction	TS	Unknown – March 2024
24	York University – Cycling	Consulting & Construction	TS	Aug. 2021 – June 2022
25	Critical Interim Repairs – Wards 20-25	Construction	TS	Oct. 2022 – Nov. 2022
26	SC TS - Drainage and Ramp upgrades	Consulting & Construction	SWMS	March 2021 – May 2021
27	BM & IN Yards - Exterior Walls Rehabilitation	Consulting & Construction	SWMS	June 2023 – Aug. 2023
28	YOY - Supply and Installation of HVAC System Replacement, Electrical Upgrades and Washroom Renovation	Consulting & Construction	SWMS	April 2022 – Nov. 2022
29	CM TS - Stack Rehabilitation	Consulting & Construction	SWMS	Nov. 2018 – Nov. 2019
30	DU TS – Tipping Floor and Pushwall Rehabilitation	Consulting & Construction	SWMS	Jan. 2021 – April 2022

Appendix H: Stakeholder Register

This appendix presents the stakeholders consulted during initial engagement activities.

Table 16: Internal Stakeholder Register

#	Name	Position	Division
Senior Leadership			
1	Will Johnston	Deputy City Manager	Infrastructure Services
2	Jennifer Harkness	Chief Engineer	ECS
3	Beth Waldman	Chief Communications Officer (Interim)	Strategic Public & Employee Communications
4	Matt Keliher	General Manager	SWMS
5	Lou Di Gironimo	General Manager	TW
6	Barbara Gray	General Manager	TWS
7	Geneviève Sharkey	Chief Procurement Officer	PMMD
Steering Committee			
8	Simon Hopton	Director, Design and Construction, Major Infrastructure	ECS
9	Mika Raisanen	Director, Design and Construction, Linear Underground Infrastructure	ECS
10	Jodie Atkins	Director, Design and Construction, Bridges and Expressways	ECS
11	Mobushar Pannu	Director, Design and Construction, Roadways	ECS
12	Avi Bachar	Director, Engineering Support Services	ECS
13	Ricardo Pires	Manager, Contracts, Tenders & Payments	ECS
14	Garry Boychuk	Manager, Capital Works Delivery	Toronto Water
15	Richard Noehammer	Director, Capital Planning and Implementation	Toronto Water
16	Eleanor McAteer	Director, Water Infrastructure Management	Toronto Water
17	Jacquelyn Hayward	Director, Planning, Design and Management	TS
18	Mike Barnet	Director, Business Performance	TS
19	Ashley Curtis	Deputy General Manager, Strategic Planning Office	TS

#	Name	Position	Division
20	Gregg Loane	Director - Special Projects, Business Performance	TS
21	Tanvir Ahmad	Senior Manager, Purchasing Client Services, Category Management & Strategic Sourcing	PMMD
22	Sabrina Dipietro	Senior Manager, Purchasing Client Services, Community and Social Services, City Manager's Office	PMMD
23	Marie Reid	Manager, Purchasing Client Services, Infrastructure & Development Services	PMMD
24	Matthew Caschera	Director Infrastructure and Resource Management	SWMS
25	Lisa Barroso	Director, Project Management Office	Corporate Real Estate Services
Managers			
23	Andrea Ramsay	Manager, Basement Flooding Unit B	ECS
24	Michael Popik	Manager, Standalone Undergrounds	ECS
25	Hazel Breton	Manager, Stormwater Management Infrastructure	ECS
26	Justyna Teper	Manager, Major Pumping Stations	ECS
27	Chris Loader	Manager, Standalone Bridges	ECS
28	John Kelly	Manager, Gardiner Rehabilitation Project Unit B	ECS
29	Jessica Orjuela	Manager, Local Roads	ECS
30	Jennifer Harris	Manager, Road Resurfacing	ECS
31	Dan Christensen	Manager, Major Roads	ECS
32	Kimmo Hamalainen	Manager, Special Projects	ECS
33	Zel Ally	Manager, Contract Development and Controls	TS
34	Hande Akseki	Senior Project Manager, Project Financial and Stage Gate Controls	TS
35	Manav Sethi	Senior Engineer, Standards, Policy & Quality Assurance	TS
36	Julia Fu	Senior Project Manager, Standards, Policy & Quality Assurance	TS

#	Name	Position	Division
37	Parveen Kalia	Manager, Performance Management	TS
38	Brianna Ratzlaff	Manager, Community Council & Issues Management (Toronto & East York)	TS
39	Carolyn Doyle	Manager, Community Council & Issues Management (North York)	TS
40	Lorna Zappone	Manager, Community Council & Issues Management (Etobicoke)	TS
41	Meri Newton	Manager, Community Council & Issues Management (Scarborough)	TS
42	Simona De Cicco	Manager, Community Council & Issues Management (Scarborough)	TS
43	Cheryl Bouzide-McKee	Manager, Committee, Council & Issues Management	TS
44	Mark Berkovitz	Manager, Asset Management	TS
45	Mateen Mahboubi	Manager, Capital Projects and Programs	TS
46	Jason Pires	Manager, Traffic Systems Planning, Design and Capital Coordination	TS
47	Anson Yuen	Manager, Budget and Program Planning	TS
48	Roger Wong	Manager, Capital Delivery	SWMS
49	David Ceron	Manager, Processing Facilities	SWMS
50	Andrew Agbanti	Manager, Resource Recovery	SWMS
51	Atif Durrani	Manager, Stakeholder & Community Outreach	SWMS
52	Magil (Gil) Darnley	Manager, Contract Administration & Procurement Support	SWMS
53	Renny Singh	Manager, Contract Integration, Management & Compliance	SWMS
54	Lynda Mulcahy	Manager, Closed Landfill Operations	SWMS
55	Kazi Uddin	Manager, Facilities, Purchasing Client Services, Category Management & Strategic Sourcing	PMMD
56	Marie Reid	Manager, Infrastructure & Development Services	PMMD
57	Russell Baker	Manager	SPEC
58	Tracy Manolakakis	Manager	PCU

#	Name	Position	Division
59	Stephanie Gris Bringas	Sr. Consultation Coordinator	PCU
Project Managers			
60	Thomas Burgwin	Project Manager	ECS
61	Adel Roufail	Project Manager	ECS
62	Marfique Ahmed	Project Manager	ECS
63	Anil Ambat	Project Manager	ECS
64	Marilla Cimini	Project Manager	ECS
65	Tasha Cheng	Design Supervisor	ECS
66	Arthur Sinclair	Project Manager	Toronto Water
67	Krill Cheiko	Project Manager	Toronto Water
68	Sail Vettivelu	Project Manager	Toronto Water
69	Adnun Mazumder	Project Manager	Toronto Water
70	Ahmad Mian	Project Manager	SWMS
71	Ravinder Shemar	Project Manager	SWMS

Table 17: Elected Officials

#	Name	Position
1	Jennifer McKelvie	Chair, Infrastructure and Environment Committee
2	Paul Ainslie	Chair, General Government Committee
3	Gord Perks	Chair, Planning and Housing Committee
4	Shelley Carroll	Chair, Budget Committee
5	Brad Bradford	City Councillor, Beaches – East York
6	Josh Matlow	City Councillor, Toronto – St. Paul's

Table 18: Industry Stakeholder Register

#	Company / Organization
Contractors	
1	Alberici Constructors Ltd.
2	Grascan Construction
3	KORE Infrastructure
4	Sanscon Construction
5	Torbridge Construction
Industry Associations	
6	Association of Consulting Engineering Companies | Ontario
7	Consulting Engineers Ontario
8	Greater Toronto Sewer & Watermain Contractors Assoc.
9	HCAT
10	Ontario Association of Architects
11	OSWCA
12	TARBA
13	Toronto Association of Architects
14	Toronto Construction Association
15	Association of Consulting Engineering Companies | Ontario
16	Consulting Engineers Ontario
17	Greater Toronto Sewer & Watermain Contractors Assoc.