



## STAFF REPORT ACTION REQUIRED

### Capital Delivery Review – Status Update

<b>Date:</b>	June 15, 2017
<b>To:</b>	Toronto Transit Commission Board
<b>From:</b>	Chief Executive Officer

### Summary

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In December 2016, the Board approved staff's work plan to address recommendations from the TTC Capital Program Delivery Review conducted by KPMG. The work plan, referred to as the TTC's Project Management Maturity Plan (PMM Plan), details how resource capacity, competency, and organizational processes will improve project management practices, ensuring standardization across the organization, and establishing a cycle of continuous improvement.

The purpose of this report is to provide a status update on the PMM Plan. It highlights the progress made against the Top 10 Priorities, with specific emphasis on the TTC's new Project Management Framework (PMF) and progress towards addressing organizational gaps.

This report also confirms the resource requirements to implement KPMG's recommendations and realize the intended improvements to deliver the capital portfolio. The 2018-2027 Capital Budget submission will include a request for 26 capital headcount.

### Recommendations

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#### **It is recommended that the TTC Board:**

1. Approve the proposed approach to project governance processes as detailed in the TTC's PMF, including:
  - a. Criteria for project categorization;
  - b. Project governance structures; and
  - c. Stage gate model and deliverables.

## Implementation Points

In January 2017, a steering committee, chaired by the TTC's Chief of Staff, was established to ensure successful implementation of the PMM Plan.

In the first six months of 2017, the TTC developed its first PMF and has drafted over 14 standards that will be implemented to advance project governance, holistic scoping, estimating, commercial management (including delivery options analysis, contract bundling, etc.), scheduling, risk management, benefits tracking, etc.

Over the next six months, the following steps will be taken to progress the PMM Plan:

1. Deploy the PMF:
  - a. Portfolio Management Office (PfMO) and KPMG will conduct preliminary categorization of all discrete projects and programs in the 2017-2026 Capital Budget;
  - b. Project Sponsors and Project Managers of TTC's critical and complex projects (Category 3 and 4 projects), which are early in their project lifecycle, will develop Project Charters to confirm categorization, assess and align governance, adopt standard stage-gating process, confirm budget estimates, etc.;
  - c. PfMO and the TTC's Project Advisory Group (an internal working group of project managers, subject matter experts and other key stakeholders) will advance corporate standards and begin developing/updating tools and processes to enable and sustain implementation of the PMF across all of TTC's 300 capital projects;
  - d. Contribute to the City of Toronto's efforts to adopt best practices for capital delivery using the PMF as an input; and
  - e. Begin measuring and reporting against PMM Plan Success Measures.
2. Address organizational gaps:
  - a. The Chief Service Officer and Chief Operating Officer will establish project management offices (PMOs), in Service Delivery and Operations respectively, to accelerate project management maturity in their areas of responsibility;
  - b. The PfMO, through the use of third-party consultants, will begin establishing a centre of expertise for project controls and services such as project estimating, scheduling, commercial management, delivery options analysis, risk management, etc. A shared services model will be employed to ensure a high standard, consistency, and efficient use of resources.

The entire PMM Plan is on schedule to be implemented and fully adopted within the next 3.5 years – in line with the 4 to 5 year timeframe it took Transport for London to go through the same journey when implementing their Pathways project and program

methodology. The timeline for the PMM Plan is predicated on the approval of the resources indicated in the Financial Impact section of this report.

## **Financial Impact**

The TTC Board approved 2017-2026 Base Capital Budget totals \$9.4B, of which \$2.4B is currently unfunded. In addition, there is \$4.2B budgeted over the same timeframe for the completion of TYSSE and the construction of Scarborough Subway Extension.

In December 2016, staff estimated that to implement KPMG's recommendations a total of 40 capital positions would be required. These resources would address the identified capacity gaps. Due to the ongoing nature of capital works at TTC, permanent capacity will be required to make improvements in project estimating, scheduling, commercial management, delivery options analysis, risk management, oversight, etc. The estimate of 40 headcount also included resources to bolster existing Project Management Offices (PMOs) in the PfMO, IT Services, and EC&E, and to establish new PMOs within Service Delivery and Operations.

Through the use of consultant services the need for permanent capital headcount has been reduced from 40 to 35. Of the 35 capital positions required, 3 were approved through the 2017-2026 Capital Budget and 6 were identified through internal offsets. The 2018-2027 Capital Budget submission will include a request for the remaining 26 capital headcount (21 in 2018 and 5 in 2019). The majority of these positions will be used to establish a shared services model, providing critical project control functions such as estimating, scheduling, etc. directly to project teams.

There will be no capital budget request to fund the required headcount, they will be charged across the capital portfolio or directly to a project depending on the service that is provided. The purpose of this investment is to improve the TTC's performance on the entire capital portfolio.

The relative magnitude of this request can be illustrated by comparing it to other large capital works. One mega project, such as the \$3.2 billion TYSSE project, has over 30 dedicated staff and consultants performing project control functions. In contrast, the entire \$10+ billion TTC capital program, which on the whole is far more varied and complex than any one project, has 102 resources (67 existing resources in EC&E and IT Services, plus the additional 35 estimated positions) to provide similar functions for the entire Base Capital Program.

The relative magnitude can also be illustrated in terms of a percentage of the overall capital budget. The estimated cost of planning and implementing KPMG's recommendations over the 4-year period between 2017-2020 is \$18.5M, which constitutes a 0.2% investment to establish improvements for a \$10 billion Base Capital Program. Once fully implemented, in 2021, the on-going annual cost is estimated at \$5M, which results in a 0.5% overhead going forward. The benefits of these efforts are expected to far exceed the investment and will be demonstrated through improvements to

project performance (e.g., improved on-time performance, improved budget performance including capacity-to-spend improvements, reduction in scope creep/changes to project baselines, etc.).

The Chief Financial & Administration Officer has reviewed this report and agrees with the financial impact information.

## Decision History

On March 10, 2015, City Council, as part of the 2015 Capital Budget process, directed the City Manager to issue a Request for Proposal to undertake a review of TTC capital program delivery, including a review of project management of TTC major capital projects; staff reporting mechanisms to the TTC Board and City Council; and future options for transit project management and delivery of major capital projects. City Council directed the City Manager to co-ordinate the review with the Chief Executive Officer, TTC and to report to the TTC Board.

Link: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.EX3.4>

At its meeting of September 28, 2016, the Board received the presentations for information and approved the recommendations in the staff report, as follows:

1. The TTC Board request the Chief Executive Officer, TTC to report to the December 2016 meeting of the TTC Board on an implementation plan, identifying timing and any new capital resources or investment required.
2. The TTC Board request the Chief Executive Officer, TTC to work in partnership with the City Manager to review and develop the implementation plan for recommendations that form part of Group 3 [of the] report.
3. The TTC Board request the Chief Executive Officer, TTC to provide a semi-annual report to the TTC Board on the status of implementing the recommendations contained in [the] report.

The Board also approved the following motions:

1. Request that the City Manager initiate a review of the City of Toronto capital program delivery, including a review of project management of major capital projects for all City departments and other Agencies, Boards, and Corporations; staff reporting mechanisms to City Council and/or boards; and future options for project management and delivery of major capital projects;
2. Request that the City Manager report back to Executive Committee and the TTC Board on the feasibility of a Major Capital Project Task Force. The Task Force would provide project management and coordination for all major capital projects for City departments, and Agencies, Boards, and Corporations. Resources for this group should be found within existing budgets and would be comprised of senior staff from Engineering and Construction Services, Transportation, the TTC and other departments with project delivery expertise.

3. Request that the City Manager report on which of the 41 recommendations found in the TTC Capital Program Delivery Review have been or will be adopted by the City.
4. Request staff to transmit this report and the Board's decision to the Executive Committee of City Council and to advise the Executive Committee that an implementation report will be coming forward to the Board in December and will be forwarded to the Executive Committee at that time.

Note: The Executive Committee, at their meeting in October, deferred the final report on the TTC Capital Program Delivery Review and requested it be brought back in January along with the implementation plan (December 20, 2016 report).

Motion: [http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2016/September 28/Reports/Decisions/TTC Capital Program Review.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2016/September%2028/Reports/Decisions/TTC%20Capital%20Program%20Review.pdf)

At its meeting of December 20, 2016, the Board:

1. Approved the preliminary Project Management Maturity Plan as outlined in the body of this report;
2. Requested staff report back on a semi-annual basis beginning in June 2017 to provide an updated Project Management Maturity Plan along with the status of progress made against the plan;
3. Requested staff transmit an annual third-party report to track progress against the Project Management Maturity Plan beginning in December 2017; and
4. Directed staff to forward this item to the City Clerk for consideration at the January 19, 2017 meeting of the Executive Committee on Item EX18.26: Toronto Transit Commission Capital Program Delivery Review.

Capital Delivery Review – Implementation Plan Report:

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2016/December 20/Reports/11 Capital Delivery Review Implementation Plan.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2016/December%2020/Reports/11%20Capital%20Delivery%20Review%20Implementation%20Plan.pdf)

Decision: [http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2016/December 20/Reports/Decisions/Capital Delivery Review-PM Maturity Implementation.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2016/December%2020/Reports/Decisions/Capital%20Delivery%20Review-PM%20Maturity%20Implementation.pdf)

On January 31, 2017, City Council adopted the following recommendations from the City's Executive Committee:

1. City Council request the City Manager to initiate a review of the City of Toronto capital program delivery including a review of project management of major capital projects for all City divisions and other Agencies, Boards, and Corporations; staff reporting mechanisms to City Council and/or boards; and future options for project management and delivery of major capital projects.
2. City Council request the City Manager to report back to the Executive Committee and the Toronto Transit Commission Board on the feasibility of a Major Capital

- Project Task Force. The Task Force would provide project management and coordination for all major capital projects for City departments, and Agencies, Boards, and Corporations. Resources for this group should be found within existing budgets and would be comprised of senior staff from Engineering and Construction Services, Transportation, the Toronto Transit Commission and other departments with project delivery expertise.
3. City Council request the City Manager to report to the Executive Committee in the third quarter of 2017 on the feasibility of establishing a Major Capital Infrastructure Office which would:
    - a. be led by "best in class" public infrastructure experts;
    - b. utilize the best management and financial practices and the appropriate elements of the KPMG Capital Program Delivery Review for the Toronto Transit Commission;
    - c. deliver major City infrastructure projects on time and on budget; and
    - d. include staff from Engineering and Construction Services, Transportation Services and other major divisions and agencies.
  4. City Council request the City Manager to include in the report in Part 3 above appropriate large infrastructure projects that could be assumed by the Major Capital Infrastructure Office.
  5. City Council request that the City Manager report on which of the 41 recommendations found in the Toronto Transit Commission Capital Program Delivery review have been or will be adopted by the City.

## **Issue Background**

In March 2015, City Council directed the City Manager to retain the services of an independent consultant to review TTC capital program delivery and provide a report to the TTC Board.

As directed, the City Manager's Office retained the services of KPMG's Capital Advisory Group to conduct the review, in order to support continuous improvement in the delivery of capital projects at the TTC.

In September 2016, the final report from KPMG on the TTC Capital Delivery Review was presented with full endorsement from the TTC's CEO. The report included 41 recommendations on how to advance the stewardship of capital projects to meet or exceed international best practices.

As outlined in the December 2016 Capital Delivery Review – Project Management Maturity Implementation Plan Report, staff has developed a work plan to take immediate action on all of KPMG's recommendations.

This report is the first progress update on the implementation plan.

## Accessibility/Equity Matters

The implementation of this work will have significant positive equity and accessibility impacts, by ensuring that project sponsors, project managers and the wider project teams apply a diversity and inclusion lens to project planning, development and implementation. The TTC’s business case process requires the use of the lens for newly proposed projects and staff will continue to look for opportunities to apply the lens throughout the relevant project management processes in an effort to progress towards the TTC’s ultimate goal of delivering inclusive and barrier free services, project and programs for TTC’s diverse customers and employees.

The associated standards supporting the Project Management Framework have the TTC’s Diversity & Inclusion lens built in (i.e., Stakeholder Management, Project Justification, Scope Definition, etc.). Capital projects will comply with the Accessibility for Ontarians with Disabilities Act, the Ontario Human Rights Code and all other applicable legislation to ensure barrier free access for TTC customers.

## Comments

Since the development of the PMM Plan in December 2016, the following key items have been completed:

1. Development of the PMF, which resulted in
  - a. Progressing all of the Top 10 Priorities;
  - b. Progress on Transit Expansion Roles & Responsibilities; and
  - c. Identification of initial PMM Plan success measures.
2. Development of an organizational model that addresses resource and accountability gaps.

The PMM Plan states that corporate requirements will be in place within six to twelve months of initiating the plan. Through the development of the PMF, staff have been able to advance all of the Top 10 Priorities and 21 of the 41 recommendations.

<b>1</b>	Set Target to ‘Monitored’ (Rec#16)	<b>6</b>	Improve Stakeholder Management (Rec#12)
<b>2</b>	Establish Stage Gate Process (Rec#10)	<b>7</b>	Establish Delivery Options Process (Rec#27)
<b>3</b>	Develop Governance Toolkit (Rec#5)	<b>8</b>	Establish Commercial Management (Rec#30)
<b>4</b>	Establish a Corporate Project	<b>9</b>	Ensuring Holistic Scoping (Rec#22)
<b>5</b>	Clarify Roles & Responsibilities for Expansion Projects (Rec#11)	<b>10</b>	Centralize Project Monitoring (Rec#41)

Figure 1: Top 10 Priorities

The next two sections highlight progress on the following:

1. Establishing a Corporate PMF (Rec#6); and
2. The TTC's new organizational model.

For a detailed update on the Top 10 Priorities, refer to Appendix 1.

## **1. Establishing a Corporate PMF (Rec# 6)**

The PMF and its related standards set the expectations for project sponsors, managers, internal and external stakeholders to initiate, plan, execute, monitor and control, and close projects using processes that meet or exceed international best practices. The PMF outlines standard governance processes by which all TTC capital projects must be administered. These processes include the consistent categorization, governance and staging of projects. Compliance with the PMF is mandatory; however the document is designed to allow for tailoring by project as determined by the specific needs of individual projects. For ease of use, the PMF is structured with a quick reference to relevant standards outside the main body of the framework.

The Standard Governance Processes section outlines the foundational concepts that the PMF is built upon. It also includes an introduction to the minimum requirements and practices required by the TTC. The section also includes reference to other documentation such as standards that provide more detail, procedures and instructions for the implementation of Project Management practices at the TTC. It is structured as follows:

- Project Categorization
- Project Governance
- Project Oversight
- Stage Gate Process

### **1.1. Project Categorization**

The TTC's over 300 capital projects vary widely by size and complexity. The PMF requires all projects to be categorized in consideration of scale, risk and complexity. The category of a project (Category 1, 2, 3 or 4) determines the recommended governance, required competency of the project manager, and the amount of overall project management rigour required. It ensures project management and oversight efforts on a project are appropriate for the scale and the risks anticipated on a project.

The Project Categorization model presented in Figure 2: Project Categorization Process is designed to help the evaluator (typically the Project Sponsor with support from the Project Manager) in classifying projects into one of the four categories. The



categorization model includes a set of four criteria / subcategories that incorporates the project’s size, risk and complexity.

The categorization model requires the Project Sponsor and Project Manager to consider the predefined set of criteria in three separate screening processes, as prescribed in Figure 2: Project Categorization Process. The first screen assigns the project a score based on budget size alone, and this score is re-evaluated and may be adjusted (up or down) after each subsequent criterion is considered. The evaluation is somewhat subjective; however, and it will be assessed by the TTC’s corporate PfMO to ensure the logic is applied consistently and the result is reasonable.

	Criteria	Category 1	Category 2	Category 3	Cat. 4	
Step #1: Assess Initial Category Based on Budget	Budget	Estimated total project cost	Under \$50million	\$50 million - \$500million	Over \$500 million	Transit Expansion Projects (e.g. Subway Expansion, Streetcar Network Expansion, and Bus Rapid Transit (BRT))
	Step #2: Adjust Category (up or down) Based on Knowhow	Institutional Knowledge	How frequently this type of project been undertaken at the TTC	Routine / Annual	Every 2 / Annua.	
Step #3: Adjust Category (up or down) Based on Complexity			Interrelationships: internal/ external	Interdependencies with other projects and/or operations	<u>Low</u> <ul style="list-style-type: none"> <li>• Simple internal interfaces</li> <li>• Minimal impact to service or public realm</li> </ul>	
	Step #3: Adjust Category (up or down) Based on Complexity	Interrelationships: contractual	Complexity of contract interfaces	<u>Low</u> <ul style="list-style-type: none"> <li>• Few contracts</li> <li>• Minimal overlaps</li> <li>• Flexible sequencing</li> </ul>	<u>Medium</u> <ul style="list-style-type: none"> <li>• Few contracts with some overlap</li> <li>• Many contracts with minimal overlap</li> <li>• Partly flexible sequencing</li> </ul>	

Figure 2: Project Categorization Process

The category of the project will provide a basis for establishing the governance structure, competency level of project management staff, the appropriate controls, and oversight measures that should be adopted to help ensure the project is delivered successfully.

These are the minimum requirements; however, some departments, like Information Technology Services (ITS) for example, may elect to exceed the minimum standard. Due to the complexity, transformational nature, and potential impact of on multiple business units, all ITS projects are to be classified as Category 2 or higher. These projects require a high degree of business process and organizational change management. Therefore an

appropriate level of business oversight needs to be applied which is reflected in Category 2 or higher governance structure.

For more information, refer to the Project Categorization section of the attached TTC Project Management Framework document.

## 1.2. Project Governance Structure

Governance is the framework, functions and processes that guide project management activities, like coordinating, and monitoring all aspects of a project to achieve targeted objectives, goals, and benefits while ensuring compliance with policies, procedures, and the organizational structure. As noted in the Project Management Institute’s (PMI’s) Project Management Body of Knowledge (PMBOK), the industry standard for project management, good governance ensures that a project is aligned with the major stakeholders’ needs and objectives.

Project governance presents a unified and coherent framework by which a project is directed, administered or controlled. Project governance sets the framework under which project leadership will be empowered to make decisions that meet the objectives of the major stakeholders and provides for ways to address circumstances where stakeholders may not be aligned.

As depicted in Figure 3: Project Governance by Project Category, default governance structures are established based on the project’s category. The governance structure is to be documented and approved through the Project Charter. The PMF allows for a deviation from the default governance structure based on the specific project’s needs, but the rationale must be documented and approved through the Project Charter.

**Project Governance by Project Category** (Below are default governance structures, which are to be evaluated per project and documented in the Project Charter)

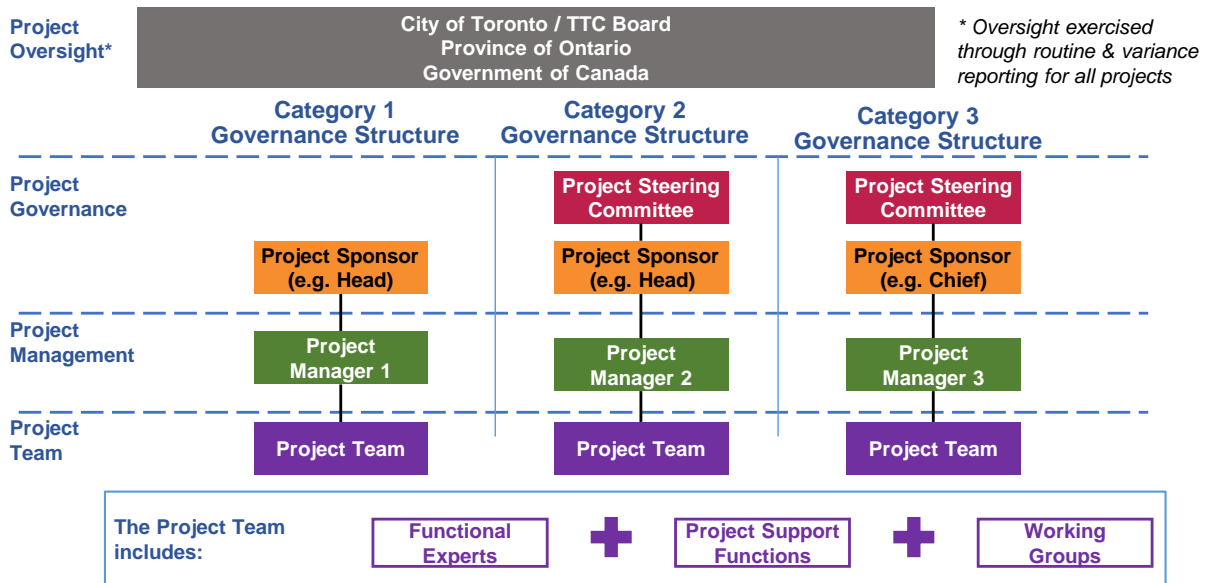


Figure 3: Project Governance Structure by Category

The primary intent of this figure is to depict the standardized approach to internal project governance. The role of the TTC Board, City Council, and other funding partners in project oversight is to be documented on project-by-project basis. As a default, Category 3 projects will have stage gate deliverables submitted for TTC Board approval; however, for all projects the Board will continue to receive procurement authorization reports and improved routine and variance reporting. The Board and Council may employ additional oversight if they believe that a particular project warrants it.

The principle of single-point accountability of project leadership is incorporated into each project's organizational structure. The roles and corresponding responsibilities are defined, which is critical to the project's success. The project organizational structure will create and clearly identify the decision making process and accountability.

Generally, the project organizational structure can be broken down into broad areas that are associated with project controls, management, the team, as well as other compliance and oversight functions.

Further clarification on the Board's role in project oversight is scheduled to be reported by the TTC Chair at the July 2017 Board meeting.

For more information, refer to the Project Governance Structure section of the attached TTC PMF document.

### **1.3. Project Oversight**

For the purposes of the PMF, Project Oversight is defined as the individuals or entities that are providing capital project oversight outside of the Project Team. Project Oversight is exercised by the groups that supervise, monitor and review the projects within the TTC's Capital Portfolio. As noted in the Project Governance section, these roles depend upon project categorization, but include oversight roles within the project accountability chain as well as internal and external compliance oversight bodies. Each entity's supervisions and oversight responsibility will differ, but broadly include:

- Providing input and/or specialist advice to the Project Manager and Project Team
- Providing compliance or assurance services
- Reviewing major decisions
- Approving major project documents
- Approving Stage Gate progression
- Providing higher levels of management with sufficient project information

- Providing the Project Manager with direction and advice in resolving project management issues

The level of Project Oversight will vary depending on the category of project, but is a requirement for all categories. Increased rigour and oversight is required as a project category increases.

For more information, refer to the Project Oversight section of the attached TTC Project Management Framework document.

### 1.4. Stage Gate Process

Regardless of project categorization (1, 2, 3, or 4), in order to provide consistency and efficiency, all projects will follow a Stage Gate process, which involves a set of standard processes and activities that are linked to the various phases in the lifecycle.

Every project follows a defined project lifecycle where the project moves between distinct and sequential phases. Dividing projects into clear phases allows better governance and management control by allowing each phase to have its own start and end point and with each phase serving a specific purpose or objective.

All projects at the TTC align with the six key lifecycle phases (Needs Assessment, Initiation & Development, Design & Preparation, Procurement & Implementation, Closeout and Operations) and which can be sub-divided further into nine defined stages.

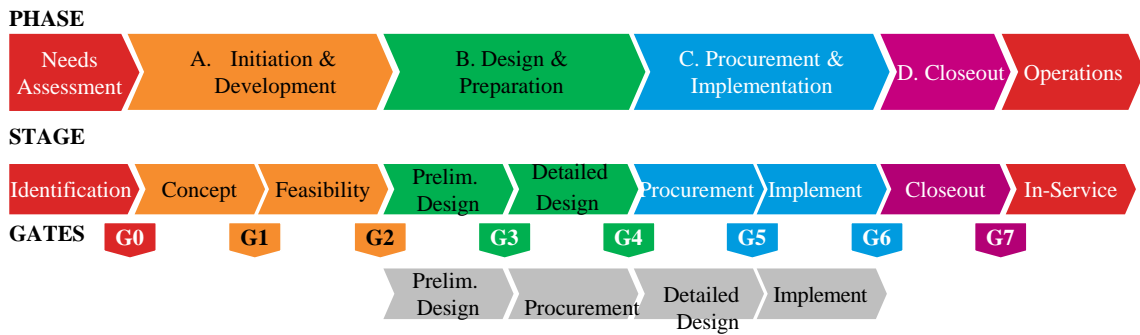


Figure 4: Project Phases and Stages image

For a project to proceed from one stage to the next, it must pass a mandatory checkpoint called a “stage gate”. At each stage gate, project management deliverables are assessed by the Sponsor, Project Steering Committee, and as applicable, the TTC Board and City Council for quality and completeness before the project is allowed to progress.

There is an important distinction to be made between what Stage Gates are intended to do and what they are not to be used for.

- Stage Gates **do** allow the governance bodies to ensure the project is still meeting its objectives and to provide authority to proceed to the next stage in the project lifecycle.
- Stage Gates **are not** intended for assessing project or progress against schedule and cost. This reporting is done in standard routine reporting through the governance structure as a part of day-to-day management of the project. Stage Gates are also not intended to be an opportunity for stakeholders or shareholders to introduce project changes.

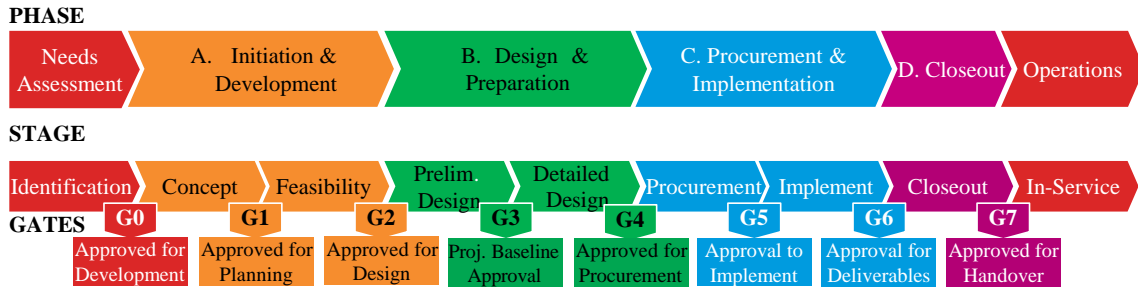


Figure 5: Phases and Stages with Gates image

TTC Board governance relies on a balance of Stage Gate approvals and delegated authority. The role of the Board (and City Council, as required) is to challenge the project objectives and project plan from Gates 1 through 3. After Gate 3, through to the end of the project, the role of the Board is to provide support and assurance for project success.

As a default, Category 3 projects will have stage gate deliverables submitted to the Board for approval at Stage Gates 1, 3, and 7. These gates were identified by KPMG as being critical to Board level oversight for reasons as follows:

- Gate 1 (Approved for Planning) – Approve base definition of project objective. Confirm key stakeholders. Establish governance and form the project team. Confirm that continued investment is justified to develop a comprehensive business case.
  - Preliminary Business Case - The Business Case is a formally approved document that describes the business need and project objectives. The business case assesses alternatives for achieving the project objectives, and based on qualitative and quantitative analysis, recommends the preferred way forward.
  - Preliminary Project Charter – defines and communicates the ‘what’ and ‘who’ of a project. The Charter is a formally approved document that formally authorizes the project, assigns a project manager, and documents the accountabilities of the project sponsor and project manager to achieve the approved scope, cost, and delivery milestones. The Charter also documents the project category, governance structure, stage gating process, project team, stakeholders, risks, etc.

- Gate 3 (Project Baseline Approval) – Prepare early design (up to 30%) and select preferred delivery option. Establish baselines for scope, costs (Class 3 estimate) and schedule. Confirm that the project should proceed.
  - Final Business Case - Includes the proposed project delivery option (e.g. DBB, DBF, etc.), proposed contract bundling strategy, updated cost estimates (Class 3 estimate), milestone level schedule, etc.
  - Final Project Charter – includes updates to the project baselines and is serving as a performance baseline agreement between the project sponsor and the project manager.
  
- Gate 7 (Closeout) – Sharing lessons learned. Initiating the benefits realization plan. Closing the project and disbanding the project team.
  - Project Closeout Report – captures how successful the project was at delivering its objectives. The Closeout report is a formally approved document that captures whether the project objectives have been achieved. Where objectives haven't been met (e.g. variances in budget or schedule), the report includes a discussion on why this was the case and how to improve delivery in the future. For objectives where it is not possible to measure their immediate success, the report provides a plan for continued tracking and reporting of objectives/KPIs. The Closeout report also addresses the status of all outstanding commercial issues whose resolution may extend past the end of the project, as well as a plan for resolution (e.g. claims). Lastly, the Closeout report also captures the key lessons learned on the project.

When reviewing the Project Charter, the Board may choose to require additional touch points during the project lifecycle if they believe that a particular project warrants additional oversight.

In addition to Stage Gate approvals, the TTC Board will receive routine project status updates, exception reporting based on agreed upon escalation thresholds, and will continue to receive requests for approval of any capital expenditures, including procurement authorizations, over the CEOs signing authority of \$5 million throughout the lifecycle of the project.

For more information, refer to the Stage Gate section of the attached TTC Project Management Framework document.

### **1.5. PMM Plan Success Measures**

The goals of the TTC Capital Program Delivery Review were to:

- Improve the organization's project and program management performance by learning from past experience;

- Support continuous improvement efforts underway at the TTC, including the continued implementation of the TTC PfMO established in 2014;
- Assess project governance structure and protocols for reporting of project status, to ensure the appropriate level of transparency and accountability to project sponsors and stakeholders; and
- Provide guidance on project delivery options and project management requirements for projects of varying size, scope and complexity.

In order to determine that the PMM Plan has been successful in addressing the Capital Delivery Review recommendations, qualitative and quantitative success measures have been identified. These measures allow for assessing success in the areas as follows: Project Management Maturity, Policy & Standards, Project Performance, Portfolio Performance, and Employee Performance & Training.

Most success measures cannot be measured at the beginning of the program. Since ultimately success is measured as projects being delivered on-time, on-budget and with a high degree of stakeholder satisfaction, several projects will have to run through the entire lifecycle before data becomes available. These measurements are leading indicators however they will begin to be reported out in the next six months.

#### **1.6. Next Steps:** *to end of 2017*

- Staff, in partnership with the City, will implement the PMF standard governance processes for all of the TTC's largest and most complex projects throughout their remaining project lifecycle, including Category 4 expansion projects such as Scarborough Subway Extension, etc. Initially, this will be completed by documenting a Project Charter to:
  - Review and confirm the project's categorization;
  - Assess and align the governance structure; and
  - Establish stage gates and produce the related stage gate deliverables.
- With the implementation of the PMF, existing templates will need to be modified to include the standard governance processes including Project Categorization, Project Governance structures and Stage Gates. Corporate templates such as the Board Report, Business Case, Statement of Intent, and Project Change Request will need to be evaluated to determine the impact of the changes and then subsequently re-deployed with supporting materials.
- The PMF will be deployed initially on Category 3 and 4 projects that are relatively early on in their lifecycle. Within six (6) months after the

implementation of the PMF, leading indicators can be measured and reported on areas as follows:

- Policy & Standards
  - Adherence to PM Framework (e.g., categorization, governance, stage gates)
  - Adherence to PM Standards (e.g., risk management, estimating, reporting, etc.)
- Project Performance
  - Adoption of schedule levels and class estimates
  - Advancement of schedule and class estimate maturity
  - Changes to project baselines through Project Change Requests
- Roles & responsibilities for Category 4 (Transit Expansion) projects will continue to be developed. The TTC will work with the City, using the PMF as an input, to apply best practices to all City capital projects. A progress update will be provided in the December 2017 Capital Delivery Review status update report.

Finally, in the next 6 months the one outstanding deliverable from Q1-Q2 2017 will be completed. Of the 13 deliverables committed to in December 2016, 12 have been completed as scheduled. The outstanding item “revising the TTC’s procurement policy to require delivery options analysis for major projects” will be completed by the end of 2017 without any impact to the PMM Plan critical path. The revised procurement policy is scheduled to be reviewed at the next Procurement Working Group meeting in Q3 2017.

## **2. Addressing Organizational Gaps**

Beginning in Q4 of 2016, an assessment of accountability and resource capacity gaps was conducted. It was noted that the areas of the organization that scored the highest on KPMG’s project management maturity assessment had dedicated PMOs that served to provide their respective executives with visibility over their accountabilities, standardization of processes, and enhanced capacity deliver.

In response, Service Delivery and Operations, the organizational groups found to have the lowest level of maturity, started to build their own PMOs. Referring to Figure 6: Portfolio/Project Management Organizational Structure, all PMOs will be tailored to suit the type of projects being delivered by that area of the organization, but will be required to align, standardize and subject to compliance monitoring by the corporate PfMO.



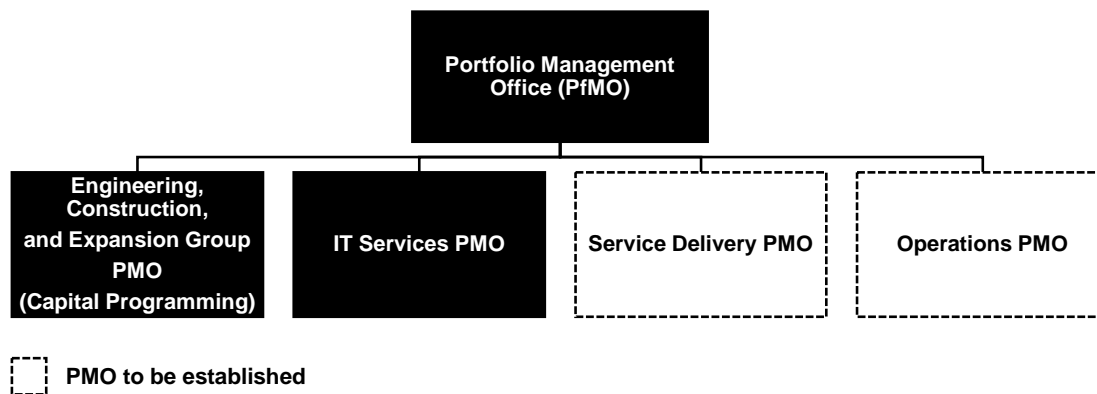


Figure 6: Portfolio/Project Management Organizational Structure

Additional resource capacity gaps identified since KPMG’s Review include project management services in areas such as:

- Project estimating;
- Scheduling
- Commercial management
- Delivery options analysis
- Risk management
- Performance management;
- Resourcing
- Capital Accounting
- Oversight

Staff initially estimated a total of 40 capital positions would be required to fill these gaps across the entire \$9.4 billion dollar portfolio. As outlined in the Financial Impact section of this report, the request for additional positions has been reduced to 26. Approximately 1-2 of each type of position (e.g. estimator, scheduler, commercial manager, etc.) will be submitted as part of the 2018-2027 Capital Budget submission. These resources will provide permanent capacity and be utilized as subject management experts within the organization. For resource gaps beyond the 26, external consultants will be charged back to projects on a pay-per-use basis.

## 2.1. PMOs

PMOs are required within the organization to increase project management maturity, serve as a point of contact for project management support, track project portfolios & provide oversight. The PfMO has been established as the corporate PMO. Each of the four major areas that deliver capital projects in the organization will have their own PMO.

All PMOs will increase project management maturity by ensuring alignment with the PMM Plan. That is, they will develop and oversee implementation of project and

program management standards, frameworks and guidelines. Development of these items will be by extending the corporate standards, frameworks and guidelines to make them scalable for the various project types that the group PMO's support. The group PMOs will work with the PfMO to develop/align group level standards, frameworks and guidelines by establishing a PMO Community of Practice. The focus is on providing support to project teams while increasing the project management maturity within the organization.

Group level PMOs may also provide the following project management functions to support project teams within their portfolio – risk management, estimating, scheduling, procurement management assistance, budgeting, project/program management performance reporting, etc.

These PMOs will serve as a mechanism for group chiefs to track and provide oversight to the group level portfolio. They will track and report on the progress of both major capital projects and operating initiatives within their group. They will also report on the project management maturity of the group to ensure progression towards the target state of their group and ultimately the organization. The PfMO will perform these functions on behalf of the entire TTC Capital portfolio.

## **2.2. Establishment of Project Management Services**

The PMM Plan identified that capital resources would be required to implement and build permanent capacity to maintain the steady state in areas such as project estimating, scheduling, commercial management, delivery options analysis, risk management, etc. The provision of these services primarily will be through a centralized shared services model.

The PfMO, in consultation with the PMO Community of Practice, will use consultant resources to deliver these services centrally for those areas in the organization that do not already have these services established – e.g., Service Delivery and Operations. An RFP has been issued to assist in the implementation of the PMM Plan, which includes the establishment of project management services and to provide immediate capacity until permanent resources can be recruited and trained.

## **2.3. Next Steps:**

Service Delivery and Operations will complete the establishment of PMOs for their respective groups.

The PfMO, in consultation with the PMO Community of Practice, will use consultant resources to establish project management services centrally for those areas in the organization that do not already have these services established – e.g., Service Delivery and Operations. External consultant resources will provide immediate capacity until permanent resources can be recruited and trained.

In order to determine if the organization is progressing towards the target state of 'monitored' an annual third-party report to track progress against the PMM Plan will be submitted to the Board beginning in December 2017.

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## **Appendices**

Appendix 1 - Top 10 Priorities Update  
Appendix 2 - Project Management Services Resources

## **Attachments**

Project Management Framework

## Appendix 1 – Top 10 Priorities Update

### 1. Setting a Maturity Target of ‘Monitored’ (Rec #16)

To enable the TTC to have more predictable project outcomes, it has set a project management maturity target of ‘monitored’, with all processes fully implemented and a state of continuous improvement has been reached. As reported by KPMG, the benefits of improved project management efficiency and reduced cost overruns far exceed the investments required in people and technology to improve project management maturity.

#### *Status Update:*

- Complete      The TTC’s commitment to achieving the target state of ‘monitored’ has been documented and communicated through the Corporate Project Management Framework (Rec #6);

*Cost/Funding:* Accommodated within existing resources and funding.

### 2. Establishing a Stage Gate Process (Rec #10)

A ‘Stage Gate’ process is a technique in which a project’s lifecycle is divided into major segments that are delineated by decision points, or ‘gates’. At each gate, information relevant to the project’s current stage, such as the business case, risk analysis, cost estimates, milestone scheduled, etc., is provided to the governing body responsible. The governance body, typically a project steering committee, can then make informed decisions time to proceed, correct course, or discontinue the project based on information available at the time. Further, when followed with discipline, the stage gate process helps to ensure that all stakeholders, whether governance bodies such as the TTC Board, City Council, TTC or City staff, vendors, members of Council or the public, have transparency to information as a project proceeds through its gates.

#### *Status Update:*

- Complete      Corporate stage gate requirements have been established in the Corporate Project Management Framework (Ref Rec# 6).

#### *Next Steps:*

- 6 months      Existing and future templates are to incorporate this process (i.e., Board reports, Business Cases, Project Change Requests, project status reports, etc.) and all selected projects will have its stage gates formalized through a Project Charter.

*Cost/Funding:* Accommodated within the funding and resources approved through the 2017- 2026 Capital Budget submission.

### 3. Developing Governance Toolkits (Rec# 5)

The development of toolkits and associated guidelines will provide support to each governance body, including at the staff level and at the TTC Board, in the execution of their mandate. The toolkit will contain information on:

- capital project management definitions and stewardship concepts;

- the relevant capital project governance bodies, their missions, mandates, and strategic objectives;
- information requirements and considerations for making decisions at each stage gate through the project life cycle; and
- techniques for performing due diligence.

The stage gate process will be used to frame the toolkit so that each governance body is aware of the decisions that they have to make at each gate.

*Status Update:*

- Complete KPMG conducted workshops with TTC Board members to further their understanding of their roles and responsibilities with respect to governance of the TTC’s capital program

*Next Steps:*

- 1 month KPMG will present an independent report, including recommendations on how the TTC’s Board can strengthen their oversight and stewardship of the TTC’s Capital Portfolio.
- 6 months Toolkits will be developed for all governance bodies and project specific steering committees involved in the delivery of capital projects.

*Cost/Funding:* Accommodated within the funding and resources approved through the 2017- 2026 Capital Budget submission.

**4. Establishing a Corporate Project Management Framework (Rec# 6)**

The Project Management Framework (PMF) sets out expectations for the management of projects based on their level of complexity and risk. This framework, built on the agreed-upon internal project governance structure, will be a top level document and serve as an entry point for the broader project management team. It will ensure that the interfaces among functional groups are clear. Key touch points among these groups at all stages of the project lifecycle will be documented to provide assurance of sound management of the project, appropriate oversight, seamless handoffs between functional groups, and risk management.

*Status Update:*

- Complete The first release of the Project Management Framework (PMF) has been developed. This document will be continuously expanded upon to reflect progress against the Project Management Maturity Plan.

*Next Steps:*

- 6 months Over the next six months, staff will implement the Project Management Framework (PMF) standard governance processes for all of the TTC’s largest and most complex projects throughout their remaining project lifecycle, including Category 4 expansion project Scarborough Subway Extension. Initially, this will be

completed by documenting a Project Charter to:

- Review and confirm the project’s categorization;
  - Assess and align the governance structure; and
  - Establish stage gates and produce the related stage gate deliverables.
- 18 months      The remainder of the TTC’s Capital Portfolio will have Project Charter’s will have Project Charters documented, including the work mentioned above to establish these documents.

*Cost/Funding:* Accommodated within the funding and resources approved through the 2017- 2026 Capital Budget submission.

## **5. Clarifying Roles & Responsibilities (Rec #11)**

Clarification of individual roles and responsibilities can be accomplished as an extension of the Project Management Framework, by creating clear roles and responsibilities for each project role, and relating them to a project’s governance. At the project level, this is typically documented using tools such as a responsibility assignment matrix (RAM), which identifies stakeholder involvement in key decisions and interfaces throughout the project’s lifecycle.

*Status Update:*

- Complete      Minimum requirements for the establishment of project governance, stage gates, and roles & responsibilities on Category 1-3 TTC projects have been established in the Corporate Project Management Framework (see Rec# 6).

*Next Steps:*

- 12 months      Roles & responsibilities for Category 4 (Transit Expansion) projects will continue to be developed. The TTC will work with the City, using the PMF as an input, to apply best practices to all City capital projects. A progress update will be provided in the December 2017 Capital Delivery Review status update report.

*Cost/Funding:* Accommodated within the funding and resources approved through the 2017- 2026 Capital Budget submission.

## **6. Improving Stakeholder Management Protocols (Rec# 12)**

The Information Technology Services department has placed a high importance on stakeholder communication as this aligns closely with their role as an internal service provider. This approach to stakeholder management can be emulated across the capital portfolio for both internal and external stakeholders. The stage gate process will specify

points in time where stakeholder reviews will be a key factor in gate approval, particularly in the more transformational or disruptive capital projects.

*Current Status:*

- Complete Standard expectations for how projects are to manage stakeholder relations have been documented and communicated through the Corporate Project Management Framework (Rec #6).

*Next Steps:*

- 18 months Guidelines, templates, and a training program will be developed and deployed to all staff and stakeholders involved in the initiating, planning and delivery of projects; and All of the discrete projects and programs, as identified in the TTC's Capital Budget, will have their own specific stakeholder management plans to ensure they will meet or exceed corporate expectations.

*Cost/Funding:* Accommodated within the funding and resources approved through the 2017- 2026 Capital Budget submission.

## **7. Establishing a Delivery Options process (Rec# 27)**

Procurement planning ensures there is an agreement on a clear and specific project scope, an assessment of qualified and available resources, considers influences that may affect a buying decision, and ultimately develops the strategy for the procurement activities to be performed. The development of a delivery options framework will involve numerous inputs from multiple stakeholders and provide project teams with a mechanism to determine the right procurement strategy (e.g. Private Public Partnerships (P3), Design Bid Build (DBB), Design Bid Build Finance (DBBF), etc.) to employ based on a project's unique risk profile and requirements.

This process has already been employed for the Scarborough Subway Extension and McNicoll Garage projects and will be used for all Category 3 and 4 projects going forward.

*Status Update:*

- Complete The Corporate Project Management Framework (see Rec# 6) includes requirements for when a delivery options analysis is required;
- Complete An RFP to support the implementation of the PMM Plan was issued for tender in Q2 2017. This RFP included obtaining independent consultant expertise to draft a project delivery options assessment standard, procedures, tools & templates. The contract award is scheduled for June 2017.

*Next Steps:*

- 6 months The TTC's procurement policy will be revised to require delivery options analysis for Category 3 and 4 projects.



- 6 months      Consultants will also be engaged to provide delivery options analysis services for specific projects. These services will be charged back to the individual projects.

*Cost/Funding:* Capital resources under the Commercial Management function are required to administer the contract(s) and to build competency for project delivery options analysis in-house. Work planned in 2017 will be completed using external consultant resources. The additional capital resources will be requested through the 2018-2027 Capital Budget submission.

**8. Establishing a Commercial Management process (Rec# 30)**

Establishing a commercial management function will provide project teams with a dedicated resource to manage commercial issues of a project from inception to completion. It requires an understanding of the economics on both sides of the owner-contractor/vendor relationship. In class-leading organizations, a project and the owner/contractor relationship is recognized as a partnership between two organizations with different but generally aligned goals for the completion of the project. A commercial management function can help structure and effectively manage that relationship.

Ultimately, an effective commercial management function will result in fewer contractor claims and improved management of claims when they do arise.

*Status Updates:*

- Complete      Commercial management requirements have been communicated in the Corporate Project Management Framework (see Rec# 6);
- Complete      An RFP to support the implementation of the PMM Plan was issued for tender in Q2 2017. This RFP included obtaining consultant expertise to draft a commercial management process. The contract award is scheduled for June 2017.

*Next Steps:*

- 6 months      Consultants will also be engaged to provide commercial management services for Category 3 & 4 projects until the capability is built in-house. These services will be charged back to the individual projects; and
- 12 months      Develop and delivery training to in-house project management staff.

*Cost/Funding:* Work planned in 2017 will be completed using external consultant resources. The additional capital resources will be requested through the 2018-2027 Capital Budget submission.

**9. Ensuring Holistic Scope Definition (Rec #22)**

In the past, the budgets for transit projects have been set before the scope of the other infrastructure components (relating to the broader objectives) are substantively defined and quantified, and without risk adjustments to deal with the project unknowns. This can result in project costs exceeding the original (incompletely scoped) budget that set the

stakeholder expectations. Holistic estimating guidelines will ensure that all estimates include both internally owned scope and scope affected or improved by other parties, regardless of funding responsibility, and including lifecycle costs when required.

*Next Steps:*

- 6 Months Holistic scoping requirements have been established in the Corporate Project Management Framework (see Rec# 6).

*Next Steps:*

- 1-2 Years Holistic scoping will also be integrated in stakeholder management plans (see Rec#12).

*Cost/Funding:* Included within existing resources and funding.

**10. Establishing Centralized Project Monitoring (Rec# 41)**

Prior to the creation of the Portfolio Management Office (PfMO), the monitoring of project management practices had been largely governed by departments at the group level, with some corporate internal audit support. In the past, the Internal Audit department had some involvement in process compliance; however, it has limited ability to support the TTC's entire Capital Portfolio. With the expansion of the PfMO's mandate to include compliance monitoring of project management policies, processes and procedures for groups for delivering the capital projects this monitoring program will serve as a continuous improvement tool.

*Current Status:*

- Complete High level project monitoring requirements have been communicated in the Corporate Project Management Framework (see Rec# 6). An RFP to support the implementation of the PMM Plan was issued for tender in Q2 2017. This RFP included obtaining consultant expertise to assess the organization's progress against the project management maturity target. The contract award is scheduled for June 2017.

*Next Steps:*

- 6 months A consultant will also be engaged to conduct management reviews of projects based on defined risk-based selection criteria.

*Cost/Funding:* Work planned in 2017 will be completed using external consultant resources.

## Appendix 2 – Project Management Services Resources

The PMM Plan identified that capital resources would be required to implement and build permanent capacity to maintain the steady state in areas such as project estimating, scheduling, commercial management, delivery options analysis, risk management, etc. The provision of these services primarily will be through a centralized shared services model.

The following is a high level description of the various positions and their proposed funding model:

- Project estimating;
  - An estimator is responsible for compiling estimates of how much it will cost to implement a project. The estimator will do this by working out how much a project is likely to cost and create budgets accordingly. The job involves assessing material, labour and equipment required and current/future market conditions. The plan is to extend this function to all project teams across the organization on a pay-per-use basis;
- Scheduling
  - A project scheduler develops the project schedule in order to communicate what work needs to be performed, which resources of the organization will perform the work and the timeframes in which that work needs to be performed. The project schedule should reflect all of the work associated with delivering the project on time. The project schedule is also used to track actual performance to show if the project is ahead of or behind its anticipated progress. The plan is to extend this function to all project teams across the organization on a pay-per-use basis;
- Commercial management
  - A commercial manager will provide project teams with a dedicated resource to manage commercial issues of project from inception to completion. It requires an understanding of the economics on both sides of the owner-contractor relationship is recognized as a partnership between two organizations with different but generally aligned goals for the completion of the project. A commercial manager can help structure and effectively manage that relationship. The plan is to extend this function to all project teams across the organization on a pay-per-use basis;
- Delivery options analysis
  - Procurement planning ensures there is an agreement on a clear and specific project scope, an assessment of qualified and available resources, considers influences that may affect a buying decision, and ultimately develops the strategy for the procurement activities to be performed. The development of a delivery options framework will involve numerous inputs from multiple stakeholders and provide project teams with a

mechanism to determine the right procurement strategy (e.g. Private Public Partnership (P3), Design Bid Build (DBB), Design Bid Build Finance (DBBF), etc.) to employ based on a project's unique risk profile and requirements. The plan is to extend this function to all project teams across the organization on a pay-per-use basis;

- Risk management
  - A project risk analyst will work with project team members to develop a clear and structured approach to identifying risks. Having a clear understanding of all identified risks allows an organization to measure them, prioritize them and take the appropriate mitigating actions. Project risk management incorporates the planning, identification, analysis and management of project risks. Managing risks in projects has been recognised as a very important management process in order to achieve the project objectives in terms of time and cost. Conducting a thorough project risk analysis also identifies the appropriate budget contingency for the project. The plan is to extend this function to all project teams across the organization on a pay-per-use basis.
  
- Performance management;
  - A performance reporting analyst prepares performance reports for project stakeholders to make them aware of the current status and the forecasted progress of the project. The performance reports show stakeholders how the project is going, the forecast analysis of what they should expect if the project is allowed to keep going in the same way, or what additional funds or resources may be required to complete the project if there is any deviation from any baselines (e.g. cost and schedule baselines). This role will also monitor benefits realization plans to ensure that benefits are being achieved as outlined in the related business case. The plan is to provide this as a corporate function to all project teams across the organization funded through an pro-rated overhead cost levied across the capital portfolio;
  
- Resourcing

A resource manager will develop a resource allocation plan which is an important tool in effective management of scarce resources. The resources of an organization consist of people, materials, equipment, knowledge and time. Organizations typically have limited resources; therefore, trade-offs on what project resources are expended and when are made every day within organizations. The timing of the need of those resources can be and should be determined within the project schedules. A resource plan, which describes the type of resource needed and the timing of that need, is critical to effective resource management. As the project schedule changes, the resource plan must also be flexible enough to adjust as these changes occur. The plan is to provide this as a corporate function to all

project teams across the organization funded through a pro-rated overhead cost levied across the capital portfolio;

- Capital Accounting
  - A capital portfolio coordinator will assist the organization to identify and formulate organizational budget impacts during the development of business cases, and project change requests during project justification. The business case development can advance to another level through the monetization of benefits and the addition of return on investment (ROI), payback and internal rate of return calculations. As new project leaders are added to the organization, or are promoted they require consistent education and support on our budget process, as well as the related reporting. The plan is to provide this as a corporate function to all project teams across the organization funded through a pro-rated overhead cost levied across the capital portfolio; and
- Oversight
  - Oversight positions will be primarily be positioned within the various PMOs. PMOs are required within the organization to increase project management maturity, serve as a point of contact for project management support, track project portfolios & provide oversight. (See Section 2.1 for more details on PMO functions). The PfMO is a corporate function that will be provided to support all project teams across the organization, funded through a pro-rated overhead cost levied across the capital portfolio. The respective Group PMOs will provide support to the project teams across their group and will be funded through a pro-rated overhead levied across the group's capital portfolio.

# TTC PROJECT MANAGEMENT FRAMEWORK



Portfolio  
Management Office

Initial Draft  
FWK.0001.00.A

**Change History:**

Revision	Date	Description	Contributor	Approver
A	June 5, 2017	Initial Draft	Project Advisory Group	PMM Steering Committee

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This Project Management Framework (“PMF”) specifies standard governance processes by which all TTC capital projects must be administered. These processes are designed to ensure the standardized application of best practices for project categorization, governance, and staging of all capital projects at the Toronto Transit Commission (TTC). Compliance with the PMF is mandatory; however, the document was developed in consideration of the broad spectrum of project types and sizes within the TTC portfolio. The PMF’s application is to be tailored based on the specific needs of individual projects. For ease of use, the PMF includes an introduction to provide organizational context, standard governance processes, and references relevant standards that are currently under development.

### Part 1 – Introduction

This section provides context and a high-level overview of the Project Management Framework. It also serves as a way-finder, including links and references to key standards, tools and templates described in Part 2 of the Framework.



- Importance of Project Management
- What makes up a project?
- Portfolio, program and project management
- Development of the PMF
- Governance and continuous improvement of the PMF

### Part 2 – Project Governance

The Standard Governance Processes section outlines the foundational concepts that the PMF is built upon. It also includes an introduction to the minimum requirements and standard practices required by the TTC. Lastly, the section includes references to other documentation such as standards and procedures that provide more detail and on how to implement the PMF. This section is structured as follows:



- Project Categorization
- Project Governance
- Project Oversight
- Stage Gate Process

### Part 3 – Project Management Standards

This section contains details about minimum standards for the implementation of Project Management processes at the TTC. These processes are further elaborated in separate, stand-alone Project Management Standards.



## Part 1 - Introduction

### Background

#### Importance of project management for the Toronto Transit Commission

The TTC provides stewardship over a \$9.4 billion (2017-2026) 10-year Base Capital Budget, primarily for state-of-good-repair, and an additional \$4.2 billion (2017-2026) in transit expansion projects. The TTC's capital portfolio comprises approximately 30% of the City of Toronto's total capital budget.

Given the scale of investment managed by the TTC, efforts to continually review and improve processes for managing capital projects are critical to achieving TTC's vision of being a transit system that makes Toronto proud.

In 2014, the TTC created the Portfolio Management Office (PfMO) within the CEO's Office. The PfMO's efforts were to support the development and implementation of standardized tools and processes, provide in-house consultant services to areas of the organization that do not have the required project, program and portfolio management capacity, and to provide the TTC CEO and Executives with mechanisms for improved project oversight.

In 2015, the City of Toronto's City Manager and the TTC's CEO engaged a third-party, KPMG, to conduct the TTC Capital Program Delivery Review. KPMG found that throughout the TTC there are dedicated, experienced and qualified individuals who are committed to achieving more successful outcomes of the delivery of capital projects and are openly frustrated with the external perception of the organization. It was clear to KPMG that there has been a significant change of tone within the organization driven by the current management group that had made capital project management staff feel more empowered to drive successful delivery of capital projects than they had previously, and this PMF is an extension of that new direction.

The review found that although significant progress has been made since the creation of the PfMO at the corporate level within the TTC, there was a general absence of corporate project management support in the form of documented processes, procedures, training, coordination, and performance management. This has a significant impact on all areas of project control and governance, and represents the primary opportunity for improvement. KPMG identified pockets of the organization that perform aspects of capital project management at or above the level of peers, however, there were others where project managers were forced to rely on their own experience and tools in the absence of corporate standard direction.

KPMG assessed the **current state** of the Project Management Maturity level for the delivery of capital projects at TTC as a whole to be at the mid-range of the



'Standardized' level (see definitions in Figure 1 below). Given the TTC's goal of becoming a class-leading organization as articulated in its Five-Year Plan (2013 – 2017) and the low return on investment of improvements at an 'Optimized' maturity level for the public sector, the TTC's **target state** is to function at a **'Monitored'** level with some key processes optimized as needed to meet corporate objectives (i.e. risk or contingency management). This an appropriate target maturity level for an organization with the risk and complexity profile of the TTC's capital portfolio. KPMG's relative ratings of the Operations, ITS, EC&E, TTC Overall, Industry Benchmarks and Target State can all be seen above in Figure 1 below.

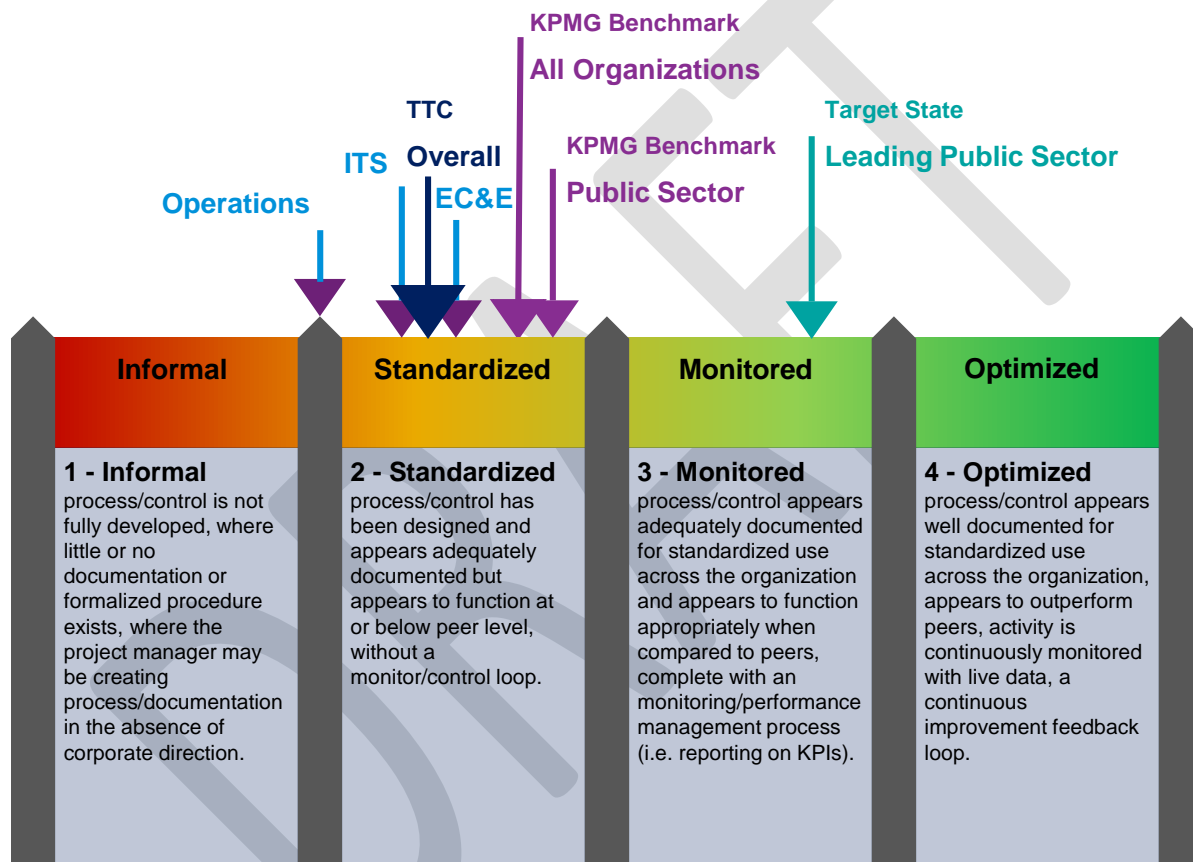


Figure 1 - KPMG Capital Program Delivery Review Maturity Ratings

In September of 2016, the Board endorsed the final report. The report included 41 recommendations in 6 areas (Governance & Policy, Relationships & Competency, Processes & Procedures, Data & Analysis, Tools & Technology, and Implementation & Monitoring) on how to advance the stewardship of capital projects to meet or exceed international best practices.

The 41 recommendations are the steps TTC must take to elevate the organization's project management maturity to the **'Monitored'** target state. To implement all



recommendations, TTC staff developed a work plan, referred to as the TTC’s **Project Management Maturity Plan** (“PMM Plan”).

The PMM Plan includes a detailed schedule, resource assignments, and budget estimates for how the TTC will improve key processes to a class leading level (Figure 2). The first six to twelve months of this plan, Q1 & Q2 2017, will see significant advances as minimum corporate expectations are set to improve governance, management processes and oversight throughout the project lifecycle. Pilot projects (which could include projects such as McNicoll Garage and VISION) will be brought in line with the Framework and new Standards within this same timeframe.

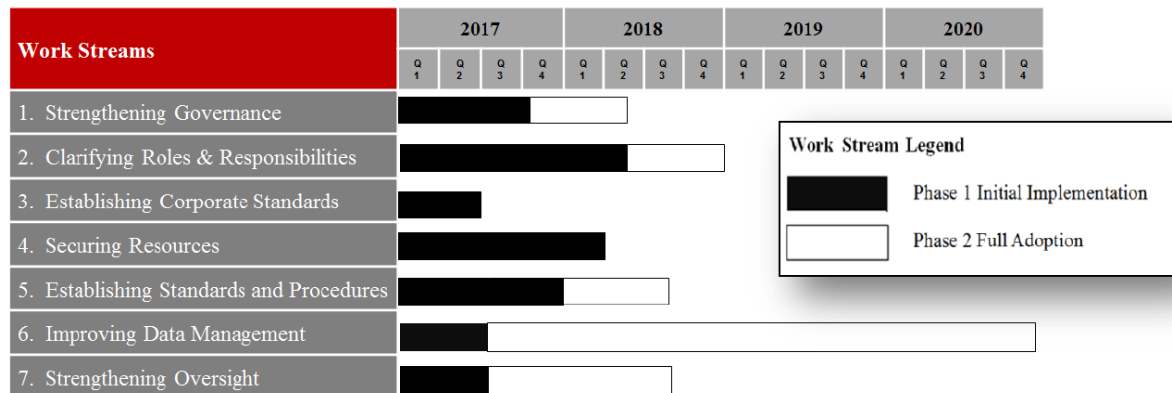


Figure 2 – TTC Project Management Maturity Plan (approved by the Board in December 2016)

Initial implementation across the entire portfolio of 300+ projects will be complete within two years. Full adoption and achievement of the target state will take four years, a timeline consistent with Transport for London’s ‘Pathways’ implementation and those of other leading public sector organizations.

The success of the PMM Plan will be measured using a variety of leading and lagging indicators, with regular progress reporting within the TTC and twice annual reporting to the TTC Board. The indicators used to measure success are broadly grouped into four categories: Maturity, Policy & Standards, Project Performance, Portfolio Performance and Employee Performance & Training. Implementation of the PMF and related Project Management Standards form the basis for a number of these indicators, including adherence to the PMF, adherence to PM Standards, and quality of Stage Gate deliverables. A more detailed description of the PMM Success Measures, and how they relate to the PMF, can be found on the PfMO SharePoint site.

### Distinguishing portfolios, programs and projects?

This document is titled the Project Management Framework, but it’s important to understand how the definitions of projects, programs and portfolio’s relate to one another. The TTC follows the Project Management Institute’s (“PMI”) Project Management Body of Knowledge (“PMBOK”) when defining the terms **portfolio**, **program** and **project**.



**Portfolio:** A portfolio is a collection of programs, projects and/or operations managed as a group. The parts of a portfolio may not necessarily be interdependent – or even related – but they are managed together as a group to achieve strategic objectives. Portfolio management is the management of one or more programs which includes identifying, prioritizing, authorizing, and managing programs and projects to achieve broad strategic business objectives.

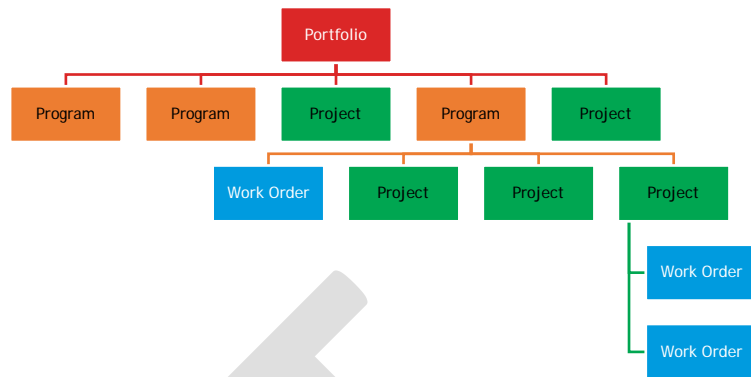


Figure 3 - Relationship of Projects, Programs and Portfolios

**Program:** A group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually. Program management involves the administration of a group of related projects to meet an overarching set of specific objectives and outcomes.

**Project:** A temporary endeavor undertaken to create a unique product, service or result. It has a definitive start and end, and is a time constrained effort. Project management is about delivery of a discrete and unique project, which is largely independent of other projects.

It should be noted that these definitions may differ slightly from those used in the City of Toronto’s budget process. Most notably, historically the term **Program** has been limited to an **ongoing program** of work that continues on an annual basis. With the PMI definition above, a series of related finite projects would now also be defined as a program from a project management perspective.

For the purposes of this PMF, everything is in the context of a Project. Although a number of the processes contained herein can be used for a Program or Portfolio depending on the department’s needs, this first release of the PMF is intended primarily for Projects. Future releases of the PMF will give further consideration to its application to capital Programs and Portfolios within the TTC.

The Project Management Institute more precisely defines a project as:

A project is a group of activities designed to yield a **unique product** within a **defined period of time**. That period of time has a **beginning and an end**. In other words; **projects are temporary** but not necessarily short. Source: PMBOK

Projects at the TTC vary widely in size, scope and complexity, yet to be successful they must all have the following common characteristics:

- A well-defined budget.



- A well-defined scope that identifies key disciplines involved, work packages, deliverables, and outcomes.
- Be finite, in that they have distinct beginning and end dates - a set duration.
- Are proactively managed by a designated and qualified person, and overseen by a Project Sponsor.
- Are unique and not parts of a routine ongoing operation, such as preventive maintenance works, parts replacement or repairs, or recurring and scheduled events.
- Have a clear deliverable or set of deliverables that respond to an expressly identified need and objective.

It is important to note that this definition does not apply to all components of the TTC capital budget. The budget includes ongoing capital works for which the PMF does not apply. A framework for ongoing capital programs is under development.

### Portfolio, program and project management

The PfMO’s document hierarchy sets order of precedence of documents that will govern portfolio, program and project management. The following figure shows the hierarchy which consists of the Policy, Frameworks, Standards, Procedures, Tools and Templates, and Records.

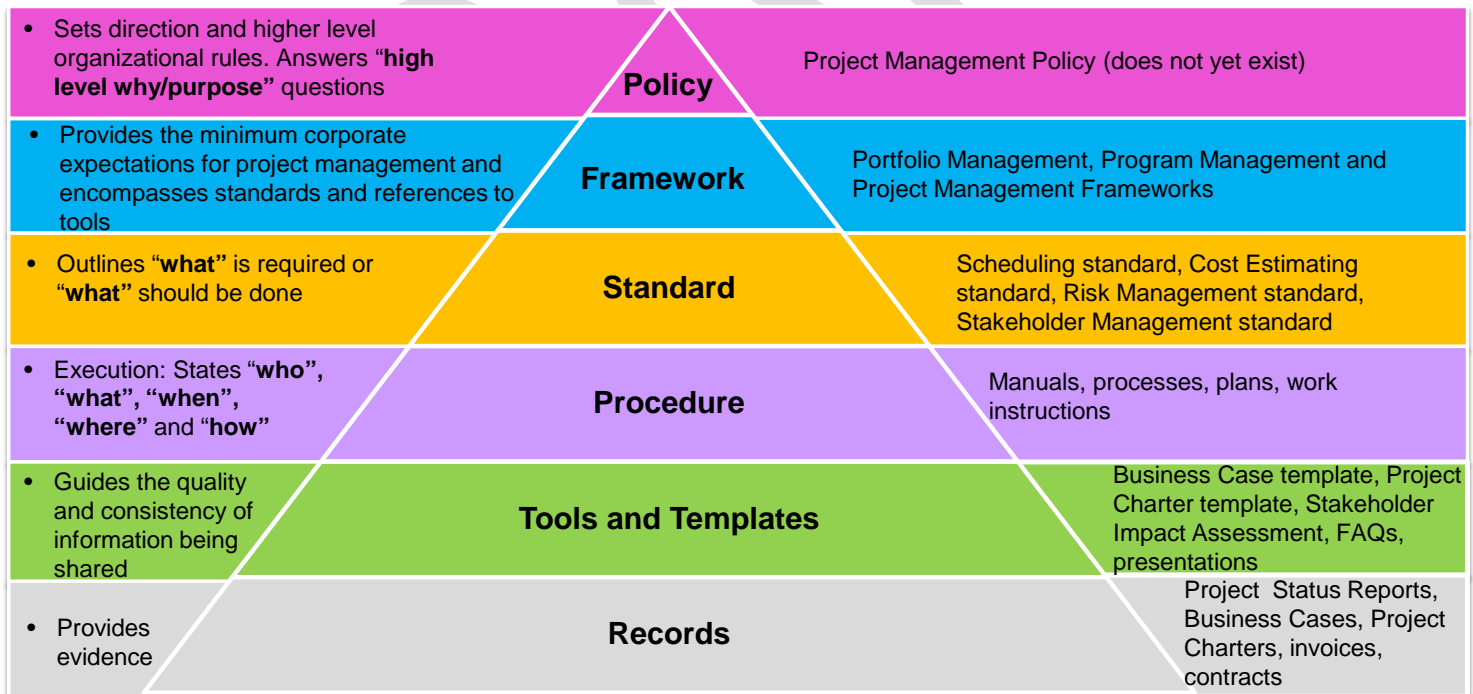


Figure 4 – TTC Capital Delivery Document Hierarchy





Specifically the following definitions are relevant for the above hierarchy:

- **Policy** – A set of principles, rules and guidelines adopted by an organization to achieve a goal.
- **Framework** – A document that outlines the corporate expectations that guide a set of interconnected activities, processes, tasks and tools that support a particular approach to a specific objective.
- **Standards** – Document stating requirements that must be met.
- **Procedure** – Specified way to carry out an activity or a process.
- **Tools and Templates** – These are instruments or forms used to support a portfolio, program or project and guides the quality and consistency of information being shared.
- **Records** – Records includes all documentation developed in the course of a project. Please see corporate guidelines on the Information Management SharePoint site ([link](#)).

The hierarchy demonstrates that the PMF will be the second level of corporate reference, alongside possible future Portfolio Management and Program Management Frameworks. The purpose of these documents is to help drive consistency, transparency, and control resulting in more predictable and successful capital delivery outcomes. These frameworks will help TTC achieve its strategic objectives, as detailed below:

- **Safety** – A transit system that manages its risks, protects its customers, contractors and employees, and minimizes its impact on the environment.
- **Customer** – A transit system that values customers and provides services that meet or exceed customer expectations.
- **People** – An empowered, customer-focused workforce that values teamwork, takes pride in a job well done, and an organization that actively develops its employees.
- **Assets** – Effective, efficient management of assets that delivers reliable services in a state of good repair.
- **Growth** – An affordable expansion program that matches capacity to demand.
- **Financial Sustainability** – A well-run, transparent business that delivers value for money in a financially viable way.
- **Reputation** - An organization that is transparent and accountable, well-regarded by stakeholders and peers, in which employees are proud to play a part.

Through the Project Management Policy these objectives will turn into benefits for the organization's capital portfolio. Quantitative benefits related to achieving scope, schedule and budget are the most common, but as the TTC moves forward, the benefits tracked on capital projects will increase to include many others. The qualitative benefits are often referred to as 'intangible' or 'soft' benefits. Measuring these intangible benefits will require careful consideration of the measures that will indicate whether they have been realized. An example such as improving the working environment (under "People") on capital projects may require surveys of employees to determine if



improvements have actually been realized, another example would be stakeholder consultation on scope development. As the TTC and PfMO establish a portfolio benefits management process, it will be important to document and communicate how they will define and categorize benefits. This will establish a common benefits language for the PfMO and the TTC overall.

## What is project management?



The practice of project management is governed by several national and international professional bodies. The TTC has adopted the approach by the PMI and their standards of project management as defined in the PMBOK.

Project management is the science of managing knowledge, skills, tools and techniques to meet project requirements. Project requirements are the baseline goals, needs or expectations of the resulting product, whether it is a new IT system, replaced streetcar track, repaved surface, major transit expansion project, or a fleet purchase.

Project management is a discipline intent on ensuring that when a project is completed the result aligns with prescribed expectations. Project management is the process of carefully guiding a project through its lifecycle and the application of tools, techniques, and processes for defining, planning, organizing, controlling and leading a project to achieve these specific expectations.

Expectations will not only be written out in detail when the project is started (initiation), but the parameters of the final product, as well as the outcomes of key steps leading to the final product, will also be defined. This ensures there are no misunderstandings about what the finished product will look like, how it will function, what standards it will meet, who it intends to serve, how much it will cost, and how long it will take to complete.

Another key intent of project management is to provide consistency in documentation and communication so everyone involved with a project has information for successful project delivery.

Historically projects at the TTC have been delivered using a range of different approaches to project management that vary by department. ***This Project Management Framework (“PMF”) aims to set out a common and standardized organizational-level approach to capital project management.***





# Introduction to the PMF

## What is the PMF?

The TTC has developed a document hierarchy as it provides a solid foundation to ensure successful delivery. The first reference point will be the Project Management Policy (under development), as this will provide a better direction on where to reference and will offer rationale on the purpose of the framework, standards and procedures.

The PMF is a document that provides the minimum corporate expectations for project management and provides the foundation for Standards and references to tools. The PMF is intended to help formalize the project management practices at the TTC. Project Managers are expected to draw upon this framework to help successfully deliver projects. The framework draws upon the PMBOK and industry leading practices and has been extensively tailored to the specific needs and characteristics of projects and day-to-day implementation at the TTC, through:

- Discussions with the Portfolio Management Office (“PfMO”) and designated content leads composed of TTC staff with relevant expertise on the topic.
- Ongoing consultations with the TTC’s Program Advisory Group (“PAG”), an internal working group of project managers, subject matter experts and other key stakeholders.
- Oversight and input by a PMM Steering Committee, comprised of Chiefs representing most major groups delivering projects within the TTC.
- Input from external industry experts.

## How was the PMF developed?

The approach for the development of the PMF is user-centric and participatory, in that it places importance on the usability and practical application of the PMF requirements, to maximize buy-in and adoption by the TTC’s personnel, and allows for the adaption of several requirements to the particulars of each department.

As such, the PMF relies upon an iterative approach for content development, validation, testing and approval, along with a continuous improvement process for the developed and published content.

The development of the PMF has drawn upon the input, knowledge and experience of a broad group of stakeholders within the various Groups at the TTC, as well as, across the industry of construction, engineering and project management (see Figure 5 below)

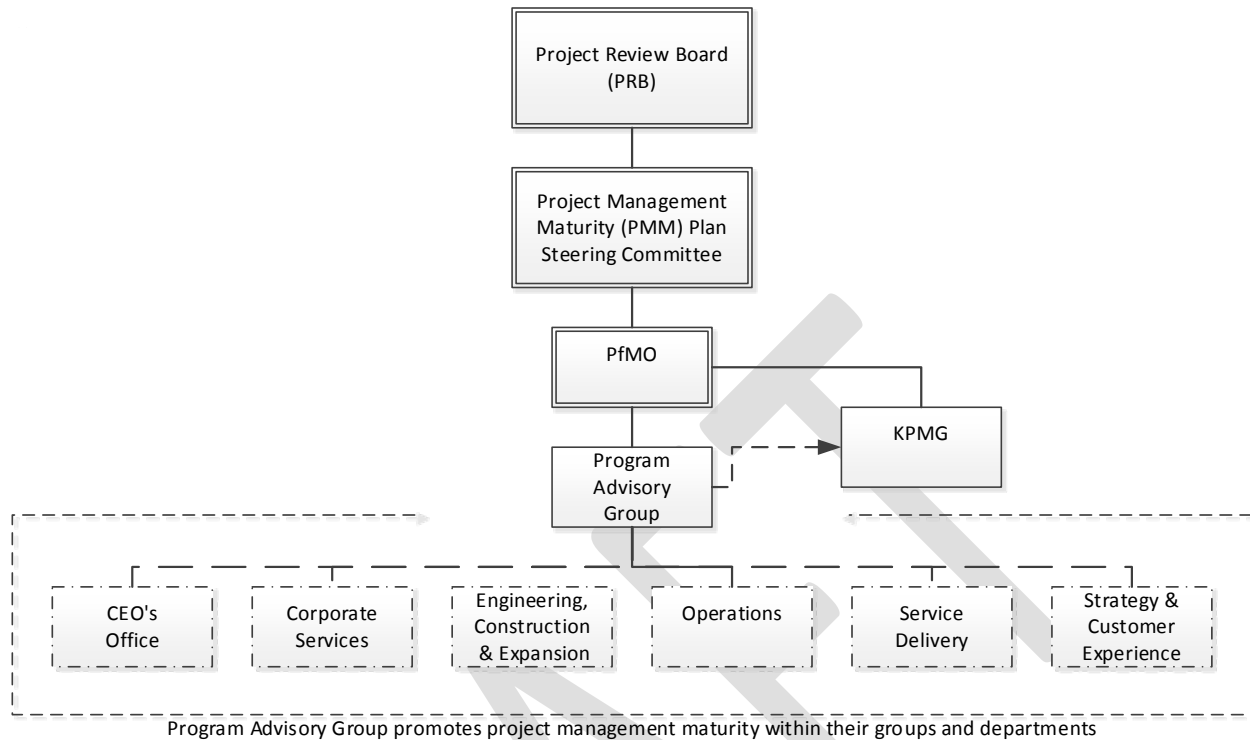


Figure 5 – PMM Plan governance structure

### How will the PMF evolve?

The PfMO is responsible for the PMF and will oversee its implementation, ensure continuous improvement and further development.

The PfMO's goal is to support the TTC in achieving excellence in the management of the various projects and programs, through building the personnel's capacity, providing proactive support and oversight, developing industry leading methodologies, and adopting innovative technology.

As part of continuous improvement, the PfMO will:

- Initiate a periodic revision of the PMF ensuring the integration of lessons learned and industry best practices.
- Initiate an ongoing training program to provide project management personnel with a range of training services, including introductory and advanced courses, case studies, and completed examples.
- Conduct regular reviews and collection of lessons learned to improve the approach and methodology used to develop future versions of the PMF.
- Conduct ongoing user surveys to collect feedback on adoption and use of the PMF.

- Conduct ongoing communication on future revisions and news associated with the PMF.
- Conduct a review and implement a quality assurance mechanism to ensure adoption and sustainment of the PMF by the various TTC departments.

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# Part 2 – Project Governance

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# Categorization

All capital projects must have a preliminary categorization among four categories of risk and complexity (Category 1, 2, 3 or 4) as a requirement of Gate 0. The category of a project determines the recommended governance, required competency of the project manager, and the amount of overall project management rigour required. It ensures project management and oversight efforts on a project are appropriate for the scale and the risks anticipated on a project.

The TTC's capital investments extend across a wide range of sizes and complexity levels. Projects should be assessed and classified relative to their impact on the organization.

The purpose of categorizing projects is to drive the required:

- Governance structure
- Project management competency & rigor
- Project oversight and compliance requirements

This ensures that there is a common approach with respect to how projects of a particular category are managed throughout the project lifecycle. The categorization of a project will be determined based on the project's size, complexity and uncertainty.

Projects of greater complexity have an increased potential to impact the reputation of the organization. These projects may not necessarily be the ones with the largest capital budgets, though they are frequently related. Complex projects also tend to have greater external interfaces such as the public, other City departments, and multiple levels of government due to funding requirements. Increased project controls and oversight is required as a project category increases.

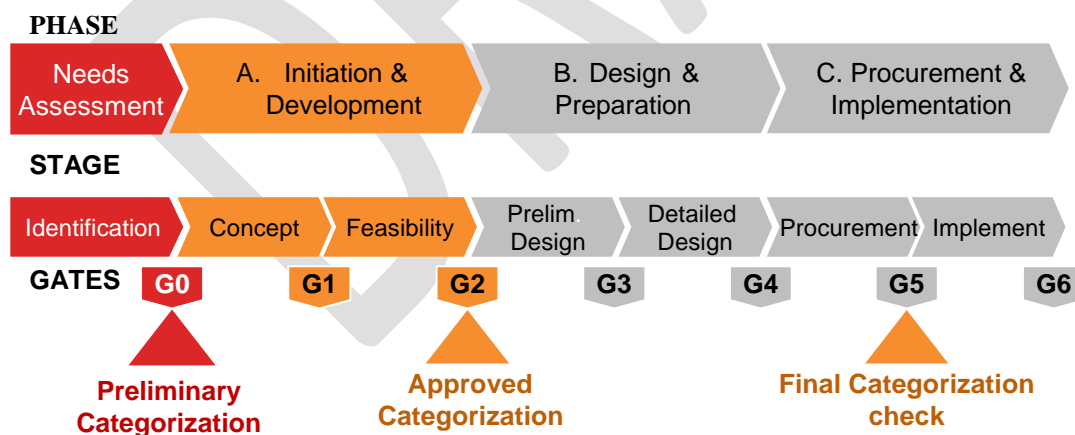


Figure 6 - Project Categorization

A preliminary categorization is required to pass the Gate 0 review while an approved categorization is required to pass the Gate 1 or 2 review. There is a final project categorization check prior to the implementation stage at the Gate 5 review.

The Project Sponsor must ensure that a project’s categorization is aligned with the uncertainty and performance required for such project at the portfolio or program level. A project’s categorization can be changed through the stage gating process, subject to approval at the Stage Gate review.

### Overview

The table below presents a summary of the four project categories – their typical characteristics, the requirements in terms of project management experience, skill and knowledge, and the level of project controls and governance arrangements that are appropriate for each group.

	Category 1	Category 2	Category 3	Category 4
Typical characteristics	Small in size and scope, common understanding of outcomes, low risk and low complexity	Medium in size and scope, some uncertainty, medium level of risk and complexity	Large in size and scope, high uncertainty and risk, high level of complexity or new initiatives at the TTC	Expansion project, very high uncertainty and risk, high level of complexity, and will involve external stakeholders in governance roles
Project Manager competencies	Low to medium experience and understanding of project management Defined as Project Manager 1	Medium to high experience and understanding of project management Defined as Project Manager 2	High level of experience and understanding of project management with increasingly strategic management requirements Defined as Project Manager 3	Very high level of experience and understanding of project management with increasingly strategic management requirements and experience working closely with external stakeholders Defined as Chief Project Manager

Figure 7 - Categorization categories



The categorization model presented in Figure 8 is designed to help the evaluator (typically the Project Sponsor with support from the Project Manager) in classifying projects into one of the four categories. The categorization model includes a set of four criteria / subcategories that incorporates the project’s size, risk and complexity.

Filter	Modifier	Criteria
<b>Budget</b>		Estimated total project cost
<b>Complexity &amp; risk</b>	Institutional Knowledge	How frequently this type of project has been undertaken at the TTC
	Internal / External Interrelationships	Interdependencies with other projects and/or operations
	Contractual Complexity	Complexity of contract interfaces

The categorization model requires the Project Sponsor and Project Manager to consider the predefined set of criteria in three separate screening processes, as prescribed in Figure 8. The first screen assigns the project a score based on budget size alone, and this score is re-evaluated and may be adjusted (up or down) after each subsequent criterion is considered. The evaluation is somewhat subjective; however, it will be assessed by the TTC’s corporate PfMO to ensure the logic is applied consistently and the result is reasonable.

The category of the project will provide a basis for establishing the governance structure, competency level of project management staff, the appropriate controls, and oversight measures that should be adopted to help ensure the project is delivered successfully.

These are the minimum requirements; however, some departments, like Information Technology Services (ITS) for example, may elect to exceed the minimum standard. Due to the complexity, transformational nature, and potential impact on multiple business units, all ITS projects are to be classified as Category 2 or higher. These projects require a high degree of business processes and organizational change management. Therefore an appropriate level of business oversight needs to be applied which is reflected in a Category 2 or higher governance structure.



		Criteria	Category 1	Category 2	Category 3	Cat. 4
Step #1: Assess Initial Category Based on Budget	Budget	Estimated total project cost	Less than \$50million	\$50 million - \$500million	\$Over 500 million	Transit Expansion Projects (e.g. Subway Expansion, Streetcar Network) Expansion, and Bus Rapid Transit (BRT)
	Institutional Knowledge	How frequently this type of project been undertaken at the TTC (scope, delivery model?)	Routine / Annual	Every 2 – 10yrs.	Every 10+ yrs. or new initiative	
Step #2: Adjust Category (up or down) Based on Knowhow	Interrelationships: internal/external	Interdependencies with other projects and/or operations	<u>Low</u> <ul style="list-style-type: none"> <li>Simple internal interfaces</li> <li>Minimal impact to service or public realm</li> </ul>	<u>Medium</u> <ul style="list-style-type: none"> <li>Complex internal interfaces</li> <li>Medium impact to service or public realm</li> </ul>	<u>High</u> <ul style="list-style-type: none"> <li>Complex internal &amp; external interfaces</li> <li>High impact to service or public realm</li> </ul>	
	Interrelationships: contractual	Complexity of contract interfaces	<u>Low</u> <ul style="list-style-type: none"> <li>Few contracts</li> <li>Minimal overlaps</li> <li>Flexible sequencing</li> </ul>	<u>Medium</u> <ul style="list-style-type: none"> <li>Few contracts with some overlap</li> <li>Many contracts with minimal overlap</li> <li>Partly flexible sequencing</li> </ul>	<u>High</u> <ul style="list-style-type: none"> <li>Few contracts with extensive overlap</li> <li>Many contracts with some overlap</li> <li>Rigid sequencing</li> </ul>	
Step #3: Adjust Category (up or down) Based on Complexity						

Figure 8: Categorization Process





## Guidance

Steps	Action	Responsible
<b>Assess project budget</b>	<ul style="list-style-type: none"> <li>Determine score based on preliminary estimated project value</li> </ul>	Project Manager
<b>Assess institutional knowledge on project</b>	<p>Institutional knowledge should be viewed through two lenses: frequency and familiarity. Consider the following and adjust project score (up or down) if necessary:</p> <ul style="list-style-type: none"> <li>Does the TTC have experience and knowledge with this type of project? How often is this type of project undertaken at the TTC?</li> <li>Does the TTC have a very high rate of success with this type of project?</li> <li>Is this a new initiative in terms of technology, delivery method, or scope? Can this risk be managed within the project or does it require increased governance, project management competency / rigor or oversight?</li> </ul>	Project Manager
<b>Assess project interrelationships – Internal and external</b>	<ul style="list-style-type: none"> <li>Are there a large number of stakeholders and / or resources involved? Impacts with other projects and / or operations?</li> <li>Are there third party dependencies (utilities, regulatory bodies, etc.)?</li> <li>Is project scheduling challenging, with a high degree of resource dependence?</li> <li>Are there non-standard legal agreements to be negotiated or discharged? Relations with collective bargain agreements?</li> <li>Are there dependencies on new organizational designs?</li> <li>Impact to service or public realm? If project failure can significantly impact TTC reputation, finances, then the score should be 3.</li> </ul>	Project Manager



Steps	Action	Responsible
<b>Assess project interrelationships – contractual</b>	<ul style="list-style-type: none"> <li>• Are there high number and/or value of contracts to manage?</li> <li>• Are there complex interfaces between contracts?</li> <li>• Are there significant schedule dependencies? Level of rigidity in sequencing.</li> </ul>	Project Manager
<b>Complete project Categorization form</b>	<ul style="list-style-type: none"> <li>• Evaluator to complete Project Categorization Form.</li> <li>• Project Category to be decided and agreed.</li> <li>• Project Categorization Form to be signed off by a reviewer.</li> </ul>	Project Manager
<b>Review and validate with PfMO</b>	<ul style="list-style-type: none"> <li>• Completed Project Categorization Form to be reviewed, validated and signed off by PfMO.</li> </ul>	Project Manager Project Sponsor/PfMO
<b>Escalate to PRB (when necessary)</b>	<ul style="list-style-type: none"> <li>• In situations where there is no alignment on the project category between the Sponsor(s) and the PfMO, the PRB to review and provide final approval.</li> </ul>	Project Manager Project Sponsor/PfMO
<b>Stage Gate review</b>	<ul style="list-style-type: none"> <li>• Completed Categorization with the Project Sponsor and PfMO signoff submitted for Stage Gate review.</li> </ul>	Project Manager Project Sponsor

### Tools & templates

- Project Categorization Form

### Organizational support

- PfMO

### References

- Project Governance
- Stage Gate Process



## FAQs

Questions	Answers
<b>Why do projects need to be categorized?</b>	Not all capital construction projects at the TTC are the same – Each project presents a different level of uncertainty and complexity, requiring a different level of project management effort, and oversight. The categorization tool is designed to help you classify a project into one of four categories that will then inform all project parties of the magnitude of uncertainty, and the extent of resources and effort required to ensure project success.
<b>Why are there four project categorizations?</b>	The four project categories differentiate between the high number of routine, low risk / value /complexity projects (or jobs) that the TTC undertakes and those medium or major projects that need to follow a more elaborate level of project control and governance as defined in the PMF.
<b>How do you assess the level of risk and complexity?</b>	The Project Sponsor should exercise judgment to determine the <i>relative</i> level of uncertainty and complexity of a project compared, to the rest of the program or portfolio. Comparisons against other projects provide a “sanity check”, and against the actual results achieved on similar projects, to determine whether the category selected is suitable.
<b>How are the different Categorizations of projects managed differently?</b>	As shown in Figure 7 the category of project will decide the competencies of the Project Manager and the extent of the effort, appropriate controls and governance arrangements that should be adopted to ensure the project is delivered successfully. For example a Project Manager 2 with medium to high experience may be most suited to work on a Category 2 project, whereas a Project Manager 3 level project management experience would be more appropriate for a Category 3 project. There may be a need for different or greater resources and greater oversight based on the categorization.
<b>Who is responsible for project categorization?</b>	This tool will be used by the Project Sponsor or designate, who must be an appropriately experienced and knowledgeable individual responsible for defining and assigning funds, work packages, and personnel on projects and who is directly accountable for project outcomes – typically a Department Head.



## Questions

### **When should projects be categorized?**

Projects must be categorized as early as possible in the life of the project, prior to the approval of the Project Charter, and no later than when a resource is allocated to manage the project. The tool can equally be applied on construction and non-construction projects as the project characteristics such as uncertainty and complexity remain the same regardless of project type.

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## Governance Structure

Governance is the framework, functions and processes that guide project management activities, like coordinating, and monitoring all aspects of a project to achieve targeted objectives, goals, and benefits while ensuring compliance with policies, procedures, and the organizational structure. As noted in the PMI's PMBOK, the industry standard for project management, good governance ensures that a project is aligned with the major stakeholders' needs and objectives.

Project governance presents a unified and coherent framework by which a project is directed, administered or controlled. It also informs the central oversight and orchestration of the project. Project governance sets the framework under which project leadership can be empowered to make decisions that meet the objectives of the major stakeholders and provides for ways to address circumstances where stakeholders may not be aligned.

Although individual roles and responsibilities are important to the tactical execution of a project, the governance needs to be developed from the outset and managed throughout the project to assure consistent, cohesive policies, processes and decision rights for a given area of responsibility.

The principle of single-point accountability of project leadership is incorporated into each project's organizational structure. The roles and corresponding responsibilities are defined, along with the timing and order of filling said roles, which is critical to the project's success. The project organizational structure will create and clearly identify the decision making process and flow of accountability.

Generally, the project organizational structure can be broken down into broad areas that are associated with project oversight, project management, the project team, as well as other compliance and oversight functions.

The project oversight and compliance functions provide independent review, oversight and support during the course of the project (notably more so on larger projects). The Project Sponsor represents a single-point of accountability for the project oversight and compliance functions.

The Project Sponsor is ultimately accountable for the success of the project. The Project Sponsor delegates most of the day-to-day management to the Project Manager who is then accountable to the Project Sponsor.

The Project Team, typically consisting of subject matter experts ("SME"s) and process experts, participate in the day-to-day activities of the project and are accountable to the Project Manager.



The categorization of a project, which is based on the project's size, complexity and risk, decides the individuals and bodies that should be responsible for certain roles. Projects of greater complexity have an increased potential to impact the reputation of the organization. Accordingly, increased rigour and oversight is required as a project category increases. For example, on Category 3 projects, a Project Manager 3 level of experience and understanding of project management with increasingly strategic management requirements is suggested.

See Figure 9 below for illustrated Project Governance Structures by Categorization for each category, with the roles described in more detail in the **Oversight** section that follows.

## Project Governance by Project Category (Below are default governance structures, which are to be evaluated per project and documented in the Project Charter)

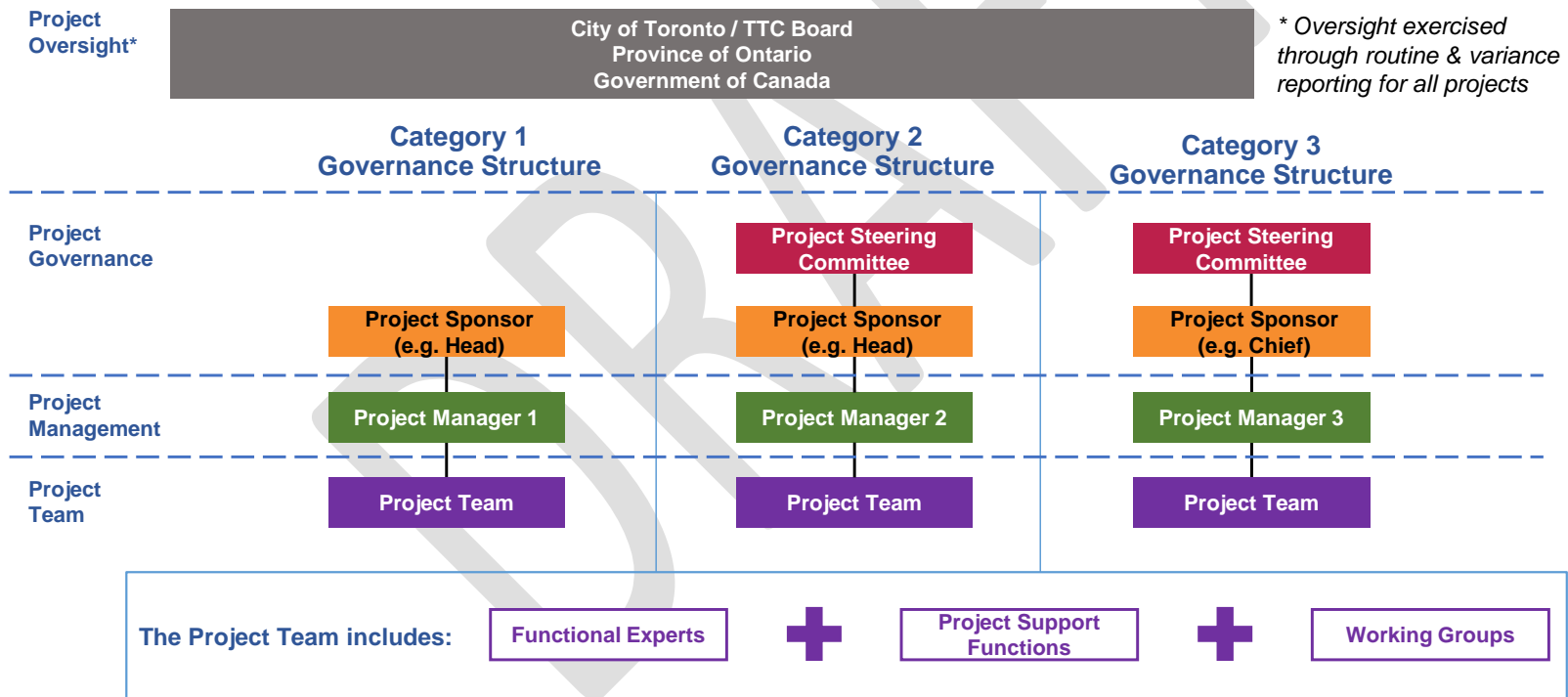


Figure 9 - Project Governance Structure by Categorization

## Project Roles

Role	Description
<b>Board / Council</b>	<p>The Board's role is primarily to assess and provide oversight on the strategic objectives and overall direction of the TTC. The Board is composed of representatives of the primary shareholders of the TTC – the City and the public – with seven Councillors and four private citizens. The Board delegates responsibility for day-to-day operations to the CEO and his Chiefs, but maintains approval authority for any capital expenditures over \$5 million.</p> <p>With this authority, the Board must have confidence that the projects it is approving are being managed in a prudent way that is in line with the organization's mission statement, values and long-term strategy.</p>
<b>Funders</b>	<p>Funders refer to parties that can provide capital to the Project directly or indirectly through the capital program. These funders include parties such as the City, other municipalities, the province or the federal government. Where these funders are directly providing capital to the project, particularly in Category 4 projects, they may be involved in the project governance structure through representatives on the Project Steering Committee.</p>
<b>Project Steering Committee</b>	<p>The objective of a Project Steering Committee is to provide the Project Manager with clear, concise and unified direction. The Committee is be made up of appointed representatives and key stakeholders, and chaired by the Project Sponsor. The stakeholders represented will vary by projects, however, generally will include those stakeholders that provide significant input to scope, will be the end user, or will be significantly impacted by the project. The Project Steering Committee is the vehicle for funders (including the City and Other Funders) for exerting their influence on project priorities.</p> <p>A benefit of a Project Steering Committee is that it is scalable depending on the number of key stakeholders. A Project Steering Committee is only required for those projects that are classified as Category 2 or higher. Refer to <b>Categorization</b> for more details.</p>



Role	Description
<b>Project Sponsor</b>	<p>The Project Sponsor is ultimately responsible for the project's success and delivery within agreed parameters. The Project Sponsor provides resources and support for the project from inception to closure. Their role includes promoting the project scope, organizational change vision and benefits to higher management and impacted stakeholders, being significantly involved in the Project Charter development, and supporting ongoing project reviews and being effective change leaders.</p> <p>The Project Sponsor is typically accountable to their Chief for the project's success within the prescribed project parameters such as scope, schedule, and budget. They ensure that the planned project outcome will meet the needs of all project stakeholders, and complies with department and environmental standards.</p> <p>The Project Sponsor ensures that the project's definition addresses the TTC's needs, within target parameters and delegates most of the day-to-day management responsibilities to the Project Manager. However, the Project Sponsor is ultimately accountable for the actual project outcomes and for performance against the target parameters such of cost, budget, and scope.</p>
<b>Project Manager</b>	<p>The Project Manager is responsible for the day-to-day management of the project. The Project Manager ensures the project complies with organizational standards, and ensures that adequate resources are committed to the project.</p> <p>The Project Manager is responsible for assembling and leading the project team, ensuring project stakeholders are represented, applying people management and organizational skills, and following organizational standards and project management practices throughout the planning and execution of the project.</p> <p>The Project Manager is accountable to the Project Sponsor for delivering the project within the parameters determined within the <b>Project Charter</b>.</p> <p>There are 4 types of Project Managers as defined below:</p> <ul style="list-style-type: none"> <li>• Category 1 Projects: Project Manager 1</li> <li>• Category 2 Projects: Project Manager 2</li> <li>• Category 3 Projects: Project Manager 3</li> <li>• Category 4 Projects: Chief Project Manager</li> </ul>





Role	Description
<b>Project Team</b>	<p>The Project Team is composed of staff that are required to successfully execute the project according to the agreed upon goals, objectives, requirements and specifications. The Project Team includes project support functions such as finance, procurement and legal. The Project Team can be composed of both internal and external members. The Project Team can be broken down into three groups: Functional Experts, Project Support Functions and Working Groups.</p> <p>The Project Team is led by and accountable to the Project Manager and is responsible for understanding the work to be completed, completing their assigned work within agreed parameters (time/cost/quality), and keeping the Project Manager informed of issues, scope changes, risks and quality concerns.</p>
	<p><b>Functional experts</b> are subject matter experts that are directly involved in the delivery of the project and include technical areas such as design and operations.</p>
	<p>The Project Team also includes <b>project support functions</b> such as finance, procurement and legal that provides support to the project as part of their overall mandate in the organization.</p>
	<p>Supporting <b>Working Groups</b> are composed of various stakeholders who provide, input, convey needs/concerns, and identify opportunities. The Project Manager can leverage the working group to steer and guide project delivery and objectives.</p>

### Tools & templates

- Project Charter

### Organizational support

- PfMO
- Group/Department PMOs

### References

- Project Categorization
- Project Oversight
- PRB Terms of Reference
- TTC Board Governance Toolkit



## Oversight

Oversight is exercised by the groups that supervise, monitor and review the projects within the TTC's Capital Portfolio. As noted in the **Governance Structure**, these roles depend upon project categorization, but include oversight roles within the project accountability chain as well as internal and external compliance oversight bodies.

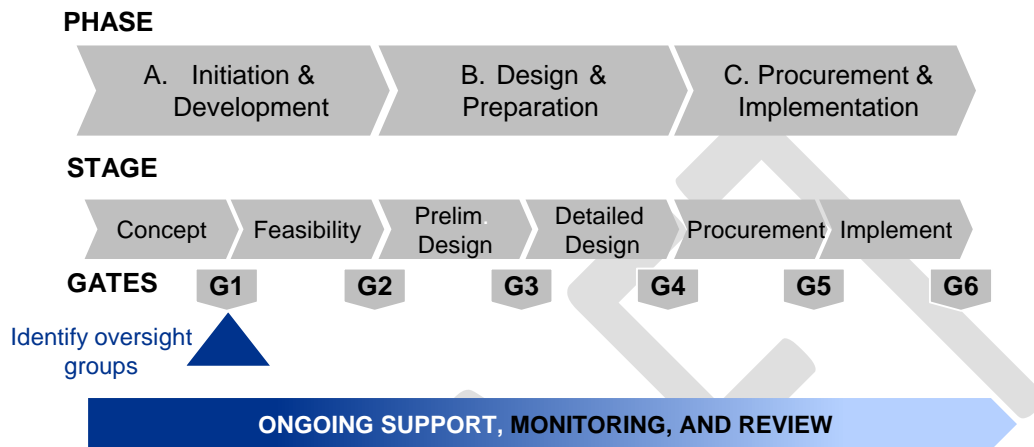


Figure 10 - Project oversight

For the purposes of the PMF, Oversight is defined as the individuals or entities that are providing capital project oversight outside of the Project Team. Each entity's supervisions and oversight responsibility will differ, but broadly include:

- Providing input and/or specialist advice to the Project Manager and Project Team
- Providing compliance or assurance services
- Reviewing major decisions
- Approving major project documents
- Approving Stage Gate progression
- Providing higher levels of management with sufficient project information
- Providing the Project Manager with direction and advice in resolving project management issues

The level of **Oversight** will vary depending on the category of project, but is a requirement for all categories. As outlined in **Categorization**, oversight varies as outlined in table below.

Categorization	Oversight entities		
	Project accountability	Compliance	
Category 1	Project Sponsor	<b>Internal</b> <ul style="list-style-type: none"> <li>• PfMO</li> <li>• Internal Audit</li> <li>• Group PMOs</li> <li>• Corp. functions (safety, etc.)</li> </ul>	
Category 2	Project Sponsor → Project Steering Committee		<b>External</b> <ul style="list-style-type: none"> <li>• Auditor General</li> <li>• External 3rd Party Auditors</li> </ul>
Category 3	Project Sponsor → Project Steering Committee		
Category 4	Project Sponsor* → Project Steering Committee*		

\*may have external co-sponsorship and/or external members of the Steering Committee

**Oversight positions and entities**

**TTC Board**

The Board’s role is primarily to assess and provide oversight on the strategic objectives and overall direction of the TTC. The Board is composed of representatives of the primary shareholders of the TTC – the City and the public – with seven Councillors and four private citizens. The Board delegates responsibility for day-to-day operations to the CEO and the Chiefs, but maintains approval authority for any capital expenditures over \$5 million. With this authority, the Board must have confidence that the projects it is approving are being managed in a prudent way that is in line with the organization’s mission statement, values and long-term strategy.

**Project Sponsor**

Held accountable for success, the Project Sponsor provides resources and support for the project from inception to closure. Their role includes promoting the projects scope and benefits to higher management, being significantly involved in the Project Charter development, and supporting ongoing project reviews.

The Project Sponsor is typically accountable to their Chief for the project’s success within the prescribed project parameters such as scope, schedule, and budget. They ensure that the planned project outcome will meet the needs of all project stakeholders, and complies with department and environmental standards.

**Project Steering Committee**



The objective of a Project Steering Committee is to provide the Project Manager with clear, concise and unified direction. The Committee is be made up of appointed representatives and key stakeholders, and chaired by the Project Sponsor. The stakeholders represented will vary by projects, however, generally will include those stakeholders that provide significant input to scope, will be the end user, or will be significantly impacted by the project. A benefit of a Project Steering Committee is that it is scalable depending on the number of key stakeholders. A Project Steering Committee is only required for those projects that are classified as Category 2 or higher. Refer to [Categorization](#) for more details on Categorization.

### **Project Review Board**

The Project Review Board (“PRB”) is an internal body comprised of the CEO and Executive Team for the purpose of providing strategic oversight and stewardship over TTC’s capital portfolio.

PRB will:

- Approve the TTC’s Project Management Policy and Project Management Framework.
- Provide strategic oversight on the planning and performance of TTC’s overall capital portfolio.
- Provide oversight to Project Steering Committees.
- Receive regular project reporting per the project reporting escalation guidelines. Any project reporting that goes to the TTC Board will first be received by the PRB, and may include:
  - Portfolio level dashboard(s) with indicators of project and program performance;
  - Exception reporting on specific projects with significant issues and risks.

Through this reporting, project sponsors and project managers will highlight issues and risks that are project specific or systemic. PRB will review the options and recommendations presented and approve action plans that ensure ultimate success of the TTC’s capital portfolio.

- Receive regular reporting from the PfMO, Internal Audit, and other sources relating to portfolio-level compliance, or strategic initiatives. This may include:
  - Progress reports against *TTC’s Project Management Maturity Plan*;
  - Audit reports and management review reports highlighting systemic issues and risks.
- For Category 4 projects, act as the project governance entity within the TTC that formulates the TTC’s position, to be represented at the project Steering Committee. Members of the PRB would be the TTC’s representatives on the Category 4 project’s Steering Committee.



The PRB is not intended to:

- Act as a project Steering Committee for Category 3 or lower projects, although members of the PRB may also be members of Category 3 project Steering Committees.

From the reporting provided, the PRB will identify systemic issues and risks and implement action plans to ensure the achievement of TTC's Capital Program.

The PRB will also serve as a project steering committee for TTC's critical projects. Typically, the PRB provides stewardship over projects that are large in scale and/or high in risk and complexity. This includes Category 3 (high risk and complexity) and Category 4 (transit expansion) projects as defined in **Categorization**.

As adoption of the PMF advances, projects of Category 2-4 will start creating their own Steering Committee. As this happens, the PRB will be able to shift its focus towards portfolio strategy and Steering Committee oversight, and away from direct involvement in the governance of particular projects.

### **Portfolio Management Office (“PfMO”)**

The Portfolio Management Office standardizes project related governance processes across TTC departments and facilitating the sharing of resources, methodologies, tools and techniques.

Their primary functions include:

- Development and updating the PMF including identifying and developing corporate minimum project management standards, policies, procedures, and templates.
- Coaching, mentoring, and training.
- Monitoring compliance with project management standards, policies, procedures, through Management Reviews.

The PfMO's mandate includes the following:

#### *Increasing Project Management Maturity*

- Developing and overseeing the implementation of TTC's project, program and portfolio management maturity plan by establishing corporate standards, frameworks, and guidelines.

#### *Establishing a Corporate Centre of Excellence*

- Providing support in a request basis for the coordination /or management of critical projects in areas of the Commission that do not have sufficient project management capacity or expertise.



### Tracking TTC's Project Portfolio

- Tracking and reporting on the progress of both major capital projects and operating initiatives advancing the TTC's corporate objectives.

### Providing Project Oversight

- Providing oversight over the project management maturity of the organization. Providing project specific oversight of critical projects and programs.

Specifically, the PfMO provides oversight by:

- Ensuring stakeholder involvement.
- Monitoring and providing the status of the project change request to the various roles involved in the development and approval process.
- Providing reports to the Heads, Chiefs and Sponsoring Executive Committees to validate the priorities of the initiatives.

### **Group / Department Project Management Offices ("PMOs")**

PMOs are required within the organization to increase project management maturity, serve as a point of contact for project management support, track project portfolios & provide oversight. The PfMO has been established as the corporate PMO. Each of the four major areas that deliver capital projects in the organization will have their own PMO.

All PMOs will increase project management maturity by ensuring alignment with the PMM Plan. That is, they will develop and oversee implementation of project and program management standards, frameworks and guidelines. Development of these items will be by extending the corporate standards, frameworks and guidelines to make them scalable for the various project types that the group PMO's support. The group PMOs will work with the PfMO to develop/align group level standards, frameworks and guidelines by establishing a PMO Community of Practice. The focus is on providing support to project teams while increasing the project management maturity within the organization.

Group level PMOs may also provide the following project management functions to support project teams within their portfolio – risk management, estimating, scheduling, procurement management assistance, budgeting, project/program management performance reporting, etc.

These PMOs will serve as a mechanism for group chiefs to track and provide oversight to the group level portfolio. They will track and report on the progress of both major capital projects and operating initiatives within their group. They will also report on the project management maturity of the group to ensure progression towards the target state of their group and ultimately the organization. The PfMO will perform these functions on behalf of the entire TTC Capital portfolio.



As the TTC develops its project management maturity, these existing PMOs will serve an important guidance and support role for other departments. PMOs that currently exist or are currently under development include:

- Engineering, Construction & Expansion – Capital Programming.
- Information Technology Services – PMO.
- Operations – PMO.
- Service Delivery – PMO.

### **Internal Audit**

The Institute of Internal Auditors defines internal auditing as “an independent, objective, assurance and consulting activity designed to add value and improve an organization’s operations.” The objective of internal audit is to improve governance, risk management and management controls within the organization. In an oversight capacity, the internal audit function will perform process reviews to decide whether the organization protocols are effective and being followed (aligned with the relative project management maturity of the department) and to facilitate continuous improvement. They will also help in the assessment of PMM Plan progress.

Given Internal Audit’s focus on risk management, the risk-based project categorizations (Category 1-4) will decide the level of oversight required for a given project and inform the details of the audit assurance plan. The audit plan will be developed on an annual basis, with input from PfMO, and with an emphasis on Category 3 & 4 projects. Internal audit’s purview includes projects and all capital project management activities, including those of PRB, department PMOs and the PfMO. The types of reviews conducted or coordinated by Internal Audit may include the following:

- Management reviews
- Process audits
- 3rd party estimate reviews
- Delivery options analysis
- Value for Money analysis
- Contract audits
- Vendor performance reviews (e.g. project functional reviews)

### **External Audit**

External Audit provides independent oversight, review and quality assurance. These may include independent auditors or the Auditor General.

### **Safety & Environment Department (S&E)**

Safety is a one of the TTC’s strategic objectives, and must be actively incorporated in all decisions and activities at the Commission.



A Safety Certification process has been incorporated into the Stage Gate process, meaning the S&E department will provide oversight and assurance to management that any new or modified systems that result from capital projects are safe to use.

### **Stage Gate Approvals**

Stage Gate approvals serve as a regular, systematic checkpoint where the oversight entities above can exercise their role.

### **Tools & templates**

- Stage Gate approval checklist
- Stage Gate approval template
- Presentation deck template for each gate

### **Organizational support**

- PfMO
- Department Group/ Departmental PMOs
- Project Steering Committee
- Internal Audit

### **References**

- Project Governance
- PRB Terms of Reference
- TTC Board Governance Toolkit





## Stage Gate Process

Regardless of project categorization (1, 2, 3, or 4), in order to increase the consistency and efficiency of projects, all projects will follow a Stage Gate process, which involve a set of standard processes and activities that are linked to the various phases in the lifecycle.

### Project lifecycle

Every project, regardless of type, follows a defined project lifecycle, where the project moves between distinct and sequential phases. Dividing projects into clear phases allows better governance and management control, by allowing each phase to have its own start and end point, and with each phase serving a specific purpose or objective.

All projects at the TTC align with the six key lifecycle phases (Needs Assessment, Initiation & Development, Design & Preparation, Procurement & Implementation, Closeout and Operations) and which can be sub-divided further into nine defined stages.

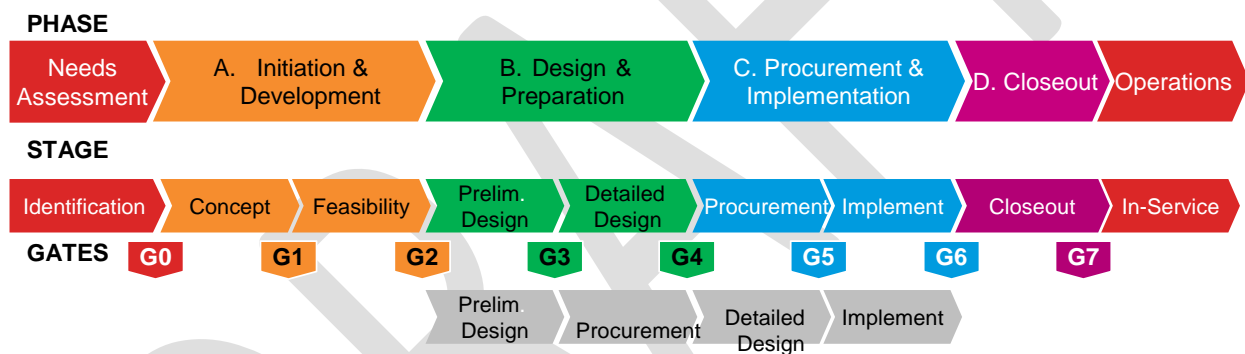


Figure 11 - Phases and stages image

For a project to proceed from one stage to the next, it must pass a mandatory checkpoint called a “Stage Gate” to ensure that a minimum level of quality control and quality assurance have been exercised, and to demonstrate that the project management deliverable requirements are met.

There is an important distinction to be made between what Stage Gates are intended to **do** and what they **are not** to be used for.

- Stage Gates **do** allow the governance bodies to ensure the project is still meeting its objectives and to provide authority to proceed to the next stage in the project lifecycle.
- Stage Gates **are not** intended for assessing project or progress against schedule and cost. This reporting is done in standard routine reporting through the governance structure as a part of day-to-day management of the project. Stage

Gates are also not intended to be an opportunity for stakeholders or shareholders to introduce project changes.

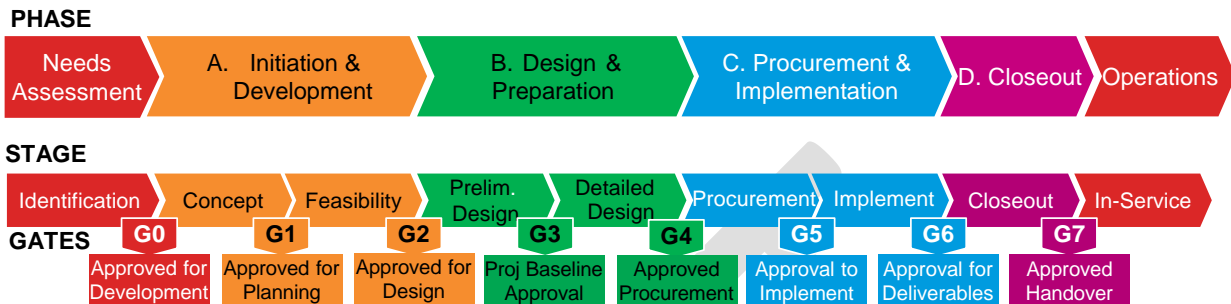


Figure 12 - Phases and Stages with Gates Image

## Purpose

Stage Gates provide authority to proceed to the next stage of the project lifecycle. Stage Gate reviews take place at the completion of project stages, and provide an opportunity to review and assess the status, progress and risks of the project, the project's compliance with the PMF, and the quality of the key deliverables before they become inputs to the next stage.

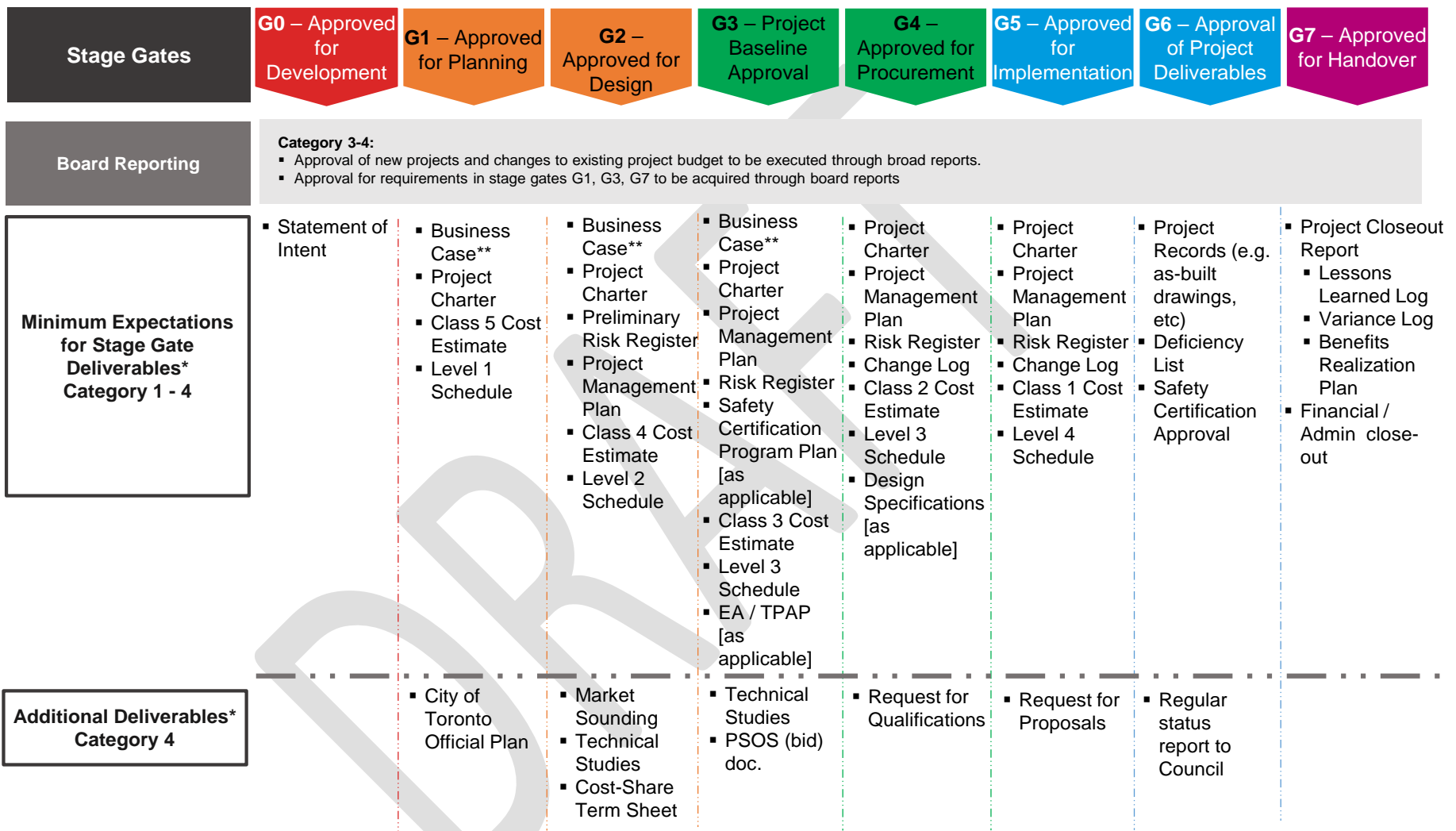
The Stage Gate Review is the evaluation process by which a project is authorized to progress towards the next stage. It is a key review process in which all the State Gate reviewers play an important role in assessing the project's overall health, risks and quality of execution, and, once Stage Gate requirements are met, authorize the project to proceed.

## Responsibilities

In order for the appropriate bodies to provide approval at each gate, the Project Manager must **confirm**, and the Project Sponsor must **verify** the following:

- Planned deliverables have had appropriate consultation and approvals.
- Planned reviews have occurred.
- Conditions attached to previous Stage Gates have been closed out.
- Core project documents are up to date and approved, or will be within a short timeframe.
- Deliverables for the next Stage are understood.
- Plans, estimates and resources are in place for the next Stage.

Instead, multiple project deliverables will develop and mature throughout a given project stage.



• \*These stage gate deliverables are living documents to be revised on a continuous basis  
 • \*\*Business Cases are required for all projects above \$5M

Figure 13 - Project deliverable development

The number, timing, and sequence of Stage Gate Reviews on a project are decided in the Project Charter, following the Categorization:

## Decision

A Stage Gate review leads to one of 3 decisions:

- **Pass** - Proceed to the next stage
- **Conditional Pass** - Proceed to the next stage subject to agreed action plan
- **Fail** – Not fit to proceed
  - a. **Revise and resubmit** in accordance with specific direction
  - b. **Cancel** the project
  - c. **Postpone** the project

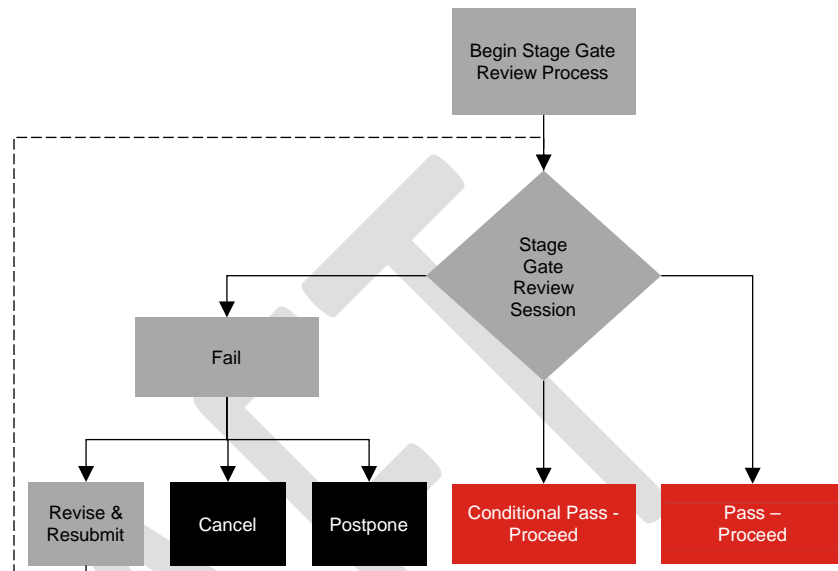
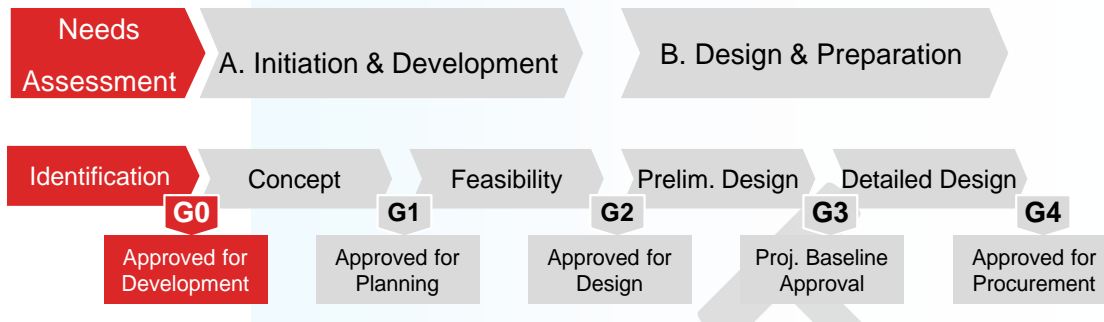


Figure 14 - Stage Gate Decisions

## Lifecycle stages

### Identification stage



#### Objective

The purpose of the Identification stage is to recognize the project to be delivered based on strategic objectives and/or the TTC's long range plan.

#### Description

During this stage the project to be delivered will be selected based on requirements, alignment to strategic objectives, and endorsement by a sponsor. The Project Sponsor will provide a preliminary Categorization of the project to be used for planning in Phase A: Initiation & Development.

This stage concludes with the approval of **Stage Gate 0 – Approved for Development**.

#### Key project management activities

- Identify requirements
- Complete **Statement of Intent ("SOI")**
- **Preliminary Stakeholder Register**
- Kick-off project

#### Key deliverables to pass stage gate (all project categories)

1. Preliminary Project Categorization
2. Approved Statement of Intent
3. Stage Gate Approval



### *Standards*

- *Under development*

### *Procedures*

- *Under development*

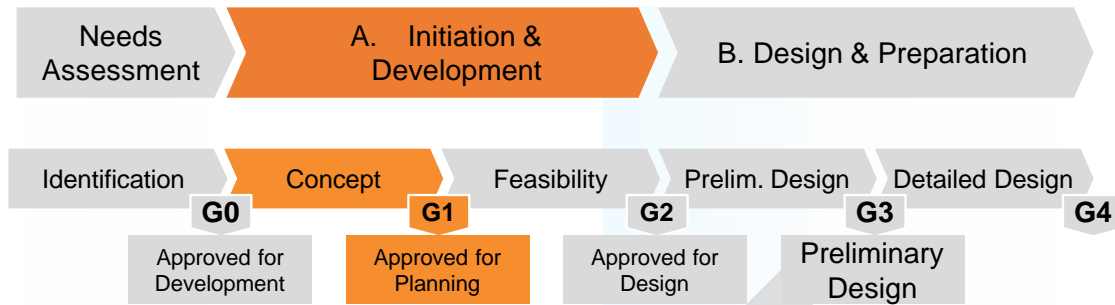
### *Tools & Templates*

- *Statement of Intent*
- *Project Categorization*
- *Stage Gate Approval*

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## Concept stage



### Objective

Concept is the first stage in the A. Initiation & Development phase. The purpose of this stage is to create a baseline definition for the project objectives in terms of scope, schedule, and cost. This stage also leads to the identification of key stakeholders and the formation of the project team.

### Description

During this stage the project will be sized and classified as either Category 1, 2, 3 or 4, and the project team will be formally appointed, notably, the Project Manager (PM). Following consultation, the scope and key project parameters will be documented within the **Project Charter** and approved by the Project Sponsor. This stage also involves the drafting of the **Preliminary Business Case** and the preparation of a high-level "Class 5" estimate on cost and Level 1 schedule with contingency. The project categorization is to be approved and the resulting governance documented in the **Project Charter**.

This stage concludes with the approval of **Stage Gate 1 – Approved for Planning**.

### Key project management activities

- Identify requirements and baseline scope
- Assign project team (notably nominating PM)
- Validate **Categorization** with PfMO
- Develop **Project Charter** with governance, stage gates, high level scope, schedule and cost
- Draft **Preliminary Business Case** including preliminary options analysis
- Develop **Stakeholder Register**
- Preliminary stakeholder engagement
- Develop "Class 5" Cost Estimate and Level 1 Schedule (milestone, top-down)
- Preliminary Risk Register

- Get approval on Project Charter

*Key deliverables to pass stage gate (all project categories)*

1. Approved Project Charter
2. “Class 5” Cost Estimate and Level 1 Schedule
3. Approved Statement of Intent
4. Stage Gate Approval
5. Preliminary Risk Register

*Additional deliverables for Project Categories 2, 3 and 4*

6. Approved Preliminary **Business Case**, including preliminary Options Analysis

*Standards*

- *Under development*

*Procedures*

- *Under development*

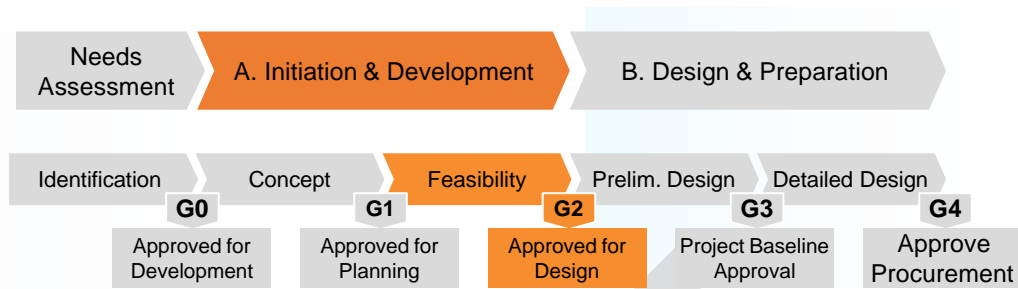
*Tools & Templates*

- *Project Charter*
- *Statement of Intent*
- *Business Case*
- *Risk Register*
- *Stage Gate Approval*





## Feasibility Stage



### Objective

Feasibility is the second stage in the A. Initiation & Development phase. The purpose of this stage is to further create the baseline definitions for the project objectives in terms of scope, schedule, and cost and determine the best delivery options for the project (bundling, contracting, etc.).

### Description

Once the project categorization has been finalized, during this stage with the aid of the Commercial Manager the preferred project concept will be advanced with an assessment of the bundling and delivery options. The cost estimates and schedule are further refined.

This stage concludes with the approval of **Stage Gate 2 – Approved for Design**.

### Key project management activities

- Finalize requirements and baseline scope
- Complete options analysis
- Advance **Business Case**
- Advance to "Class 4" Cost Estimate and Level 2 Schedule (semi-detailed, top-down)
- Update Risk Register
- Start pre-design studies
- Develop **Project Management Plan**

### Key deliverables to pass stage gate (all project categories)

1. "Class 4" Cost Estimate and Level 2 Schedule
2. Up-to-date approved **Project Charter**
3. Stage Gate Approval



4. Updated Risk Register

*Additional deliverables for Project Categories 2, 3 and 4*

5. Updated **Business Case**
6. Draft **Project Management Plan**
7. Environmental Assessment (EA) / Transit Project Assessment Process (TPAP)  
[Category 3 & 4 only]
8. Pre-design Studies [Category 3 & 4 only]

*Standards*

- *Under development*

*Procedures*

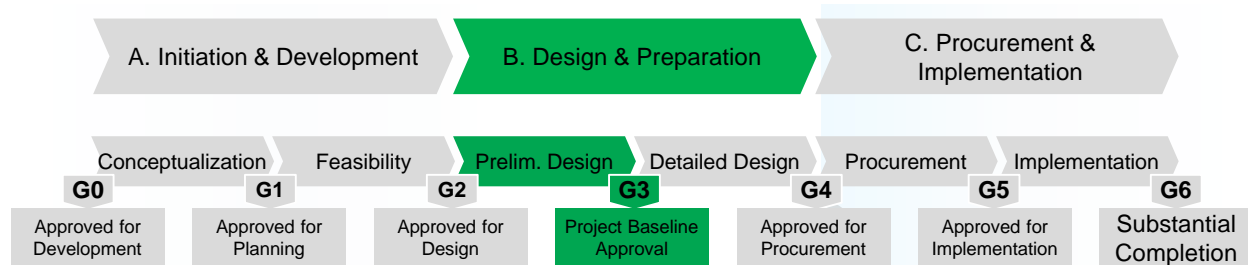
- *Under development*

*Tools & Templates*

- *Project Charter*
- *Statement of Intent*
- *Business Case*
- *Risk Register*
- *Stage Gate Approval*



## Preliminary design stage



### Objective

The purpose of the Preliminary Design stage is to permit the preparation of early project design with input from key stakeholders. As well as to further develop the project costs, schedule, and formalize the project management approach. This stage may also include preparing for procurement if detailed design is bundled with execution.

### Description

An up-to-date approved **Project Charter** must be in place before entering the Preliminary Design stage. During this stage, the design is progressed with an early design package (~30%), in consultation with key stakeholders. A “Class 3” cost estimate and Level 3 schedule are developed taking into account project site conditions, project constraints, and project risks. Furthermore during this stage the project scope is finalized and the project receives preliminary Budget Approval thereby forming the **Performance Baseline Budget**. The approach for managing the project is also formalized in the **Project Management Plan**.

For alternatively procured projects, this stage may lead directly into procurement

This stage concludes with the approval of **Stage Gate 3 – Project Baseline Approval**.

### Key project management activities

- Develop detailed scope
- Prepare and approve preliminary design
- Develop "Class 3" Cost Estimate and Level 3 Schedule (package detail, top-down)
- Set cost and schedule baselines
- Update Risk Register
- Develop requirements including but not limited to health, safety, environmental, archaeological, and traffic management requirements
- Incorporate quality requirements and lessons learned from similar projects
- Finalize **Project Management Plan**
- Scope Lock Down at the end of Preliminary Design

*Key deliverables to pass stage gate (all project categories)*

1. Baseline Cost (Class 3) and Schedule (Level 3)
2. Project Specifications
3. Stage Gate Approval
4. Updated Risk Register

*Additional deliverables for Project Categories 2, 3 and 4*

5. Approved **Business Case**
6. Approved **Project Management Plan**
7. Preliminary Design Package

*Standards*

- *Under development*

*Procedures*

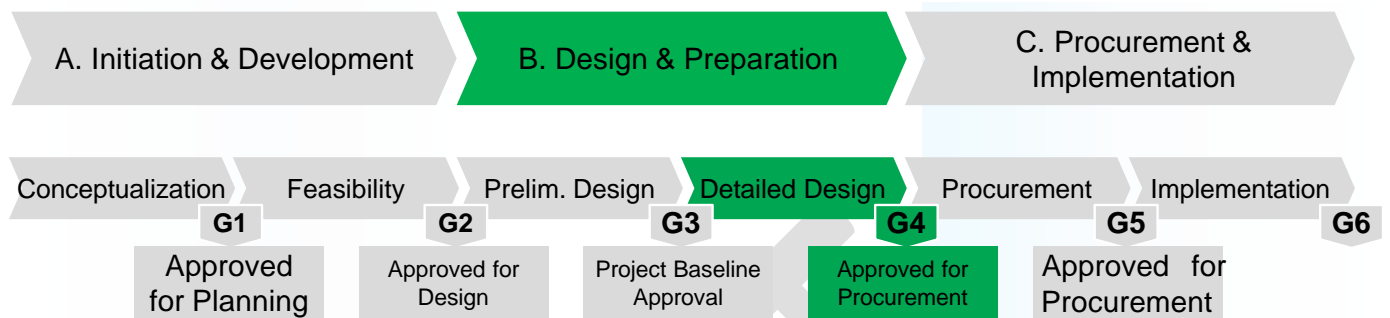
- *Under development*

*Tools & Templates*

- *Project Charter*
- *Business Case*
- *Risk Register*
- *Stage Gate Approval*



## Detailed design stage



### Objective

The purpose of the Detailed Design stage is the preparation of a mature design package, detailed schedule, and "Class 2" cost estimate, taking into account site conditions, health and safety requirements, and stakeholder feedback.

### Description

During this stage, the project follows the requirements of the Project Management Plan, detailed design deliverables are validated and submitted, "Class 2" cost estimate and, a bottom-up Level 3 schedule is prepared, and any updates to the project approach are reflected in the core documents (Project Charter, Business Case, plans, etc.). The Project Manager manages and tracks on cost, scope and schedule, risks, and project changes.

This stage concludes with the **Stage Gate 4 – Approved for Procurement** approval.

### Key project management activities

- Oversee development and approval of a Detailed Design Package
- Update schedule, stakeholder register, and Risk Register
- Develop "Class 2" Cost Estimate and Level 3 Schedule (bottom-up)
- Update Project Management Plan, Charter and other core project documents
- Initiate project performance reporting
- Track cost, schedule, scope and change
- Review the proposed transfer of risks to the construction and the associated cost

### Key deliverables to pass stage gate (all project categories)

1. "Class 2" Cost Estimate and Level 3 Schedule (bottom-up)
2. Stage Gate Approval
3. Updated Risk Register

### Additional deliverables for Project Categories 2, 3 and 4

4. Updated **Project Management Plan** (including Procurement Plan)



## 5. Detailed Design Package

### *Standards*

- *Under development*

### *Procedures*

- *Under development*

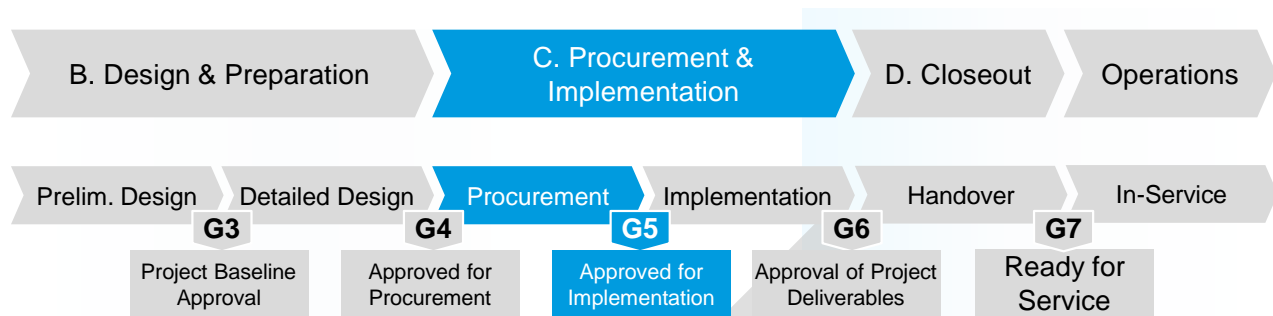
### *Tools & Templates*

- *Project Charter*
- *Business Case*
- *Risk Register*
- *Stage Gate Approval*

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## Procurement stage



### Objective

The purpose of the Procurement stage is to complete the procurement process, ready the project for implementation, prepare for mobilization, obtain permitting and approvals, complete a final cost estimate, and prepare to start site works.

### Description

During this stage, the procurement process is overseen by the Project Manager in conjunction with M&P and the Commercial Manager. This process involves completing all pre-project work to permit handover to the successful proponent. After negotiations, the contract is submitted for Procurement Authorization.

All preparatory work is undertaken ahead of actual implementation. With drawings and specifications issued, the "Class 1" cost estimate and Level 4 schedule is agreed upon and used as the basis for tracking, the safety plan, and final approvals and permits received. The Project Management Plan is updated as needed.

This stage concludes with the **Stage Gate 5 – Approved for Implementation** approval

### Key project management activities

- Oversee finalization and approval of Contract
- Develop "Class 1" Cost Estimate and Level 4 Schedule (detailed, bottom-up)
- Update Project Management Plan, Charter and other core project documents
- Report on project progress
- Track cost, schedule, scope and change

### Key deliverables to pass stage gate (all project categories)

1. "Class 1" Cost Estimate and Schedule (Control Budget)
2. Purchase Order / Tender
3. Safety Plan (Final)
4. Stage Gate Approval



*Additional deliverables for Project Categories 2, 3 and 4*

5. Update **Project Management Plan** (including vendor plans)
6. Vendor Approval

*Standards*

- *Under development*

*Procedures*

- *Under development*

*Tools & Templates*

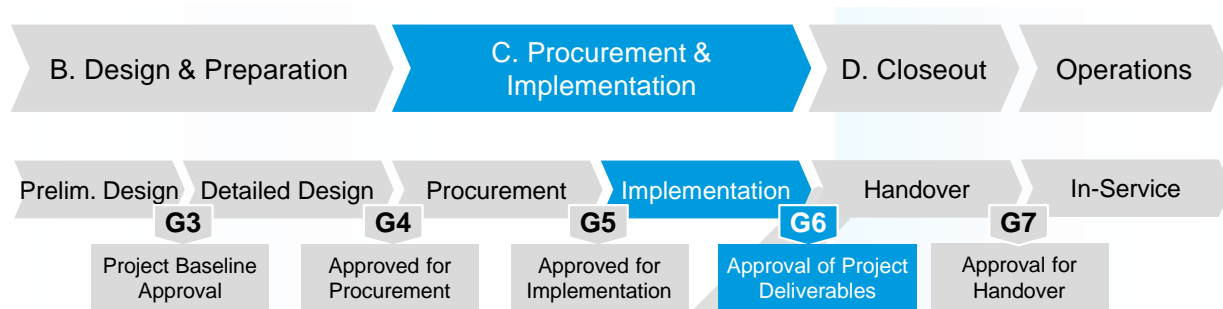
- *Project Charter*
- *Business Case*
- *Risk Register*
- *Stage Gate Approval*

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## Implementation stage



### Objective

The purpose of the Implementation stage is the undertaking and completion of all planned works in accordance with final design, with proactive tracking and reporting of progress, schedule, cost and risks, and monitoring of project change.

### Description of the work

During this stage, the Project Manager oversees and proactively manages overall project parameters and reports progress against baseline, and escalates issues and change requests regularly to the Project Sponsor. All works are completed, and project deliverables achieved successfully. Project documentation is archived.

This stage concludes with the approval of **Stage Gate 6 – Approval of Project Deliverables**.

### Key project management activities

- Instruct commencement of works and oversee progress, quality management, reviews
- Track, manage, report on cost, schedule, scope, and risk changes
- Ensure completion of works and deficiencies
- Acceptance of project deliverables
- Ensure approval of record drawings, and issuance of completion certificates

### Key deliverables to pass stage gate (all project Categories)

1. Contractual documents
2. Project records and certificates
3. Deficiency List
4. Cost report at end of Implementation Stage

5. Record drawings, warranties and manuals
  6. Stage Gate Approval
- Additional deliverables for Project Categories 2, 3 and 4*
7. Updated Project Management Plan (including commissioning plan)

#### *Standards*

- *Under development*

#### *Procedures*

- *Under development*

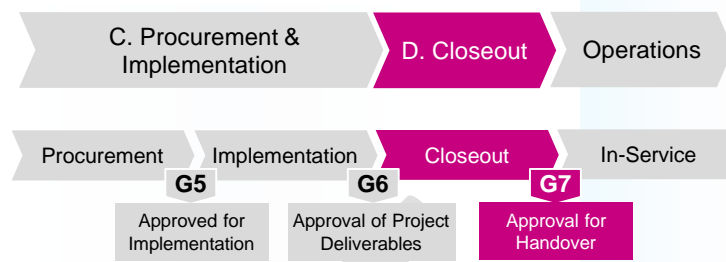
#### *Tools & Templates*

- *Project Charter*
- *Business Case*
- *Risk Register*
- *Stage Gate Approval*

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## Handover stage



### *Objective*

The purpose of the Handover stage is the completion and closure of any outstanding project matters (e.g. works, reconciliations, warranties). Next, lessons learned are generated and shared. Finally, the project is closed and the team re-assigned.

### *Description of the work*

During this stage, the project is closed through a series of processes including final account and cost reconciliation, final acceptance and completion of any outstanding works, performance evaluation, and collection and archiving of all project documentation. A lessons learned exercise and knowledge transfer activities, as required for change sustainment are undertaken to help drive future improvements and efficiencies. Completed works are handed over to users, and project objectives are achieved.

This stage concludes with the final approval of **Stage Gate 7 – Approved for Handover**.

### *Key project management activities*

- Reconcile final accounts (as possible)
- Resolve and reconcile outstanding claims (as possible)
- Undertake lessons learned workshop
- Complete requisite knowledge transfer
- File and archive all project documentation
- Complete Closeout checklist

### *Key deliverables to pass stage gate (all project categories)*

1. Project **Closeout Report** (including checklist)
2. Completion Package including commissioning sign-off



3. Lessons Learned Log
4. Final reconciliation of costs (as possible)
5. Stage Gate Approval

#### *Standards*

- *Under development*

#### *Procedures*

- *Under development*

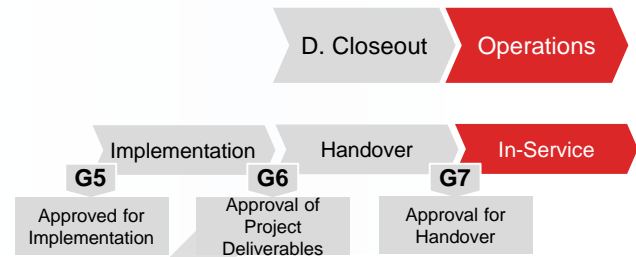
#### *Tools & Templates*

- *Project Charter*
- *Business Case*
- *Risk Register*
- *Project Closeout Report*
- *Stage Gate Approval*

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## In-Service stage



### Objective

The purpose of the In-Service stage is capturing and sharing in-service lessons learned and ensuring ongoing performance. Activities planned for change sustainment (change management) are executed.

### Description of the work

During this stage, the In-service lessons learned are captured and integrated into the lessons learned from the project itself to complete the lifecycle.

### Key project management activities

- Incorporate In-service lessons learned into Project's lessons learned database
- Record results of change sustainment activities, as appropriate
- Review key results and KPIs

### Guidance

Steps	Action	Responsible
<b>Prepare stage deliverables</b>	<ul style="list-style-type: none"> <li>• Complete deliverables, including all relevant documentation</li> <li>• Cross-check with Stage Gate Checklist</li> </ul>	PM
<b>Book Stage Gate review</b>	<ul style="list-style-type: none"> <li>• Attach project documentation to be reviewed</li> </ul>	PM
<b>Prepare Stage Gate Presentation</b>	<ul style="list-style-type: none"> <li>• Include high level info</li> </ul>	PM



Steps	Action	Responsible
<b>Validate presentation with Project Sponsor</b>	<ul style="list-style-type: none"> <li>Validate presentation content with Project Sponsor prior to Stage Gate Review</li> </ul>	PM
<b>Present to Stage Gate reviewers</b>	<ul style="list-style-type: none"> <li>Sponsor to introduce project</li> <li>Complete required updates to Project Execution Plan</li> <li>Determine / capture action items</li> <li>Secure resources for taking notes during Stage Gate presentation</li> </ul>	PM / Sponsor
<b>Complete Stage Gate Approval Form</b>	<ul style="list-style-type: none"> <li>Note attendance</li> <li>Outline content of the presentation</li> <li>List issues and questions raised, action items</li> <li>Validate project Categorization</li> <li>Circulate to Stage Gate reviewers for signatures</li> </ul>	PM
<b>Update documentation</b>	<ul style="list-style-type: none"> <li>Send a copy of Stage Gate Approval Form to Project Sponsor</li> <li>Update documentation</li> <li>Give a copy of minutes to PfMO</li> <li>Archive documentation</li> </ul>	PM

### Tools & templates

- Stage Gate Checklist Template
- Stage Gate Approval Form

### Organizational support

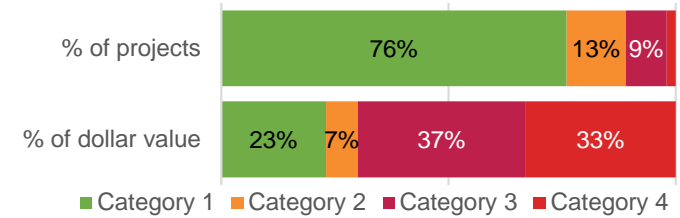
- PfMO
- Department PMOs
- Change Management tactics (as required)

### References

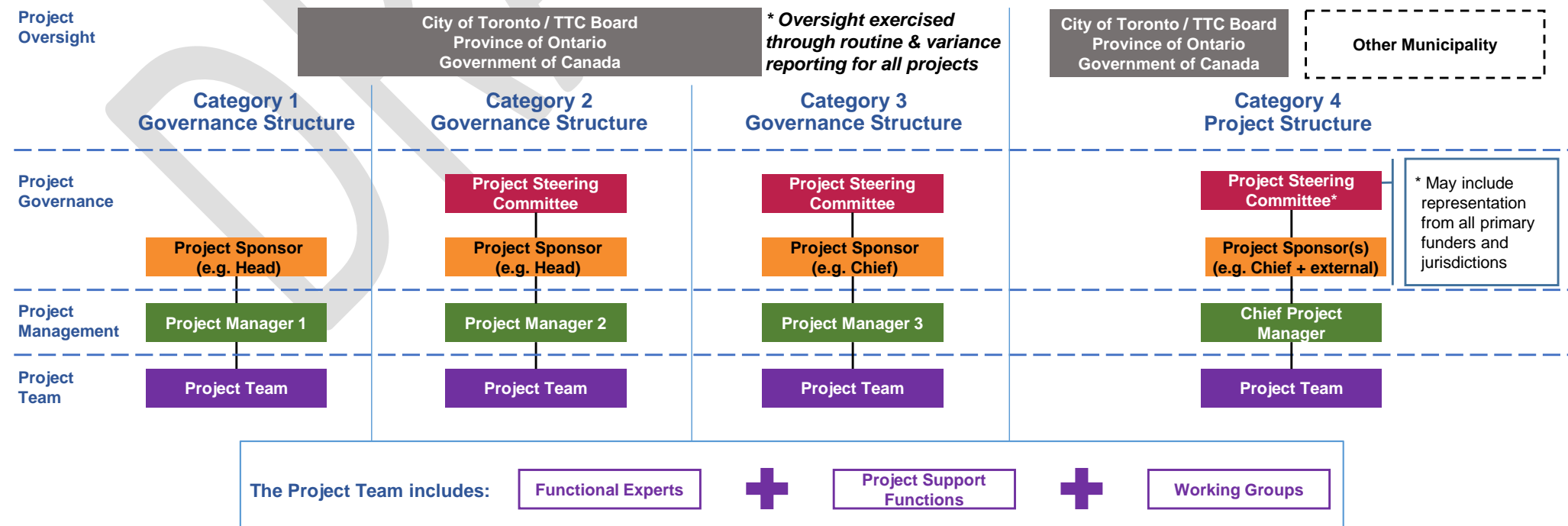
- Project Governance

# Project Categorization - Quick Reference

Distribution of TTC projects based on 2017-2026 capital budget. The % of projects demonstrates the percentage of actual projects that fall into each category. The % of dollar value presents the distribution of each category based on total dollar value

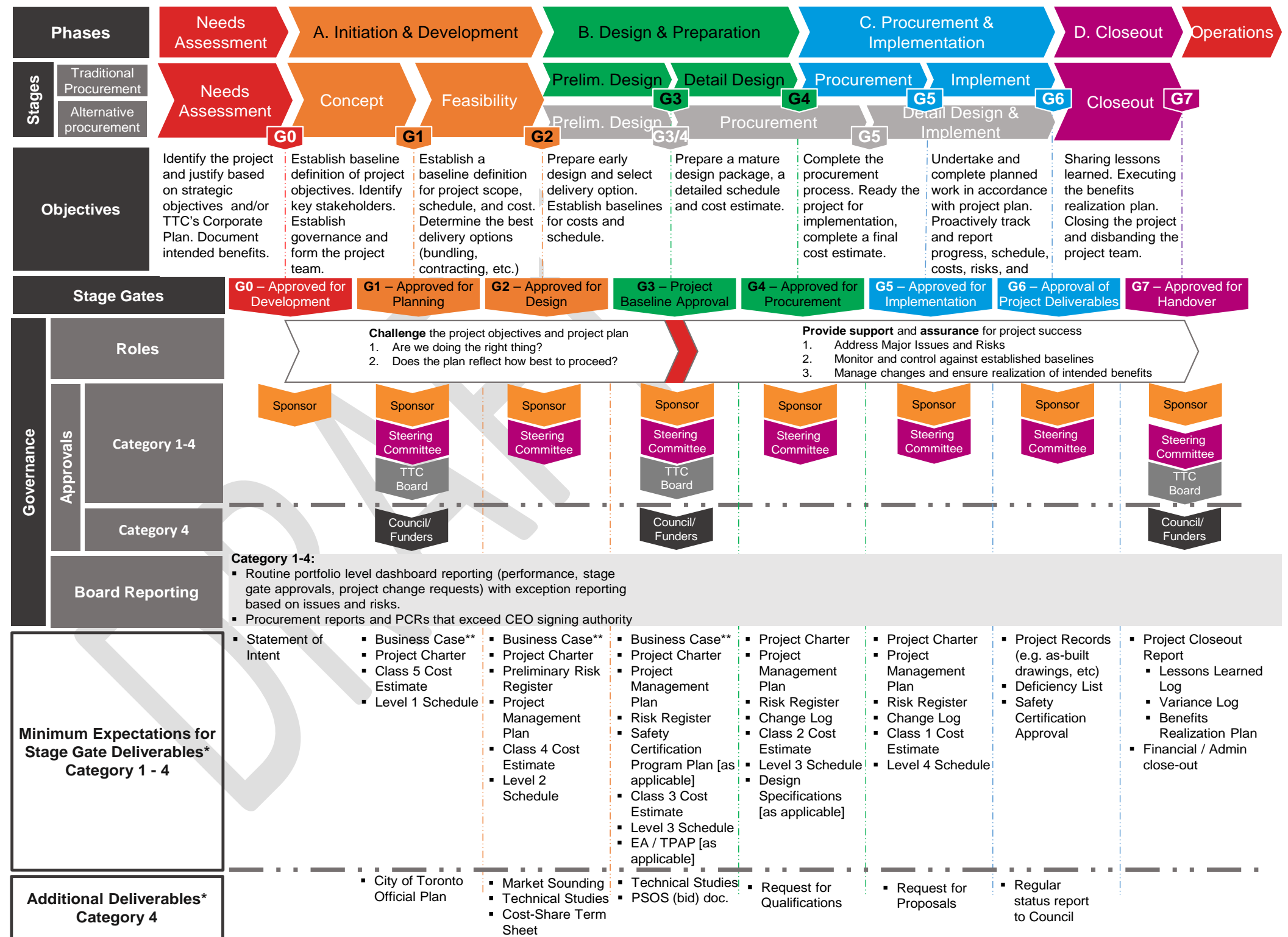


Criteria	Budget (Initial Filter)	Institutional Knowledge (Modifier #1)	Internal / External Interdependencies (Modifier #2)	Contractual Complexity (Modifier #3)
	Estimated total project cost	How frequently this type of project been undertaken at the TTC (scope, delivery model?)	Interdependencies with other projects and/or operations	Complexity of contract interfaces
Category	1 Less than \$50million	Routine / Annual	<u>Low</u> • Simple internal interfaces • Minimal impact to service or public realm	<u>Low</u> • Few contracts • Minimal overlaps • Flexible sequencing
	2 \$50 million - \$500million	Every 2 – 10yrs.	<u>Medium</u> • Complex internal interfaces • Medium impact to service or public realm	<u>Medium</u> • Few contracts with some overlap • Many contracts with minimal overlap • Partly flexible sequencing
	3 \$Over 500 million	Every 10+ yrs. or new initiative	<u>High</u> • Complex internal & external interfaces • High impact to service or public realm	<u>High</u> • Few contracts with extensive overlap • Many contracts with some overlap • Rigid sequencing
	4	Transit Expansion Projects (i.e. Subway Expansion, Streetcar Network Expansion , and Bus Rapid Transit (BRT))		



# Stage Gate Process – Quick Reference

\*Note: Detailed definitions of Estimate Classes and Schedule Levels can be found in the Standards for Estimating and Scheduling.





# Estimates & Schedule Maturity – Quick Reference

\*Note: Detailed definitions of Estimate Classes and Schedule Levels can be found in the Standards for Estimating and Scheduling.

### Cost Estimate

Class of estimate	Level of project definition	Typical end usage	Type of estimate	Expected accuracy range	Basis of estimate	Project Stage	Design Contingency		
							low	COMPLEXITY	high
Class 5	0% – 2%	Concept Screening	Rough Order of Magnitude – factors based, parametric.	-50% to +100%	Minimal and preliminary information, utilizing historical unit cost, allowances factors, techniques and conceptual quantity evaluation	Conceptual	25%		30%
Class 4	1% - 15%	Study	Top-down – factor based, parametric	-30% to +50%	Pre-design or Concept design with general outline	Feasibility	20%		25%
Class 3	10% - 40%	Baseline Estimate	Top-down, semi-detailed unit costs (baseline budget)	-20% to +30%	Preliminary design with outline specifications, and an early understanding of the site, risks, schedule and resource constraints	Preliminary Design	15%		20%
Class 2	30% - 75%	Control Budget or Tender	Bottoms-up Estimate, detailed unit costs with quantity take off	-15% to +20%	Detailed designs, drawings and specifications, informed by a review of site conditions, risks, schedule and resource constraints	Detailed Design	10%		15%
Class 1	65% - 100%	Control Budget, Check Estimate or Tender	Bottoms-up Estimate, detailed unit costs with quantity take off (control budget)	-10% to +15%	Completely detailed drawings and specifications, finalized to take into account any key stakeholders' comments, addenda, site-related issues, risks, or procurement-related matters.	Procurement	5%		10%

### Schedule Level

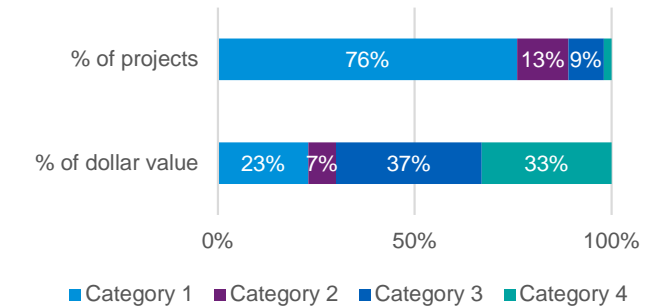
Class of schedule	End usage of schedule	Level of detail required	Indicative AACE Schedule Class
Level 1	Concept screening	Preliminary Schedule (milestone, top-down)	Class 5
Level 2	Study or feasibility	High-level Schedule (high level, bottom-up)	Class 4 - 3
Level 3	Budget authorization or control	Detailed Schedule (detailed, bottom-up)	Class 2 - 1

### No. of projects per category

Category	No. of Projects	% of projects
Category 1	194	76%
Category 2	33	13%
Category 3	23	9%
Category 4	5	2%

### % of projects within dollar value

Category	Dollar Value	% dollar value
Category 1	\$5,122,969	23%
Category 2	\$1,626,167	7%
Category 3	\$8,149,128	37%
Category 4	\$7,378,414	33%



DRAFT – for discussion purposes only

# Part 3 – Project Management Standard Summaries

## Commercial Management

Commercial Management is the management of contractual and commercial issues relating to projects, from project inception to completion and it requires an understanding of the economics on both sides of the owner-contractor/vendor relationship. The relationship is important because too often in construction projects, an adversarial mentality can set in between the owner and the contractor, where the contract's commercial terms become a battleground.

In class-leading organizations, a project and the owner/contractor relationship is recognized for what it is, a partnership between two organizations with different but generally aligned goals for the completion of the project. The commercial management function can help structure and effectively manage that relationship, with a key aim to protect and enhance the organization's commercial and reputational interests.

The application of a Commercial Management function as a key project team member and participant is to be based on the classification of the project and/or identified value creation (importance, usefulness or worth) by such a role. All projects of Class 3 and higher shall have a Commercial Manager.

In the absence of a dedicated team member, members of a Project Team should be commercially aware of how their project and operational activities align with the TTC's overall strategy and vision given the costs, benefits and implications/impacts involved. The Sponsor, Project Manager and Project Team make multiple project decisions from planning, through procurement, delivery and handover that have commercial implications. With a strong commercial management function, many contractual disagreements can either be avoided by detailed commercial planning at the contracting stage, be identified and managed effectively during execution, or be mediated during issue resolution, thereby avoiding commercial claims.

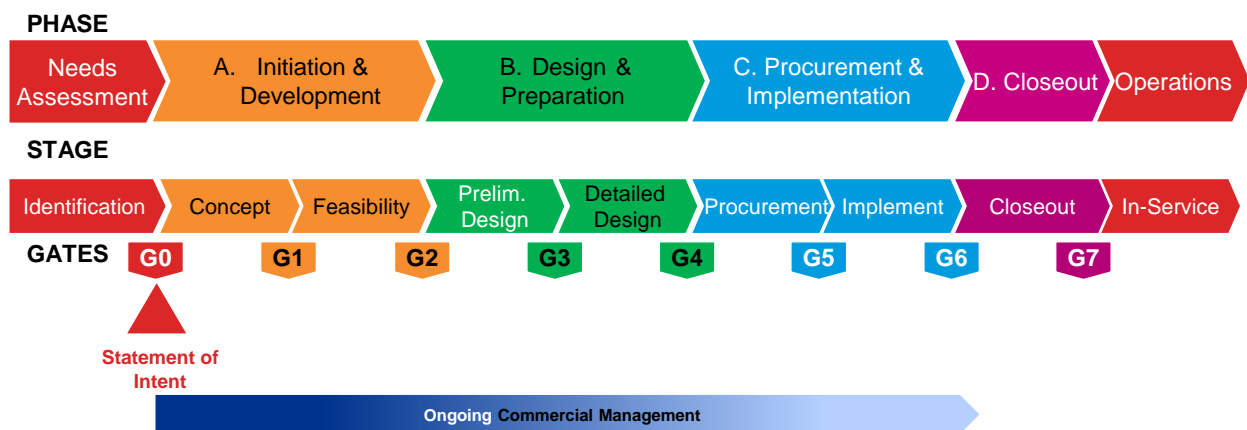


Figure 15 – Commercial Management

## Project Risk Management

According to the PMI, project risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on a project’s objectives. Risk is unavoidable, and every organization needs to take action to manage risk to a level that is tolerable. Risks not only represent the possibility of a disruptive event, but also include the failure to take advantage of an opportunity from which the organization could benefit.

Risk management provides a clear and structured approach to identifying risks. Having a clear understanding of all identified risks allows an organization to measure them, prioritize them and take the appropriate actions to reduce losses. Project Managers must proactively identify and manage risks throughout the life of their project. At a minimum, all projects must identify and track major risks to the delivery of their projects. All projects require a preliminary Risk Register for Gate 2 approval, with re-approval of up-to-date risk registers required for every subsequent Stage Gate approval.

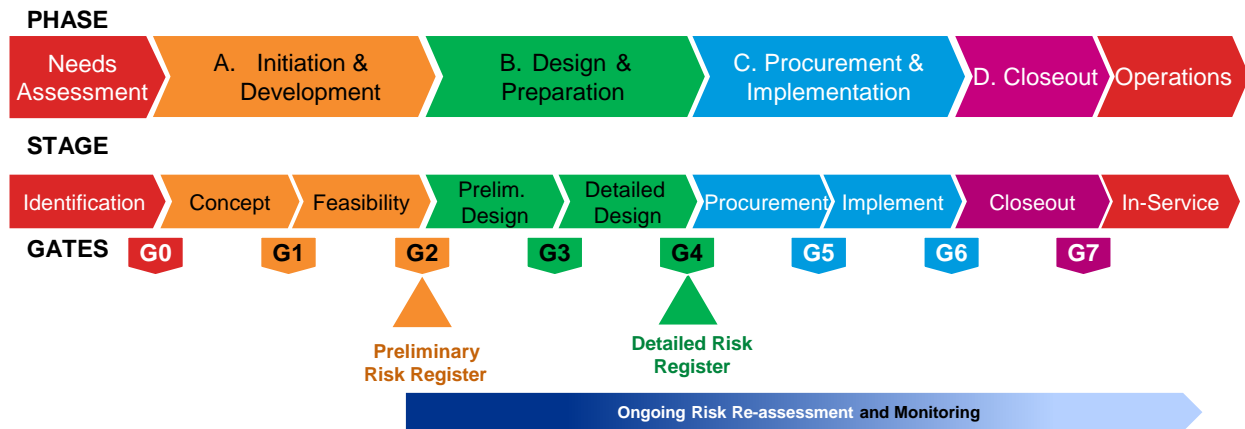


Figure 16 – Risk Management

## Stakeholder management

Stakeholder Management is the systematic identification, analysis and planning of actions to communicate and negotiate with and influence stakeholders to achieve the objectives of a project. Project stakeholders are individuals, groups or organizations that can influence or be impacted by a given project. The level of impact that a project has on its stakeholders and the level of influence stakeholders have over a project can vary, and the relationship of the stakeholders to the project will change over its lifecycle.

Project Managers on all projects must proactively identify, analyze, plan for and manage stakeholders throughout the life of the project. Initiation of the Stakeholder Management process is required for Gate 0 approval through the development of a preliminary stakeholder register for inclusion in the Statement of Intent. An up-to-date stakeholder register is required for each subsequent Stage Gate approval, either as a standalone document (Stakeholder Register) or a part of an updated Project Charter or Project Management Plan.

Gates	G0 – Approved for Development	G1 – Approved for Planning	G2 – Approved for Design	G3 – Project Baseline Approval	G4 – Approved for Procurement	G5 – Approved for Implementation
<b>Input</b>	<ul style="list-style-type: none"> <li>Preliminary stakeholder register</li> </ul>	<ul style="list-style-type: none"> <li>Updated stakeholder register</li> </ul>	<ul style="list-style-type: none"> <li>Updated stakeholder register</li> <li>Stakeholder Management Strategy</li> </ul>	<ul style="list-style-type: none"> <li>Updated stakeholder register</li> <li>Stakeholder Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Updated stakeholder register</li> <li>Updated Stakeholder Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Updated stakeholder register</li> <li>Updated Stakeholder Management Plan</li> </ul>
<b>Output</b>	<ul style="list-style-type: none"> <li>Statement of Intent</li> </ul>	<ul style="list-style-type: none"> <li>Project Charter</li> <li>Preliminary Business Case*</li> </ul>	<ul style="list-style-type: none"> <li>Updated Project Charter</li> <li>Updated Business case*</li> <li>Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Updated Project Charter</li> <li>Final Business case*</li> <li>Updated Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Updated Project Charter</li> <li>Updated Project Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Updated Project Charter</li> <li>Updated Project Management Plan</li> </ul>

\* These are additional deliverables for Category 2 and 3 projects

Figure 17 - Stakeholder Management deliverables

Refer to the Stakeholder Management Standard for guidance on how to identify and analyze stakeholders, plan stakeholder management and manage & evaluate stakeholder engagement.

## Project Justification

All capital projects, Category 1-4, require a Statement of Intent before proceeding through Gate 0 into the Initiation & Development phase.

All Category 2 and 3 capital projects must have a Preliminary Business Case in place before proceeding through Gate 1 and a Final Business Case approved before proceeding through Gate 3.

Both a Statement of Intent and Business Case are formally approved documents that describe the project's need and high level project parameters such as design, budget, schedule and organization.

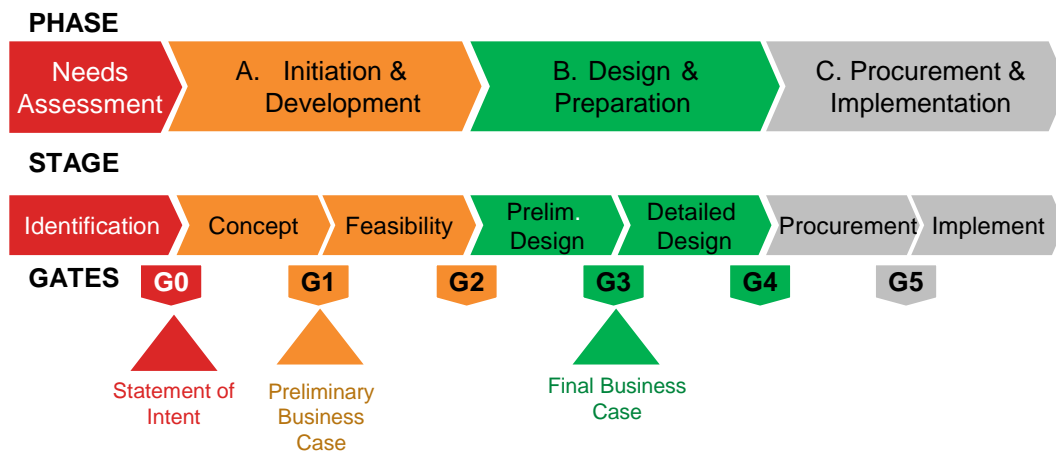


Figure 18 - Project Justification

## Project Charter

All capital projects, Category 1-4, must have an approved Project Charter in place before proceeding through Gate 1 into the Feasibility stage.

A Project Charter is a formally approved document that describes the project's need and high-level project parameters such as design, budget, schedule and organization. The Project Charter must be updated (if necessary) for every subsequent Gate approval.

A Project Charter serves three key purposes:

- It clearly defines and communicates the project's fundamental objectives and characteristics, such as: need/justification, scope, project categorization, cost, schedule & major milestones, project team, stakeholders, risks, project sponsor sign-off etc.
- It formally initiates and authorizes the project to start as defined.
- It serves as the permanent reference and basis for Project Management Planning, management and assessment of success in meeting project objectives.

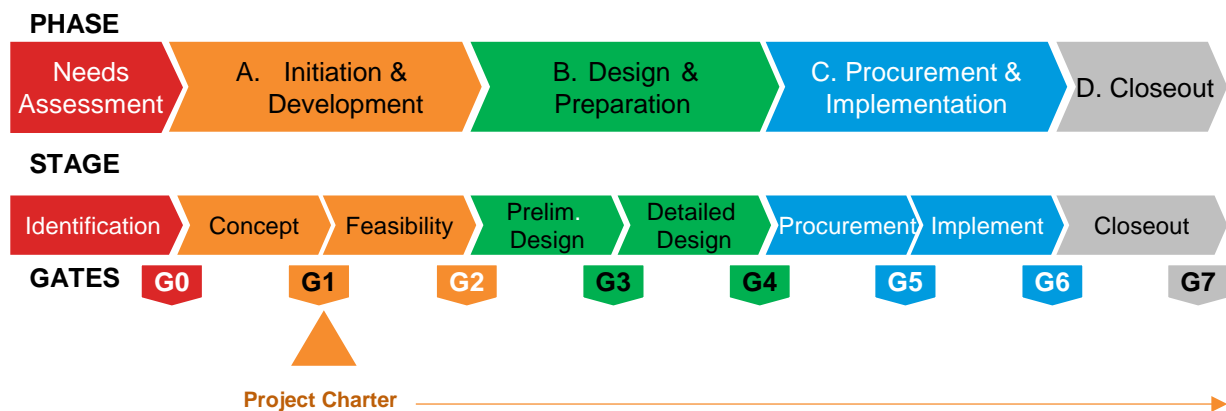


Figure 19 - Project Charter

## Scope Definition

All projects must include a clear scope prepared in consultation with key project stakeholders and partners, and approved as part of the Project Charter. As the project progresses, the scope is gradually elaborated upon, signed-off by stakeholders, and included alongside the Project Management Plan.

Scope management is the monitoring and control of the work necessary to complete a project. The scope of the project refers to the entire work requisite to complete the approved project and generally excludes all items that are not directly related to the objectives of the project work.

Scope management should include four (4) key process steps:

1. Planning of the project scope
2. Defining the project scope
3. Verifying scope
4. Monitoring and controlling scope

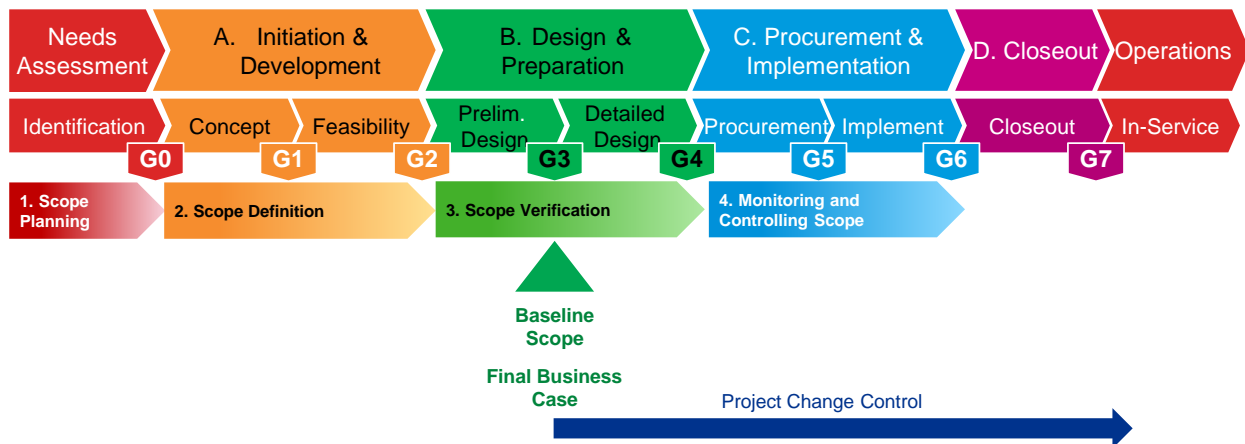


Figure 20 - Scope Definition



## Project Monitoring & Reporting

All Project Managers of all projects are expected to continuously monitor their project, and issue a **Project Status Report (“PSR”)** on a monthly basis, or as required by the Project Sponsor. The PSR tracks project performance against the Project Charter and Stage Gate requirements, and is required starting after Stage Gate 3, and the creation of Performance Baselines.

The purpose of the monthly PSR is to track project performance against the Project Charter and Stage Gate requirements, and be a performance management tool used by the Portfolio Management Office (PfMO) and Finance to make corporate level reports (internal and external). It is therefore important that the PSRs are completed accurately and are of the highest quality.

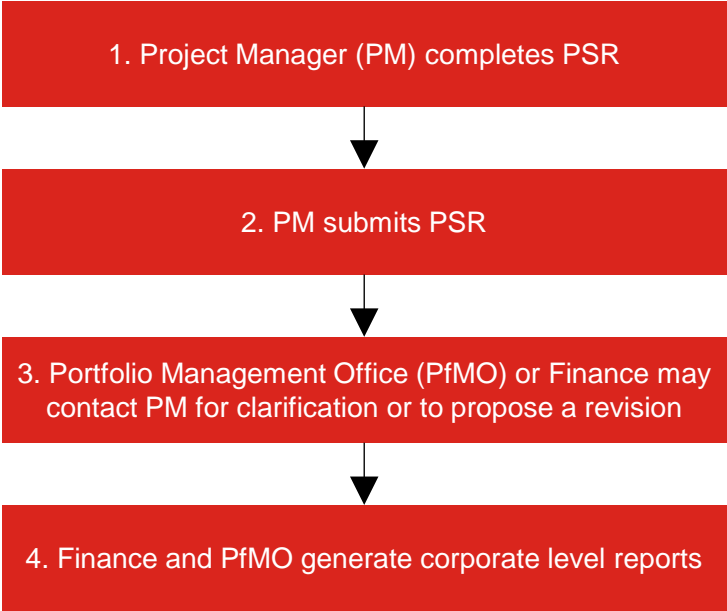


Figure 21 - Project Monitoring & Reporting

## Cost Estimating

A cost estimate is a pricing of project elements that takes into account the scope, design, specifications, implementation schedule, site conditions, and any other parameter that might include cost.

The sequence of cost estimates on a project is the basis for determining the direct and indirect costs, informs the contingency allocation within the Baseline Budget, as well as the evolution of project costs throughout the lifecycle. Without a cost estimate it is difficult to determine or justify the project budget, and to manage costs throughout the project lifecycle.

All projects must have an approved Class 3 estimate as part of the Performance Baseline Budget in the Final Business Case, and an approved Class 1 estimate for any project proceeding into the Implementation Stage. Estimates increase in level of detail and accuracy as the project progresses. The Project Manager adopts the Class 1 estimate as the control budget and the basis for tracking and reporting during the Implementation Stage.

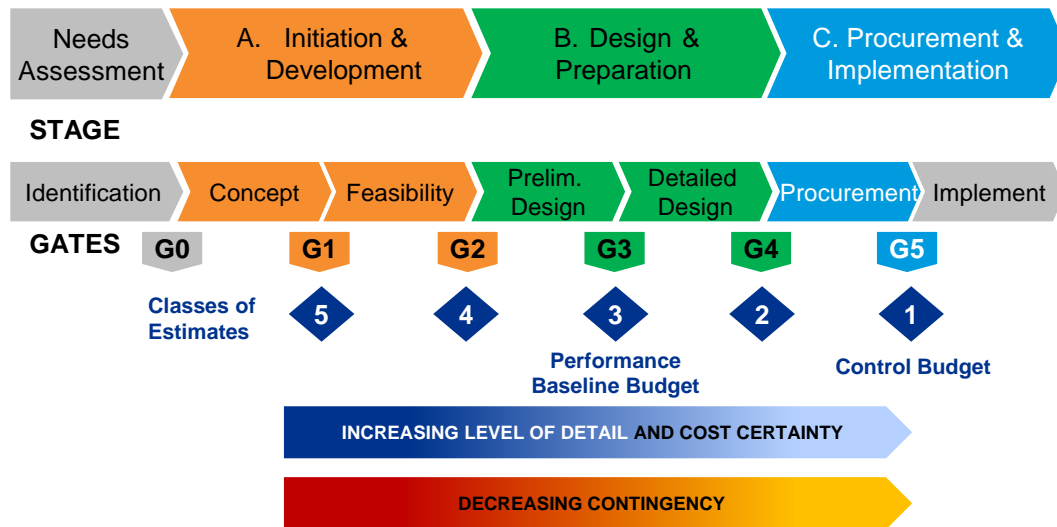


Figure 22 - Cost Estimating

## Budgeting

At a high-level, the Baseline Budget is comprised of three main parts:

- cost estimate
- contingency
- management reserve

The Baseline Budget is derived from a Class 3 cost estimate, the contingency allocation and the management reserve. Refer to **Cost Estimating** for discussion on a Class 3 cost estimates. In contrast, the control budget is based upon the updated Class 5 cost estimate, and updated contingency and management reserve. Any potential changes to the baseline or control budgets, including contingency drawdown, must be performed through the Project Change Process.

All finite projects or potential projects are to be included in the Capital Budget to ensure all the TTC's current and potential future needs are accounted for. All projects require a Performance Baseline Budget prior to Gate 3 and a Control Budget prior to Gate 5.

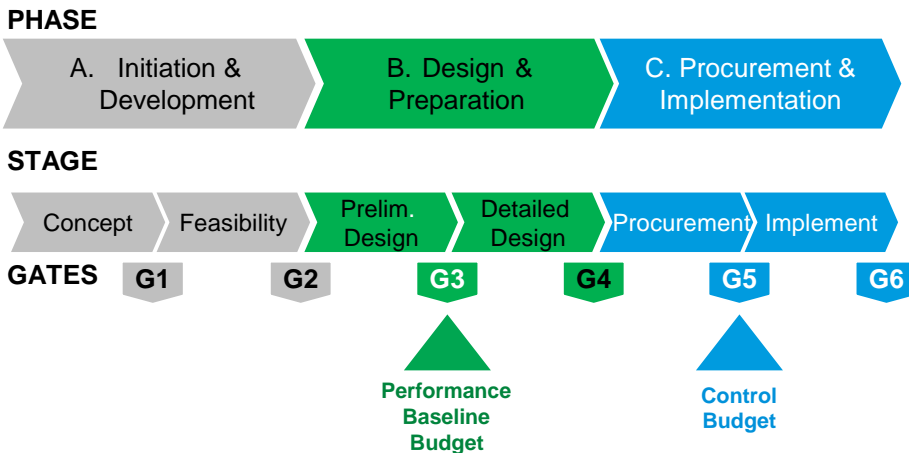


Figure 23 - Budgeting

## Delivery Options Analysis

As a part of the Business Case, all Category 3 and 4 projects will require a delivery options analysis to be conducted. This analysis, coupled with learnings from the Preliminary Design phase, will be key inputs into the Procurement Plan that is approved at Gate 4.

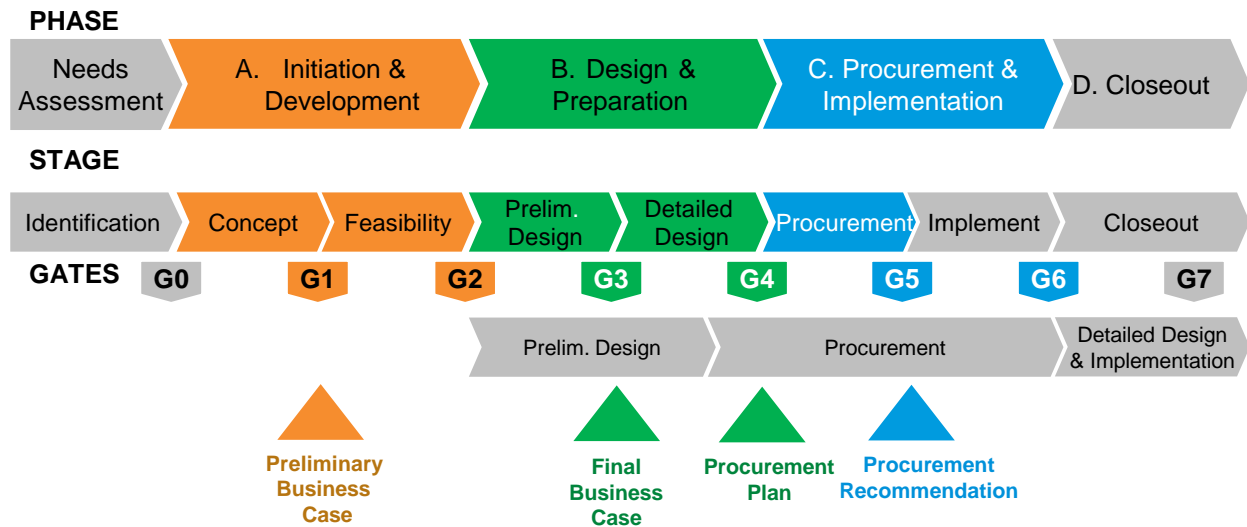


Figure 24 - Delivery Options Analysis

The purpose of Delivery Options Analysis is to provide an interim guideline that can be used by TTC stakeholders prior to the development of the appropriate formal processes and procedures by the Commercial Management function and M&P. With the increasing prevalence of alternative delivery models, project procurement will take on an increasingly strategic role that requires the insight of the Project Manager. The M&P group, as process expert, provides resources to assist the Project Manager and Project Team. The Project Manager, as the authority for a project but in consultation with their team, recommends the procurement method for approval by the Sponsor or Steering Committee.

## Procurement Management

Procurement includes all of the processes necessary to obtain goods or services for the delivery of a project, from early planning, through selection, delivery oversight, and Closeout. Although the M&P department plays a key role as process advisor and their representative is a key member of the Project Team, ultimate accountability for procurement decisions rests with the Project Manager.

Effective delivery of projects starts with the selection of a delivery strategy that is appropriate for the context of the project and the market conditions at the time of its delivery. Selecting the appropriate procurement option for the delivery of a major capital project is therefore crucial, and requires early input from those held accountable for project success.

The planning and execution of the procurement process should heavily involve the Project Manager. Procurement planning provides an opportunity to document and ensure agreement on a clear and specific project scope, assess qualified and available sources, consider influences that may affect a buying decision, and develop the strategy for the procurement activities to be performed. The goal of procurement planning is to achieve the optimum balance of risk, control and funding for a project, all responsibilities related to the Project Manager.

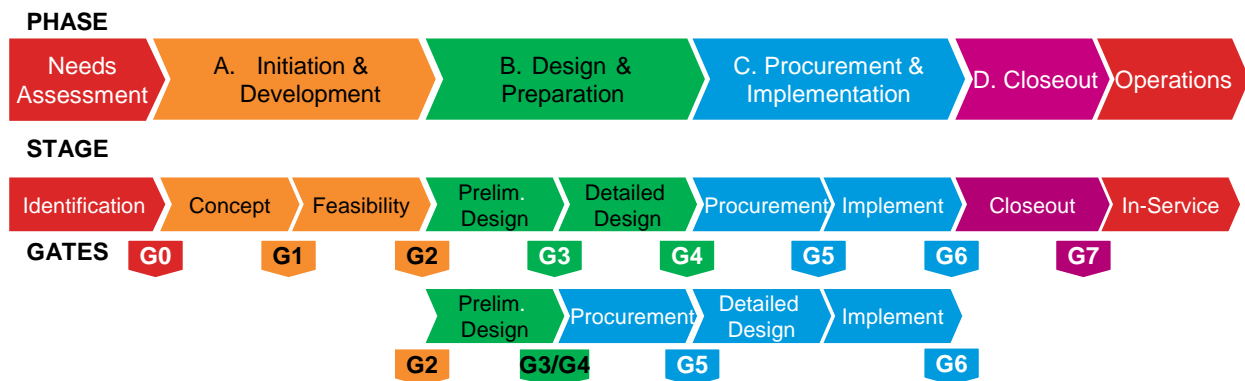


Figure 25 - Procurement Management

## Scheduling

All projects must produce a schedule for inclusion in the **Project Charter**, a **Gantt Chart** for inclusion in the **Preliminary Business Case**, and a **Baseline Schedule** prior to Gate 3.

The purpose of a baseline schedule is to develop a logic-driven and time-phased series of activities and milestones that accurately reflect the method of delivery of a project’s scope. At a minimum, the baseline schedule is used to compare planned versus actual progress of individual project activities.

The Gantt chart is a bar chart that presents an estimation of the breakdown, dependencies, durations, and start and completion dates of the forecasted activities required to achieve the scope of the project. The Gantt chart is progressively approved by the Project Sponsor at each Gate approval.

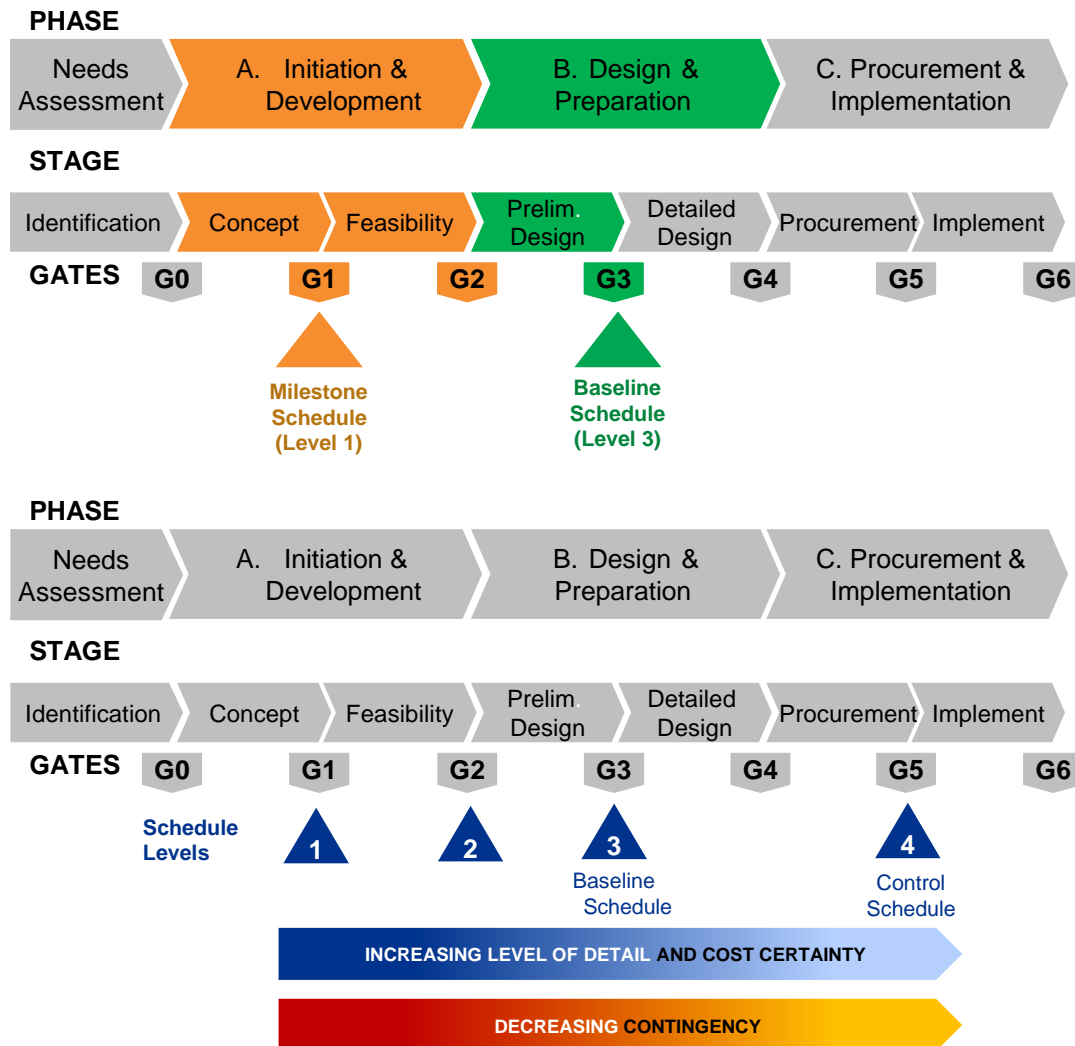


Figure 26 - Scheduling

## Project Change Control

Project Managers on all projects must adopt a systematic approach to identify, record, assess, and report potential and approved changes throughout the project's lifecycle, by using the mandated change forms and maintaining an up-to-date change log. A change is a material deviation from the project baseline that impacts scope, budget, schedule, or quality.

A project change request is used to define the proposed changes in scope, cost, and schedule. It also identifies the impact, stakeholders, interdependencies with other initiatives and contingency plans explored.

All changes on a project must be tracked, however, the project change request process is at a minimum required for contract changes that affect the baseline and/or when there is a:

- Drawdown of contingency or
- Drawdown of management reserve or
- Change to the baseline

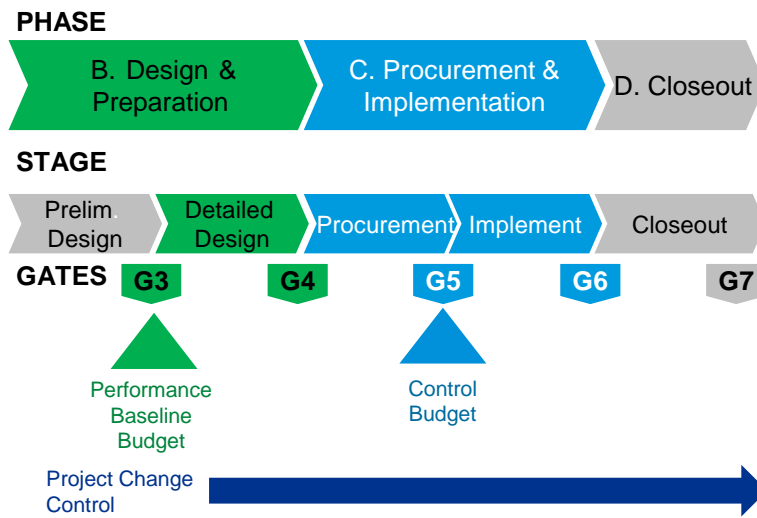


Figure 27 - Project Change Control

## Safety Certification

In the concept stage, prior to the Gate 1 review, all projects must have an assessment to determine whether safety certifications are required. A final Safety Certification Program Plan (“SCPP”) is required prior to the Gate 3 review.

The purpose of safety certification is to provide assurance to management that the system is safe to use. While safety certification may not affect a project’s categorization, but it plays a critical role in how the project is managed.

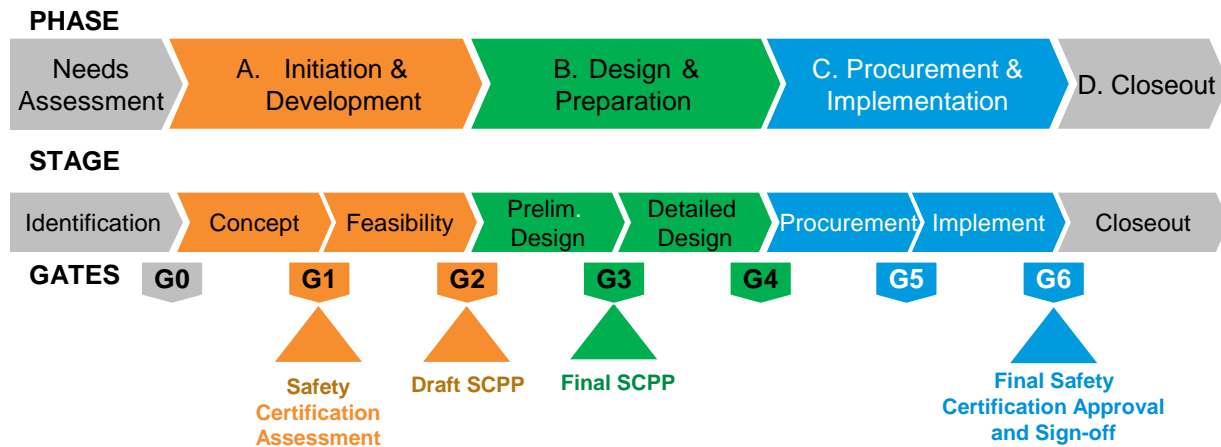


Figure 28 - Safety Certification



## Glossary

Term	Acronym	Definition
<b>AACE International</b>	AACE	An internationally recognized authority on total cost management and known for developing Recommended Practices (RPs) in related areas such as cost estimating, contingency, scheduling, etc.
<b>Baseline Budget</b>		Signifies the point where it moves from an estimate to an approved project with a baseline that can be used to monitor project changes going forward. It is comprised of the Cost Estimate, Contingency and Management Reserve. The Baseline Budget evolves into a control budget prior to implementation.
<b>Baseline Schedule</b>		Its purpose is to develop a logic-driven and time-phased series of activities and milestones that accurately reflect the method of delivery of a project's scope. At a minimum, the baseline schedule is used to compare planned versus actual progress of individual project activities.
<b>Business Case</b>		A document that serves to record any proposal for a new project, and how the project links to the organizational investment goals and/or strategic objectives.
<b>Business Realization Plan</b>		A document outlining the activities necessary for achieving the planned benefits. It identifies a timeline and the tools and resources necessary to ensure the benefits are fully realized over time.
<b>Change Management</b>		Applies the knowledge, skills, tools and techniques to help impacted stakeholders transition from the current state to the future state in order to achieve the desired results of a project
<b>Commercial Management</b>	CM	The identification and development of business opportunities and the profitable management of projects and contracts, from inception to completion.
<b>Control Budget</b>		The latest revision of the baseline budget prior to implementation. The Class 1 estimate is

Term	Acronym	Definition
		adopted as the Control Budget.
<b>Gantt Chart</b>		Used to plan, manage, track and report activity sequencing, scheduling and progress on the project.
<b>Portfolio</b>		A portfolio is a collection of programs, projects and/or operations managed as a group.
<b>Portfolio Management Office</b>	PfMO	Supports the TTC and acts as a centre of excellence for project management. It also takes on an internal compliance role to support oversight, project coordination and review. The PfMO also acts as a central source of lessons learned and project documentation to assist on the implementation of projects.
<b>Procurement Plan</b>		A combined qualitative and quantitative assessment of how best to deliver the project and determine the preferred procurement option. The Procurement Plan is performed prior Gate 3 & 4.
<b>Program</b>		A group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually.
<b>Project</b>		A project is a group of activities designed to yield a unique product within a defined period of time. That period of time has a beginning and an end. In other words; projects are temporary but not necessarily short.
<b>Project Change Control</b>		A systematic approach to identify, record, assess, and report potential and approved changes throughout the project's lifecycle, utilizing change forms and maintaining a change log.
<b>Project Change Request</b>		Issued when the change has impact to the budget. It is used to define the proposed changes in scope, cost, and schedule. It identifies the impact, stakeholders, interdependencies with other initiatives and contingency plans explored.
<b>Project Charter</b>		A formally approved document that describes the project's need and at a high-level project

Term	Acronym	Definition
		parameters such as design, budget, schedule and organization.
<b>Project Categorization</b>		All capital projects must be classified among four groups of sizing and complexity (Categories 1-4) at the outset of each project's initiation by the Sponsor. The group of a project will determine the governance, project management competency and rigor applied.
<b>Project Governance</b>		Refers to the process of planning, coordinating, and monitoring all aspects of a project to achieve targeted objectives, goals, and benefits while ensuring compliance with policies, procedures, and the organizational structure.
<b>Project Management</b>		The science of managing knowledge, skills, tools and techniques to meet project requirements.
<b>Project Management Book of Knowledge</b>	PMBOK	The PMI global standards that provide guidelines, rules and characteristics for project, program and portfolio management. The <i>PMBOK® Guide</i> and PMI global standards continually and accurately reflect the evolving profession. Extensions to the <i>PMBOK® Guide</i> apply the guidance found in the <i>PMBOK® Guide</i> to specific types of projects, meant to be used in conjunction with the <i>PMBOK® Guide</i> .
<b>Project Management Framework</b>	PMF	Provides a common and standardized approach to project management. It drives consistency in behaviour, which leads to more predictable outcomes for projects. It also helps build confidence in the diligence that goes into project documentation and decision making.
<b>Project Management Maturity</b>	PMM	Progressive development of organizational-wide project management approach, methodology, strategy, and decision-making process.
<b>Project Management Plan</b>		A document used to guide how the project will be executed and controlled.

Term	Acronym	Definition
<b>Project Manager</b>	PM	Responsible for the day-to-day management of the project. The Project Manager ensures the project complies with organizational standards, and ensures that adequate resources are committed to the project.
<b>Project Oversight</b>		Is exercised by the groups that supervise, monitor and review the projects within the capital program.
<b>Project Status Report</b>	PSR	Issued on a monthly basis or as required by the Project Sponsor. It tracks project performance against the Project Charter and Stage Gate requirements.
<b>Project Steering Committee</b>	PSC	Is responsible for the follow-up and guidance of a project. It is authorized to make project-related decisions between the Stage Gates to the criteria defined in the Business Case.
<b>Risk Management</b>		Addresses uncertainty in assumptions across all of these facets of a project, throughout a project’s full lifecycle. The goal is to protect and enhance what an organization is primarily there to do, maximize opportunities and minimize negative events to a tolerable level to successfully achieve the objective of delivering all projects within the capital program.
<b>Risk Register</b>		A tool for documenting and managing the risks identified. It includes additional information about each risk such as nature of the risk, reference and owner, mitigation measures, probability, severity, etc. Developed by the Project Manager as early as required.
<b>Safety Certification Plan</b>		To provide assurance to management that the system is safe to use.
<b>Scope Change Request</b>	SCR	Issued when the change has impact to cost, schedule or if it alters the intent of the original scope.
<b>Stage Gate</b>		A method of dividing projects into clear stages/phases to enable better governance and management control by allowing each stage to have its own start and end point, and

Term	Acronym	Definition
		with each stage serving a specific purpose or objective.
<b>Stakeholder Management</b>		The systematic identification, analysis and planning of actions to communicate and negotiate with and influence stakeholders.
<b>Stakeholder Register</b>		Contains the information about the project's stakeholders - identifies the people, groups and organizations that have any kind of interest in the project.
<b>Statement of Intent</b>	SOI	Is a high-level concept document that does not include an intense analysis on financials, benefits etc. It allows the originator an opportunity to get approval on the concept prior to spending time and effort on a Business Case upfront.
<b>Toronto Transit Commission</b>	TTC	A public transport agency that delivers and operates bus, rapid transit, streetcar, and paratransit services in Toronto.