Winnipeg | **Infrastructure Planning**
Planification en matière
d'infrastrucure

Project Management Manual

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Disclaimer for Non-City Representatives

This Project Management Manual (Version 4) is prepared by the City of Winnipeg for its own internal purposes and parties hired to represent the City in projects. The City of Winnipeg makes no representations, warranties or guarantees as to the accuracy or sufficiency of this Project Management Manual or the information contained herein.

Further, notwithstanding your use of this Project Management Manual or the information contained herein, you have been engaged by the City to provide professional advice and services and are expected to do so in accordance with your contract and all applicable professional and industry standards.

The Asset Management System (AMS) is not fully developed and implemented

The AMS governance structure includes the Asset Management Policy, Administrative Standard, Investment Planning Manual and this Project Management Manual. These governance documents are at various stage of development and not all the documents including procedures and templates have been finalized.

As you read the manual, you will notice some sections that are noted as "Future development or under-development". These elements will be incorporated and made available as finalized.

Document Quality Information

Document Revision No.	Revisions	Date Released	Released By
Draft v1.0		September 3, 2013	CH2MHILL
Draft v2.0	Revisions based on City review of V1.0 February 13, 2014	April 22, 2014	CH2MHILL
v3.0	Revisions based on City review of V2.0 September 30, 2014	February 2, 2015	J. Ruby
v4.0	Revisions based on numerous Audit recommendations; Project Management "How-To" Training feedback, and changes within the organization since last revision.	June 26, 2019	J. Frizado

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Introduction

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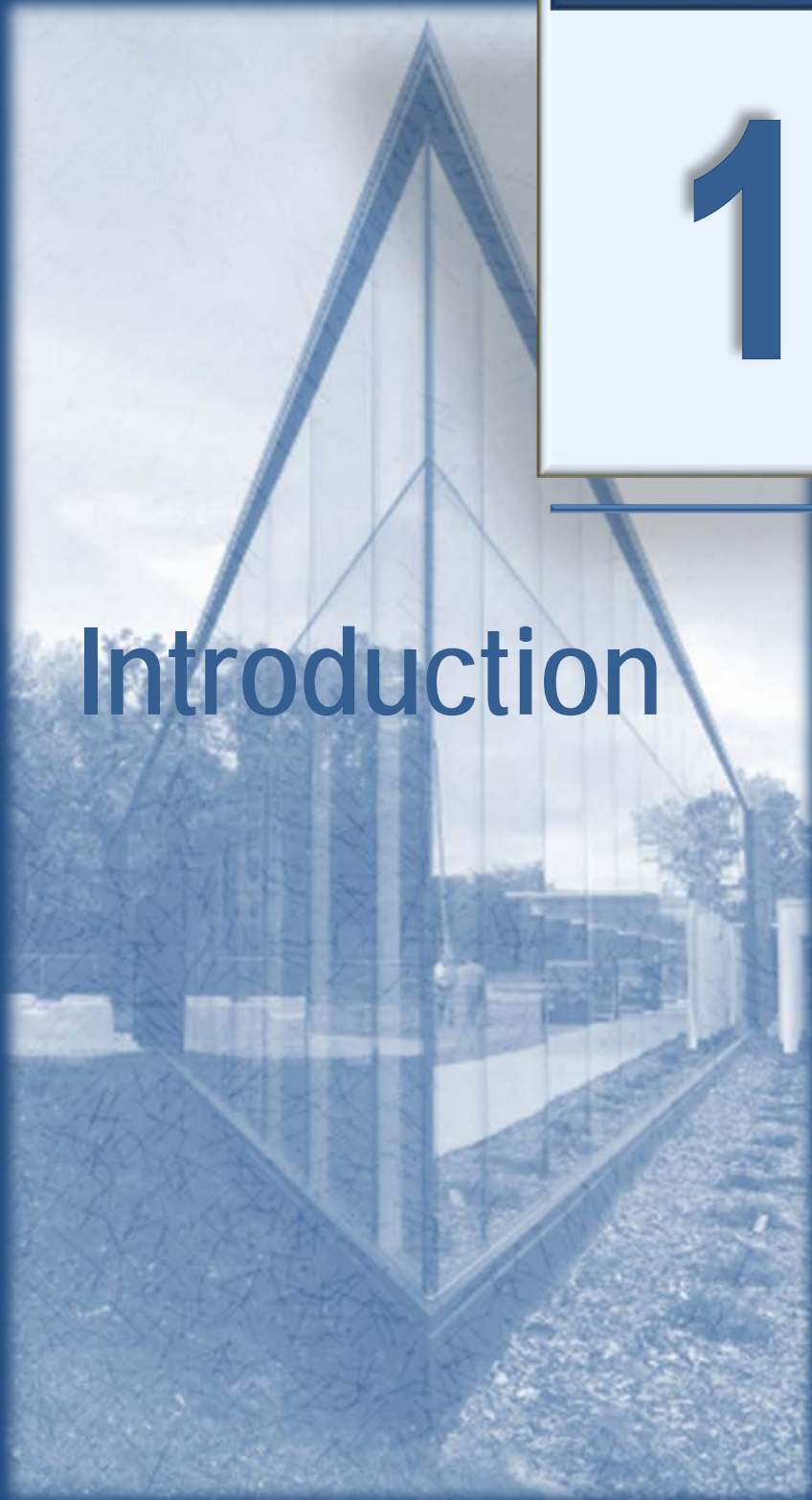
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1   Introduction

1.1   Background

This manual has been developed based on the Project Management Book of Knowledge (PMBOK), which is generally regarded to be North American best practices in project management. The manual has also been developed to be consistent with existing Council-adopted policies, accompanying Administrative Directives and internal training programs.

It is recommended that all capital projects be executed using the principals and guidelines outlined in this manual regardless of the project scope, complexity or cost. In some cases, where certain processes are not applicable, they may be omitted with justification.

This manual is meant to be a living document and as such, will be updated on a periodic basis by the Corporate Asset Management Office. Updates will typically be triggered when substantial changes in industry practices have occurred, the City Auditor identifies improvement areas or feedback from internal/external users warrants a change. This manual has taken considerable time and effort to develop, both on the part of City employees and our Consultant partners. We wish to thank City employees, project delivery departments and our Consultant partners for the considerable time, effort and support that went into the development of this manual.

1.2   Purpose of the Project Management Manual

The Project Management Manual (PMM) has been developed and is continually being updated to provide consistency and quality in how the City delivers capital projects. It is to be used by all business units in all departments for delivery of capital projects for the City.

The PMM is largely based on *A Guide to the Project Management Book of Knowledge[1]*, which is generally considered to be best practices for project management in North America. Following project management best practices, is intended to improve the quality of projects being delivered by the City. By following a defined methodology, the PMM will guide the Project Manager through the process of properly initiating, planning, executing, monitoring/controlling and closing the project. This is meant to aid the Project Manager and will not replace the experience and professional judgement required to deliver quality projects that meet customer expectations for cost, quality/scope and schedule.

The City of Winnipeg approves a large capital program every year to expand, upgrade, and renewing its infrastructure and providing services to support its operations. New construction, repair and/or replacement of streets, bridges, sewer systems, community infrastructure, IT systems and amenities accounts for most of the Capital Budget. With aging infrastructure, city growth, and environmental regulations, expenditures will likely continue to be greatest in these areas.

The traditional method of project delivery for large projects has been through a design-bid-build (DBB) process. In DBB project delivery, City Project Managers (PMs) engage Consultants to design and prepare bid documents for the work, which is then awarded to Contractors for construction. The DBB process will continue to be the main delivery method for project delivery in the City; however for major capital projects where significant risks exist, the City will consider other delivery methods, including Design-Build (DB) and Public, Private, Partnerships (P3).

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[1] Project Management Institute (2017). *A Guide to the Project Management Body of Knowledge*, Sixth Edition.

1. The PMM is a "How-to" document for both City and Consultant Project Managers to use for delivery of projects. Initially prepared in response to a need for use on large and complex capital construction projects, the PMM now applies to all capital projects. It is important to emphasize that, while the PMM prescribes a standard methodology, it is not intended to be applied on a one-size-fits-all basis, however; it is a flexible method that can be tailored to the size and context of a specific project.

2. The PMM is intended to assist Project Managers to be proactive. A desired outcome of a more proactive approach is increasing the confidence of stakeholders and the credibility of the project management discipline at the City. Defining processes and procedures more clearly facilitates communication and understanding of expectations for all project stakeholders.

For the Project Manager, the PMM addresses the following questions about project delivery:

- What steps are involved?
- What processes are applied?
- How are the processes applied?
- What are the Project Manager's roles and responsibilities?
- What tools and templates are available?

The PMM is a living dynamic document that is continually being reviewed and updated by the Corporate Asset Management Office within the Infrastructure Planning Office, under the direction of the Chief Project and Asset Management Officer. Update sources may include an internal lessons-learned process, observations from quality assurance reviews, internal or external audit recommendations, any new changes in City policies and administrative standards and new information or updates published in *A Guide to the Project Management Body of Knowledge[2],* and other relevant industry sources.

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[2] Project Management Institute (2017). *A Guide to the Project Management Body of Knowledge*, Sixth Edition.

1.3   Using the Project Management Manual

The Project Management Manual (PMM) is designed for ease-of-use, and organized for finding information readily. Presented are suggested tools and methods for using or enhancing your search for the material in the PMM.

Table of Contents (TOC)

Sequential listing of the main sections, sub-sections, tables, figures, process charts, and appendices. The TOC reflects how the PMM has been written – from introduction of the City's project management methodology and initiating processes and from the Planning Phase through to Close-out of a project.

Process Charts

Pertains to all of the City's project management processes to map out, explain and communicate processes to improve project quality, consistency and productivity. These charts show role responsibilities for specific actions and are the primary reference to use to determine the sequence of operations.

Templates

Documents that provide a standardized and methodological approach for managing and delivering projects. Some are critical for Phase Outputs. In the PMM, existing templates are denoted by the icon within the associated section, and are downloaded from the City's website.

A complete list of templates is found in *PMM Appendix B: Project Management Templates.*

Glossary

Contains terms and acronyms used in the Project Management Manual, and relating to the City's project management and contract management processes.

Index *(for future development)*

An alphabetically sorted list of words or phrases showing the page number(s) to help quickly direct users to the location of the item in the Project Management Manual.

Note:

- *The hyperlinks are not active at this time. These hyperlinks will be activated once the content becomes more stable.*
- *Not all the referenced material and documents are completed and integrated into this manual. That is, not all the templates have been developed and finalized, and only the DBB Project delivery process is included.*
- *Additional content will be included in subsequent revisions and versions of this manual.*

1.4   Structure of the Project Management Manual

The Project Management Manual (PMM) project delivery methodology was developed by applying *Project Management Book of Knowledge* (PMBOK) project management standards to the City of Winnipeg's specific situation. Alignment with PMBOK leverages the investment in corporate and institutional training programs and reinforces use of a common project management language and structure throughout the organization.

The PMM is structured according to PMBOK's five process groups Figure 1-1, rather than using a project lifecycle phase approach. This structure allows a single description of the processes that are repeated in each phase; deliverables for each phase are identified in the Project Delivery Framework component integration in *PMM Section 3.8*.

The Project Management Manual contains the following sections:

Section	Title	Description
1.0	Introduction	Introduces the PMM and explains its use.
2.0	Governance	Provides the governance associated with project management and interactions with other City programs and models.
3.0	Project Delivery Framework	Describes how all the project management components are integrated into a single unified approach.
4.0 – 8.0	Project Management Process Groups	These sections detail what is to be done, how to do it, and what is expected in terms of processes, outcomes or deliverables.
9.0	Contract Administration	Provides the governance required to negotiate, support and manage effective contracts and ensure they are administered in a consistent and transparent manner.
Appendix A	Design-Bid-Build (DBB) Project Delivery Process Charts	These process charts show role responsibilities for specific actions and are the primary reference to use to determine the sequence of operations. Processes in the charts can be matched with detailed descriptions of *what* to do.
Appendix B	Project Management Templates	These templates and forms facilitate presenting information consistently and coherently across the organization.
Appendix C	Alternative Project Delivery Methodology Analysis	This technical memo provides information of alternative project delivery options.
Appendix D	Organizational Change Management	Provides guidance on how to ensure organizational change is managed in a consistent manner on all projects.
Appendix E	Records Management	Provides guidance on how to ensure consistent governance, processes and procedures to manage project records.
Appendix F	Claims Management Process	Provides guidance on the prevention, mitigation, identification and quantification, and resolution of consultant and construction contract claims.
Appendix G	Gating Process	Provides guidance on the decision points in an Assets lifecycle, where senior leaders carefully consider the asset status and make effective and timely decisions before proceeding on.
Appendix H	Glossary	The glossary defines the terms, acronyms, and abbreviations used in this PMM.

Figure 1-1. Standard PMM Project Phases and PMBOK Process Groups
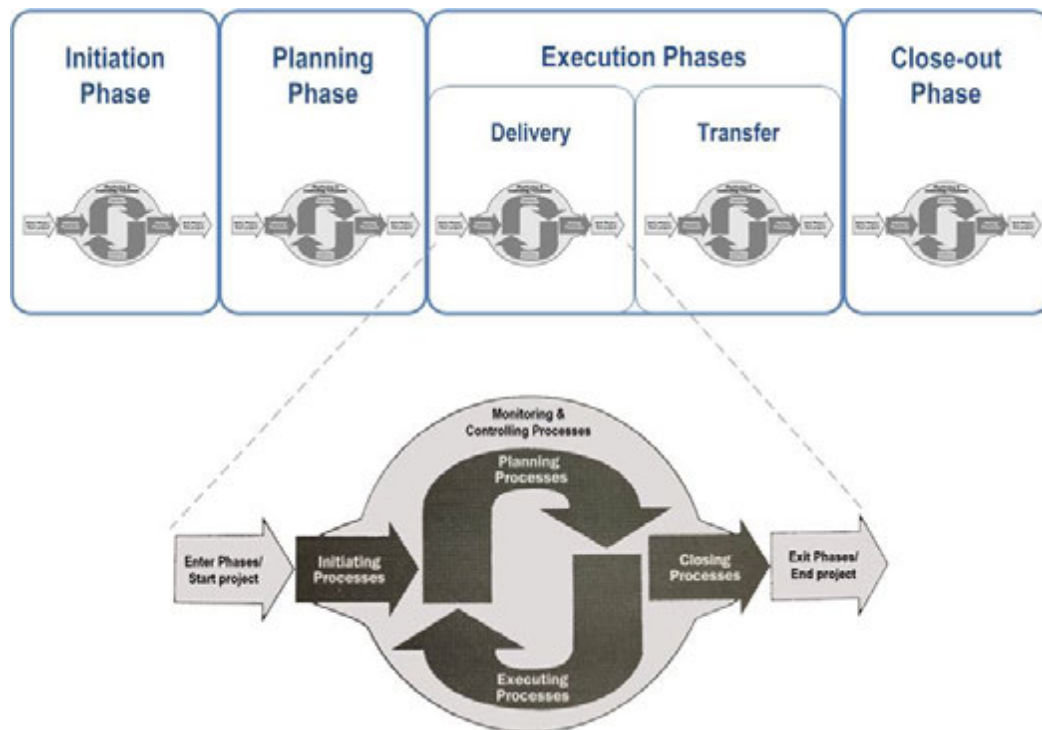
Figure 1-1 illustrates the relationship between *project phases* and the *process grouping structure* used in this manual. Each of the project phases includes the five process groups as shown in the lower portion of Figure 1-1.

Descriptions for these process groups are presented in *PMM Sections 4 to 8* of the manual. For example, the initiating processes for the initiation, planning, execution and close-out project phases are described in Section 4 – *Initiating Process Group* of the manual. The process workflow is presented for a specific project delivery method in *PMM Appendix A: Design-Bid-Build (DBB) Project Delivery Process Charts*.

In addition to the *Project Management Book of Knowledge* (PMBOK), the project management process driven methodology described in *Projects in Controlled Environments 2 (PRINCE2)* was also reviewed during the initial development of the Project Management Manual (PMM). PMBOK provides standards and not a prescribed methodology, whereas PRINCE2 provides a structured methodology and provides direction on applying its concepts.

One PRINCE2 feature adapted for the PMM is use of phase gates. Phase gates initiate a phase-end review and a response to a phase's deliverable(s). As the final process of the closing process group, a phase gate is included at the end of each project phase.

1.5   Program or a Project?

The first decision-point is the determination if the Capital Budget Authorization is either a Program or a Project. In most instances, identifying whether a Budget is a Program or a Project is relatively straight-forward.

Program   Related subsidiary programs and program activities that are managed in a coordinated manner to obtain benefits not available from managing them individually.[3]

Project   A temporary endeavour undertaken to create a unique product, service, or result.[3]

The approved Capital Budget Authorization may also identify the budget as a program or a project. Refer to Figure 1-2 below.

Figure 1-2. Capital Budget Authorization: Program or Project?
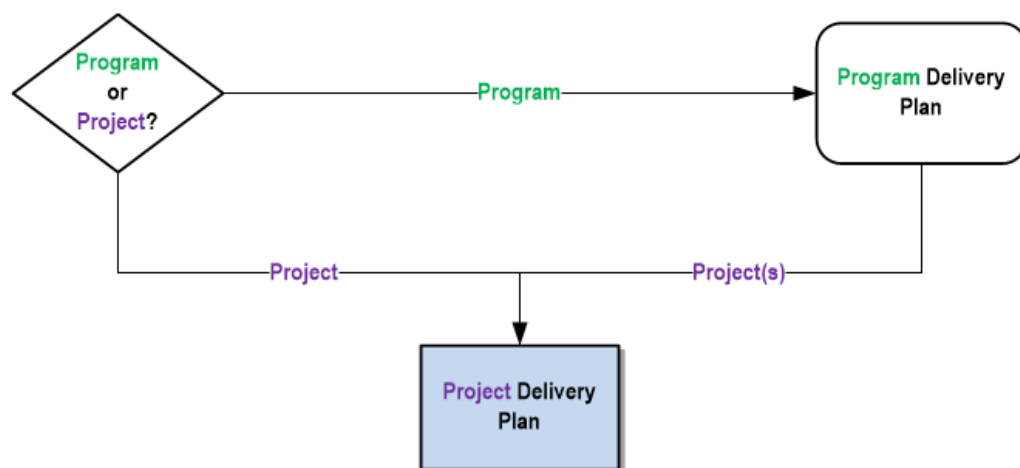
If the Capital Budget Authorization is a p*rogram*, then the Project Manager is required to complete the documentation required for the Program Delivery Plan. Note that if there are any individual projects within the program that meet the requirements for Project Delivery Plan, then it must be must be completed for that project.

If the Capital Budget Authorization is for a p*roject*, then the Project Manager is required to complete documentation required for the Project Delivery Plan.

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[3] Project Management Institute (2017). *A Guide to the Project Management Body of Knowledge*, Sixth Edition. p. 715.

1.5.1 Assessing Project's Level of Risk

The Project Manager (PM) should first make an overall risk assessment of the project and determine the level of risk as either High, Moderate or Low. The project levels of risk are defined in Table 1-1. Project complexity, project specific risks, potential to impact service delivery, potential to impact tax/utility rates and public profile are some of the considerations in determining project risk.

Table 1-1. Project Level of Risk Definitions

Level of Risk	Definition
High	The risk is **severe.** If risk occurs, has negative effects that could greatly impact the project's cost, schedule, scope, and quality. If a high risk occurs, it could place the project in jeopardy of being completed on time and/or on budget.
Moderate	The risk has **negative** impacts on cost, schedule, scope, and quality. If a moderate risk occurs, it could place the project in jeopardy of being completed on time and/or on budget.
Low	The risk has **minimal** impacts on cost, schedule, scope, and quality; If a low risk occurs, it should not jeopardize the project from being completed on time and/or on budget.

In assessing the level of risk as defined above, the Project Manager shall consider the following potential outcomes:

- If there is any potential impact on health and safety of the pubic or employees.
- If there is any potential to impact or interruption in service delivery to the public.
- If there is any potential impact on City finances including additional borrowing or increases to property taxes or utility rates.
- Reputational risk to the City of Winnipeg.
- Potential to disrupt the City's workforce in the performance of their daily duties.
- Project complexity.
- If the project is non-repetitive in nature.
- Potential for environmental impacts.
- Other project specific risks.

1.5.2 Assessing Project's Size

The next assessment the Project Manager shall make is the category of the project based on size. Project size is taken from the approved Capital Budget Authorization and fits into categories as shown in Table 1-2.

Table 1-2. Project Size Categories

Size Categories	Capital Budget Range
Small	below $1.0 million
Medium	$1.0 million - $4.99 million
Large*	$5.0 million - $22.99 million
Major*	$23 million and above

* The Major Projects' Capital Budget lower range is set every year in the *Adopted Budget Capital Project Detail Volume 3 in Appendix Major Capital Projects*. This limit is subject to change each budget cycle, and will impact the upper range for large size projects as well. The above project sizes are based on the 2019 *Adopted Budget Capital Project Detail Volume 3*.

The matrix in Table 1-3 is a summary illustration of the potential project level of risk / project size categorization for any given project.

Table 1-3. Project Scaling Decision Matrix – Project Level of Risk / Project Size

		Size Category			
		Small	**Medium**	**Large**	**Major**
Level of Risk	**High**	High / Small	High / Medium	High / Large	High / Major
	Moderate	Moderate / Small	Moderate / Medium	Moderate / Large	Moderate / Major
	Low	Low / Small	Low / Medium	Low / Large	Low / Major
	*Capital Budget Range**	**Below $1.0 million**	**$1.0 million to $4.99 million**	**$5.0 million to $22.99* million**	**$23.0* million and above**

* The Major Projects' capital budget lower range is set every year in the *Adopted Budget Capital Project Detail, Volume 3*, in *Appendix Major Capital Projects*. This limit is subject to change each budget cycle, and will impact the upper range for large size projects as well. The above project sizes are based on the 2019 *Adopted Budget Capital Project Detail Volume 3*.

The major objective is to expend additional resources where there is significant risk or large dollar amounts at stake.

Major capital projects are normally very complex, and due to their size cost, overruns can have an impact on taxpayer rates. As such, a low level of risk /major size classification is unlikely. The Project Manager should reassess any *low level of risk /major size* classifications carefully prior to finalization.

Bundling of smaller projects together is a fairly common occurrence in programs such as Local Streets. Local Streets packages would tend to fall in the *low level of risk/large size* category. Due to the low risk nature of small projects, bundling several small projects does increase project risk.

The appropriate level of project reporting and/or documentation should be determined by the Project Manager and approved by the Project Sponsor.

1.6   Relationship among Project, Program and Portfolio Management

Management of projects, programs and portfolios, is aligned with and driven by organizational strategies and contributes in different ways to the achievement of strategic goals. Consider project, program and portfolio management from an organizational perspective, program and project management focus on doing programs and projects the right way, while portfolio management focuses on doing the right programs and projects.

Disciplines	Description			
Portfolio Management	Centralized management of programs and projects at both the corporate and department levels to achieve the City's strategic objectives for services and assets.	Led by the business.	Investments are aligned to business goals and strategies.	Investments based on service targets, risk and benefit assessments.
Program Management	Management of a group of projects to obtain the benefits (or result) according to an agreed-upon business case and control not available by management of projects individually.	Sponsored by the business.	Projects align with overall program benefits.	Compliance with project management standards.
Project Management	Management of an endeavour of finite duration undertaken to create a unique product, service, or result according to an agreed-upon business case (which addresses how an idea is developed into a viable investment proposition).	Delivery of product, service, or result	Balance, scope, cost, and schedule constraints.	Responsible for quality of deliverable(s).

Figure 1-3. Portfolio, Program, and Project Disciplines

Organizational Strategy

Portfolio Management	

- Program A
- Program B
- Portfolio A
- Program B1
- Program C
- Project 1
- Project 2
- Project 3
- Project 4
- Project 5
- Project 6
- Project 7
- Project 8
- Project 9
- Operations

Shared Resources and Stakeholders
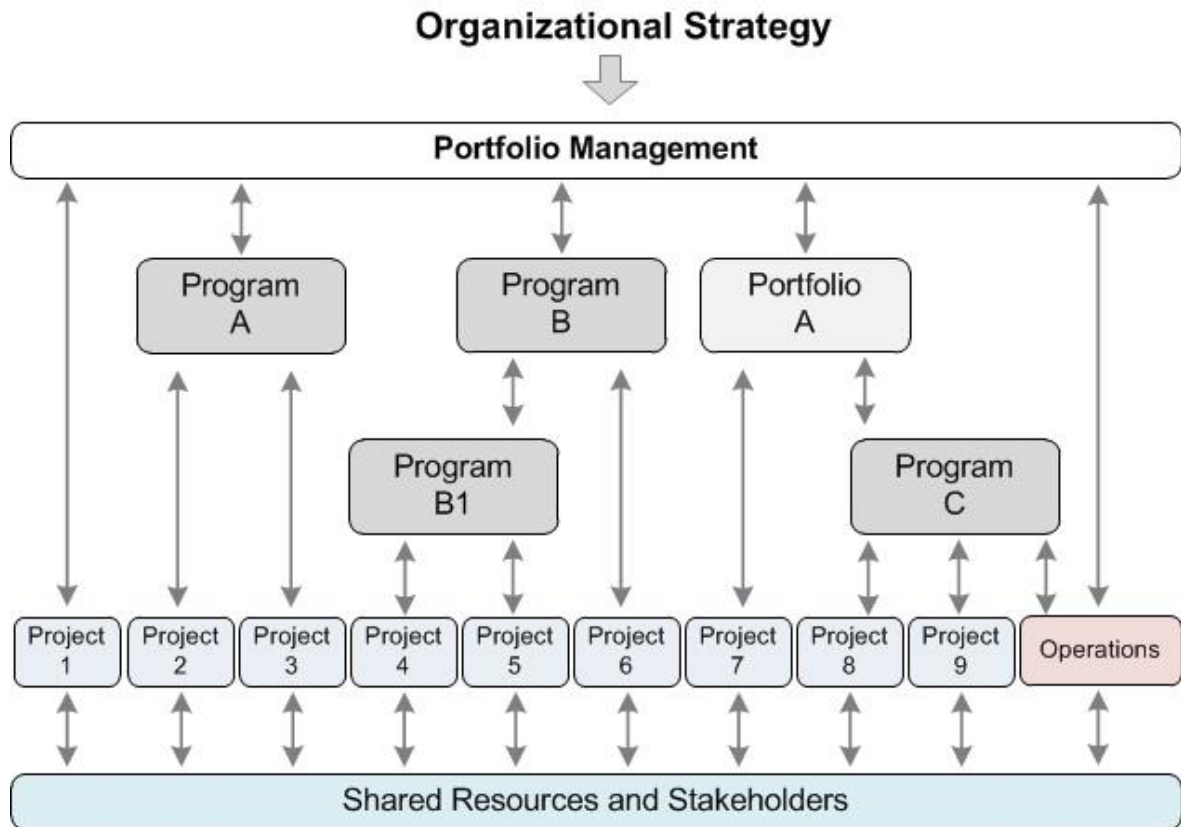
The hierarchical relationship between delivery components is illustrated in Figure 1-3. Each component can have multiple subcomponents; that is, relationships can be one-to-many.

1.7   Other Key Disciplines Integrated within Project Management

Contract Administration

Contract Administration is a process where an already developed and initiated contract is managed and/or administered, which includes managing Contract relationships, monitoring Contract performance, and modifying Contracts when appropriate.

Contracts and the administration of those Contracts (Contract Administration) is significantly involved in and integrated with Project Management.

For more information, refer to *PMM Section 9*.

Organizational Change Management

Is a framework to promote and enable the adoption of changes that may occur as the result of the Project deliverables (product, service, or result), and thereby, to support the achievement of project results and outcomes.

Organizational Change Management is a discipline that offers a structured approach that is aligned with *Project Management Institute* (PMI) Project Delivery Lifecycle.

Refers to the management of o*rganizational change* and as such, should not be confused with *Change Control within Project Management.*

For more information, refer to *PMM Appendix D: Organizational Change Management.*

Public Engagement

Is a process whereby the City facilitates dialogue with and between the public and stakeholders to collect input which supports better decision making by the City.

The purpose of engaging the public is to achieve decisions that are sensitive and responsive to community values and concerns. It ranges from sharing feedback and perspectives to empowering the community to make decisions as referred to in *PMM Section 1.10.1.*

Note: The Office of Public Engagement in the Customer Services and Communications Department is developing a policy for public engagement for Council approval.

1.8   Integration with the Asset Management System

The City has adopted an Asset Management System (AMS) that aligns with *International Organization for Standardization (ISO) 55000* standards and the *British Standards Institution's (BSI's) Publicly Available Specification (PAS) 55* Asset Management System. The AMS defines the framework for integrating asset management components throughout an asset's lifecycle. This framework assists in establishing a common language and direction within the City's multi-functional organization.

The AMS establishes a disciplined approach to creating the best stakeholder value for each asset portfolio. This disciplined approach requires breaking down departmental barriers; establishing planning, coordination, and prioritization; and rationalizing competing performance goals. As illustrated in Figure 1-5: *City of Winnipeg Asset Management System*, the AMS is defined in terms of governance, processes, and outputs. These elements frame how the City manages its assets.

With reference to Figure 1-5, key governance documents and management plans are at the top of the model, highlighted in dark blue boxes and provides the policy (FI-011 Asset Management Policy), directives (FM-004 Asset Management Administrative Standard, and others), and rules for managing the assets (Asset Management Plan, Quality Management Plan). The next level is

the defined processes, highlighted in yellow boxes which define how work will be done in order to optimize costs and performance. A sample of the process outputs are highlighted in grey boxes at the bottom of Figure 1-5.

The AMS makes an important distinction between a **product lifecycle** and a **project lifecycle** in Figure 1-4.

Figure 1-4. Product lifecycle vs. Project lifecycle
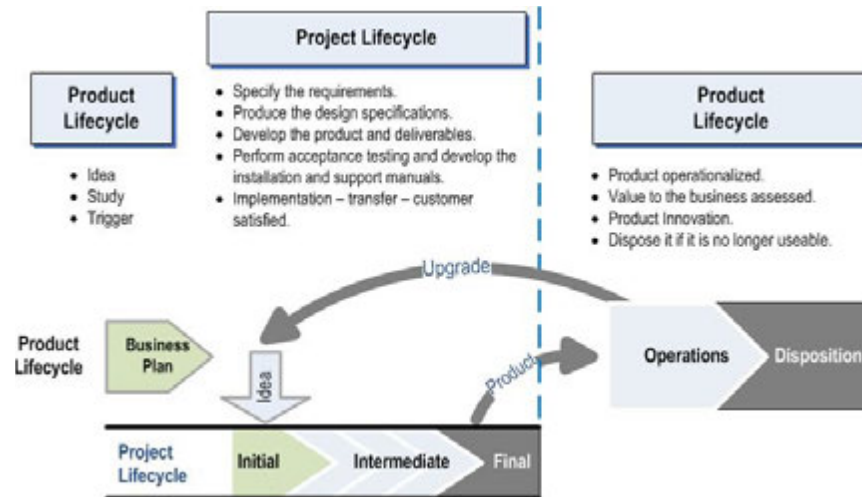
The **product lifecycle** extends from idea (Investment Planning) through to final disposition. Products may be in various forms, such as roads, bridges, buildings, or sewer assets.

The **project lifecycle** is confined to the project delivery part of the product lifecycle.

The project delivery part addresses implementation of projects for products or service where an asset (product) is physically created. The two key integration points for the product lifecycle are with the adjacent planning stage and with the operations and maintenance stage. The integration points in the planning stage are the Business Case and budget approval processes. The integration point in the operations and maintenance stage is the formal transfer of defined documentation, such as instructions for operations and maintenance of the completed product, service, or result.

Figure 1-5. City of Winnipeg Asset Management System
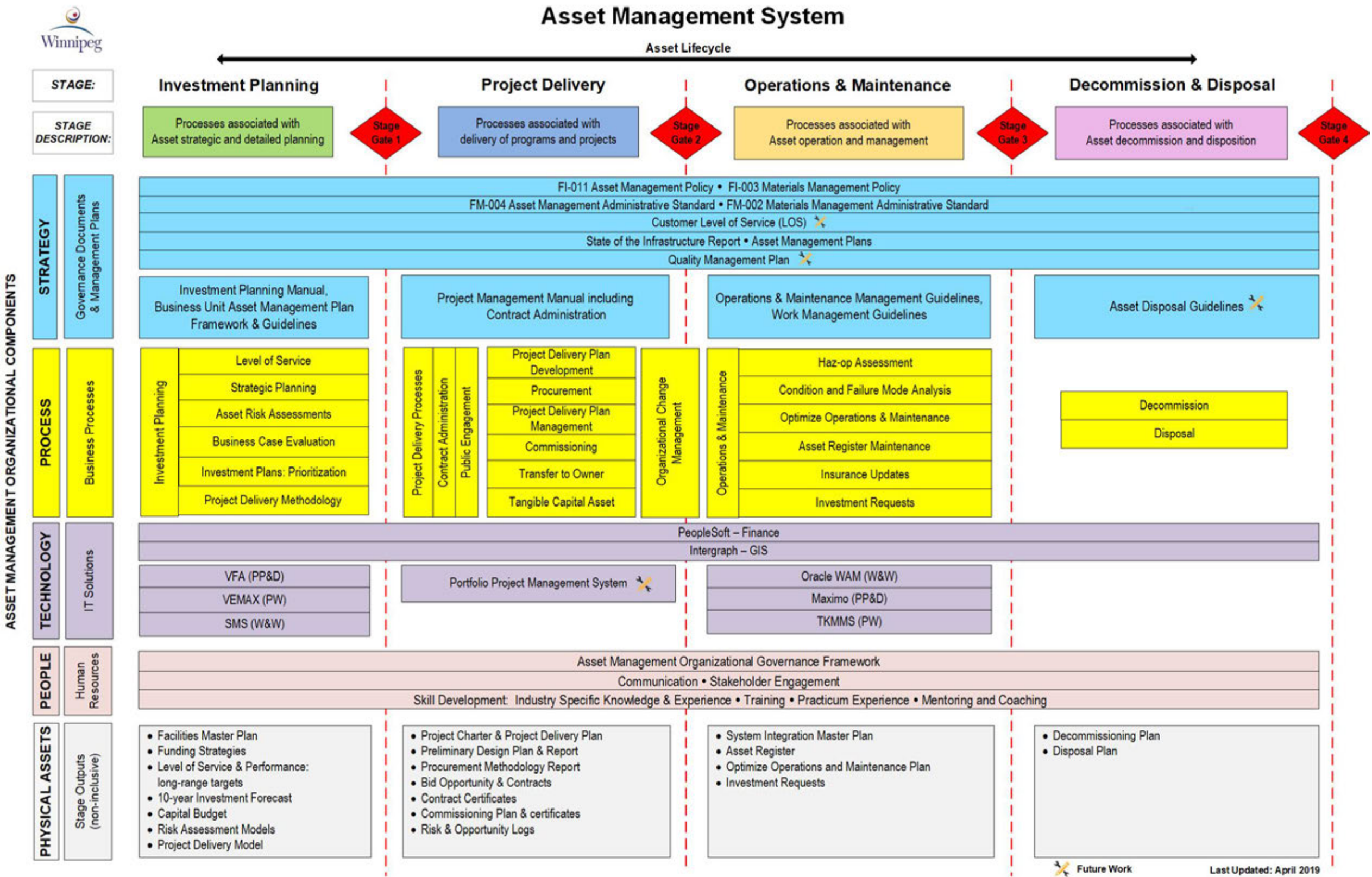
1.9   Organizational Change Management

The purpose of change management is to promote and enable the adoption of changes that may occur as the result of Project Delivery, and thereby to support the achievement of project results and outcomes. Organizational Change Management is a discipline that offers a structured approach that is aligned with *Project Management Institute* (PMI) project delivery lifecycle and the City's Project Delivery Framework.

The City of Winnipeg has certified Change Managers (ChM) located in every department who form a Change Management Working Group sponsored by the CAO. This group is a change management resource pool for projects. Its members are trained to apply tools and methods for change management within the change lifecycle framework.

Project Managers should know who their departmental Change Managers are and should engage them in all the phases of the project lifecycle. For a list of departmental Change Managers, refer to the distribution list in MS Outlook, CITY-ADKAR-Change-Managers.

PMI recognizes that change management is an important feature of project management and for successful project delivery. Without attention to change management, less than 40 percent of projects are successful. Thus, the inclusion of change management activities within the project delivery model is essential for minimizing barriers to change and for ensuring rapid and effective implementation of project outcomes.

When a Project Manager develops the project's stakeholder assessment in the Project initiation phase, the need to follow the City's formal integrated organizational change management procedure should be identified. This need should be included in the Project Charter and discussed with the Project Sponsor.

By following the organizational change management procedure together with developing the Project Delivery Plan, a Project Manager will formulate a solid plan to manage the change created by the project.

The Project Manager may assign a separate Change Manager, if applicable. Criteria could be developed based on project complexity, risks, financial loss, quantity of stakeholders, rushed timeline, etc. For projects deemed high level of risk, a separate Change Manager could be assigned and implement the ADKAR model which would be of great assistance for the Project Manager.

Organizational Change Management refers to the management of *organizational* change, and should not be confused with *Change Control*.

For more information, refer to *PMM Appendix D: Organizational Change Management* for the details of how to manage the change created by initiating a project.

1.10 Public Engagement

Public Engagement refers to a process whereby the City facilitates dialogue with and between the public and stakeholders to collect input which supports better decision making by the City.

The purpose of engaging the public is to achieve decisions that are sensitive and responsive to community values and concerns.

Public engagement planning should be undertaken with the following steps:

1. Determine if public engagement is required

3. Discuss with office of public engagement

4. Determine the level(s) of engagement (public's level of influence)

5. Determine what input will be collected from the public

6. Identify stakeholders

7. Allocate a portion of the budget allocated towards public engagement

8. Bring the above together to draft an early project public engagement strategy

9. If public engagement Consultants will be hired, involve the office of public engagement in RFP development.

10. Public engagement lead develops public engagement objectives, techniques, and timeline

11. Bring the above together to draft a comprehensive public engagement strategy (using guidelines and other supporting policies)

Public engagement should be conducted when the public's input may influence a City project. Public engagement does not apply to day-to-day operations nor does it include the ongoing discussions with stakeholders required as issues arise or ensuring continual evaluation and improvement of existing programs.

1.10.1 Is Public Engagement Required?

Complete the following questions to help determine if public engagement is required:

Question	Yes	No
1. Have you been directed by Council to consult the public?		
2. Is there a legislated requirement to consult the public?		
3. Were you directed by the Director of Customer Service and Communications to consult the public?		
4. Is the project approved in the capital budget?		
a) Will the public's input help define or influence the final outcome?		

- If you answer 'yes' to questions 1, 2, or 3, you must proceed with public engagement.
- If you answer 'no' to questions 1-3, and answer yes to question 4, proceed to question 4a to determine if you should proceed with public engagement.
- If you answer 'no' to question 4a, you should reconsider the purpose of engaging with the public. You are likely informing the public and should contact the communications lead for your department to develop a Communications Strategy.

Contact the Office of Public Engagement if you have any questions about this assessment table or interpreting the need for engagement.

In order to achieve its intended purpose, Engagement must be meaningful. This means that it:

- acknowledges the community's desire to participate in decisions that affect them and provides a means for incorporating the public's values, interests, needs and desires into decisions.

- facilitates understanding – by both the public and the decision-makers – regarding:
  - the definition of the problem or opportunity being addressed
  - the issues of relevance
  - the common ground from which options for a solution can be developed and evaluated
  - the rationale for the ultimate decision

- improves decisions as it:
  - identifies critical issues early, when flexibility in the process is greatest; and
  - brings all perspectives to the table, thereby improving the likelihood that a broader range of perspectives is addressed, there is a positive attitude towards decision outcomes, and therefore that it is less likely to result in decisions being overturned or vetoed;

- opens doors to innovation, creative problem-solving, improved service, greater efficiency and win-win conflict resolution.

Meaningful engagement requires time and resources. Timelines and resources available for each project will influence the approach towards engagement and the techniques used to engage. Engagement should only occur once a portion of the project budget is dedicated to engagement and the project timeline is coordinated to allow adequate time for public input to be collected, considered, and incorporated before key steps in the project.

The Project Manager has roles and responsibilities in the public engagement process, including:

1. Collaborating with the Office of Public Engagement before a project begins to determine the level of engagement and support required.

2. Considering how engagement input can influence a project and allocate project time and budget towards public engagement early in project planning.

3. Ensuring a record of engagement process and outcomes is publicly posted when processes are carried out by departmental employees or Consultants.

The office of public engagement will assign identify a Public Engagement lead for the project, which could be in the department or an OPE employees member. When hiring a Public Engagement Consultant, serious consideration should be given to hiring them as an independent Consultant rather than a sub to another consultant being hired for the project, since Public Engagement is concerned with sensitivity and responsiveness to community values and concerns for the overall project.

For more information, refer to *PMM Section 5.8 – Plan Communication Management*.

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Project Management Governance

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2 Project Management Governance

City governance documents (policies, administrative standards and rules) applies to all stages of the Asset Management System and are presented in Figure 1-5: *City of Winnipeg Asset Management System*, under the asset management organizational component: Strategy (turquoise).

City governance documents that provide direction for project delivery are listed in Table 2-1. List of the City's Project Delivery Governance Documents.

Table 2-1. List of the City's Project Delivery Governance Documents

Governance Document	Description	Link
FI-011 Asset Management Policy	City Council's Asset Management Policy	citynet/finance/infrastructure/camp/#1
FI-003 Materials Management Policy	City Council's Materials Management (Purchasing) Policy	winnipeg.ca/matmgt/info.stm
FM-004 Asset Management Administrative Standard	Asset Management Administrative Standard	citynet/finance/infrastructure/camp/#2
FM-002 Materials Management Administrative Standard	Material Management Administrative Standard.	citynet/cao/administrative_directives/financial_management/default.stm
Special Operating Agency (SOAs) Operating Charters	While SOAs adhere to the Materials Management Policy guidelines and other directive listed above, the Operating Charters of the SOAs note other delegations and exemptions for purchasing authorities.	Individual SOAs have their operating charters on file.

In some instances, in order to assist the Project Manager in the delivery of capital projects, the Project Management Manual may contain discussions on certain Policies and Administrative Standards. If there is any cases of conflict between the manual and these other documents, the Policy/Administrative Standard shall take precedence. Any cases of conflict should be brought to the attention of the Manager Corporate Asset Management Office.

The Project Management Manual is not intended to fully replace or replicate policy/administrative standards. Thus, the Project Manager should read and become familiar with the relevant policy/administrative standards, and not rely solely on the discussions in the Project Management Manual.

2.1   Policies

2.1.1   FI-011 Asset Management Policy

The Asset Management Policy was adopted by City Council in 2015 and governs the Asset Management System and guides the Public Service to incorporate best practices in asset management in support of delivering service to its customers. The Policy objectives are to:

- link infrastructure investment decisions to service outcomes.
- make Stakeholders aware of the true cost of managing the City's assets necessary to meet agreed Levels of Service (LOS).
- strive to deliver services at approved LOS while minimizing lifecycle costs.
- allocate limited resources based on lifecycle modeling, multi-criteria prioritization (triple bottom line concept) and risk management.
- capture relevant asset information and manage this information to enable decision-making.
- provide staff with the necessary knowledge and skills to manage assets effectively.

2.1.2   FI-003 Materials Management Policy

The Materials Management Policy was adopted by City Council in 2004 and governs the Materials Management functions covering most types of procurement, including those normally associated with consulting services and capital project delivery. Guiding principles for the document were to meet the City's needs effectively and efficiently, at the best value, and in a fair and ethical manner.

While providing for broad-level governance, the Materials Management Policy also stipulates conditions under which authority is delegated to the administration. The Materials Management Policy grants the Chief Administrative Officer (CAO) the authority to approve directives consistent with the Policy, and provides the authority to further delegate certain responsibilities.

2.2   Administrative Standards

2.2.1   FM-004 Asset Management Administrative Standard

The Asset Management Administrative Standard looks at the entire asset lifecycle through the following stages:

- Investment Planning (strategic planning and investment planning)
- Project Delivery (managing the construction/acquiring of the asset)
- Operations and Maintenance (ensure maximum life of the asset)
- Decommission and Disposal

This administrative standard also directly addresses project administration and describes the processes that must be considered when planning, delivering, and executing projects, specifically addressing the following:

- Roles and responsibilities of the following employees/unit for major projects:
  - Chief Administrative Officer (CAO)
  - Chief Asset and Project Management Officer (CAPMO)
  - Manager, Corporate Asset Management Office
  - Manager, Major Capital Projects Oversight
  - Departments

- Establishment and mandate of the P3 Review Committee.
- Establishment and role of the Major Capital Project Advisory Committee.
- Project delivery processes and procedures.
- Management of unspent capital accounts.
- Rules for project over-expenditures.

2.2.2 FM-002 Materials Management Administrative Standard

Provides direction on the following:

- Delegation of authority from the CAO to other levels of administration.
- The Procurement – Solicitation process.
- Procedures for soliciting and evaluating competitive offers.
- Award report requirements.
- Procedures to be used when award criteria are not met.
- Award and signing authorities.
- General requirements for engagement of Consultants.
- Reference to the City authorities for dealing with contract over-expenditures.
- Reporting requirements for Consultant assignments.

2.3   Organizational Governance

With City-wide adoption of the Project Management Manual, the City's corporate and departmental entities will need to shift towards a "Portfolio – Asset Management Office (AMO)" Organizational Governance Structure defined in Figure 2-1.

Figure 2-1. City of Winnipeg Corporate and Departmental Governance Framework

Corporate Asset Management Office

Responsible for:

- developing and managing the asset management governance documentation, Investment Planning Manual, Project Management Manual, and associated processes, procedures, tools and templates
- ensuring the components of the Asset Management System are followed
- quality management reviews, and performance management

governance -
quality management -
training -
strategic direction -

- key performance metrics
- benefit realization results

Departmental Asset Management Offices

Responsible for:

- management of the processes and procedures outlined in the asset management governance documentation
- coaching and mentoring staff
- quality management of programs and projects

Asset Coordinators, Investment Planners

Responsible for:

- managing assets and developing investment plans based on the processes and procedures outlined in the asset management governance documents
- performance reporting

Project Managers, Contract Administrators

Responsible for:

- delivering the program or project based on the processes and procedures outlined in the asset management governance documents
- performance reporting

Project Delivery Framework

Project Management Manual Sections

Section 1: Introduction

Section 2: Project Management Governance

Section 3: Project Delivery Framework

Section 4: Initiating Process Group

Section 5: Planning Process Group

Section 6: Executing Process Group

Section 7: Monitoring and Controlling Process Group

Section 8: Closing Process Group

Section 9: Contract Administration

3 Project Delivery Framework

3.1 Project Delivery Processes

Formal project management involves following an established project management methodology, which is based on a set of common project parts or phases, with common processes that run across each phase.

Projects are initiated out of Investment Planning where a need is identified, a Business Case and corresponding Basis of Estimate is developed to a Class 3 Cost Estimate or better. Once the Business Case is approved, the initiative is brought to fruition through project delivery.

Figure 3-1: *Major Capital Project (DBB) Delivery Processes* illustrates the common project parts for capital projects for Design-Bid-Build delivery. The subsequent sections will define each work stream, control point and the high level deliverables that are generated after each part of the project is completed.

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Figure 3-1. Major Capital Project Delivery Processes (Design-Bid-Build)
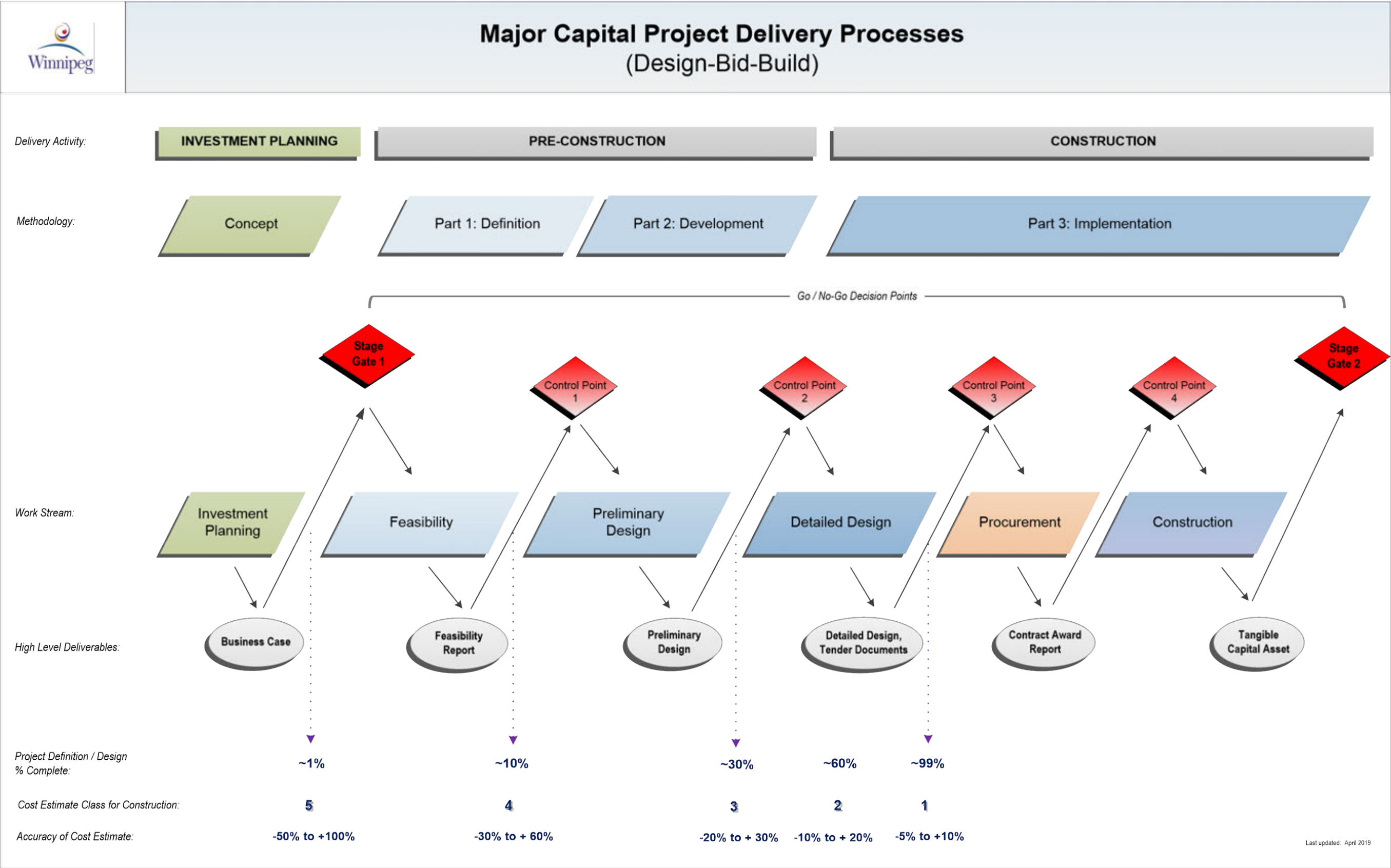
3.2 "Go/No-Go" Decision Points

Decision points act as go/no-go gates within the project delivery process. These are specific points within the Asset's lifecycle beyond which the project should not proceed without specific approval being obtained from appropriate approval body such as Project Sponsor, Business Owner, and/or Department Head. The approval bodies are identified during project planning.

A decision point during any stage of the asset's lifecycle is termed **Stage Gates**.

A decision point during any part of a large capital project is termed **Control Points**.

For Major Capital Projects, the approval body is pre-defined as either the Infrastructure Planning Office or the Major Capital Project Advisory Committee as outlined in the projects' Gating Strategy.

Below is a list of decision points along an Asset's Lifecycle from the Investment Planning stage through to the Project Delivery stage, and then proceeding through to the Operations & Maintenance stage of an asset's life.

Stage Gate #1 – Approval to Proceed with Feasibility

- The purpose is to confirm the robustness of the Business Case and accompanying Basis of Estimate.

Control Point #1 – Approval to Proceed with Preliminary Design

- The purpose is to review the potential for success and validate the expected project benefits

Control Point #2 – Approval to Proceed with Detailed Design

- The purpose is to review the preliminary design and validate the optimal solution that will be further developed during Detailed Design.

Control Point #3 – Approval to Proceed with Procurement

- The purpose is to review the tender documents and confirm the project will fulfill the stated objectives.

Control Point #4 – Approval to Contractual Commitment and Proceed with Construction

- The purpose is to review the readiness to award the construction contract and to ensure appropriate contractual monitoring is in place for construction activities.

Stage Gate #2 – Approval to Proceed to Operations & Maintenance Stage

- The purpose is to review the product, service or result's readiness for use and transition into the production environment.

For additional information on "Go/No-Go" Decision points, and applicable templates, refer to *PMM Appendix G: Gating Process.*

3.3   Part 1: Definition – Feasibility

Purpose

The purpose of the Feasibility work stream is to support a potentially beneficial business opportunity by identifying needs, evaluating a range of proposed solutions to meet those needs and recommending an optimized approach for achieving project objectives. Performing an initial analysis, that produces a high level scope and cost estimate, presents a baseline of information that will be used in determining whether the opportunity is worth further investigation and has a sound basis for on-going project development.

The Feasibility work stream is a requirement for all Major Capital Projects and is one separate project in and of itself. It is understood that in certain cases, the Feasibility and Preliminary Design work streams may happen in conjunction with each other. This is an acceptable practice with the expectation that all the required deliverables typically produced within the Feasibility and Preliminary work streams are reviewed and approved prior to entering the Detailed Design work stream.

Work Stream Progression

The Feasibility work stream may start only upon formal approval to pass through Stage Gate 1.

Projects cannot proceed beyond this point without the necessary approvals.

At the end of the Feasibility work stream the project definition and design must be at ~10% complete or better, and the cost estimate class for Construction should be a Class 4 or better, with the accuracy of the cost estimate between -30% to +60%.

At a high level the Feasibility process:

- develops the scope of work and determines resources(in-house or Consultant) needed to complete the feasibility work;

- helps the project lead to prepare and submit an Administrative Report which details all viable solutions and provides justification for choosing the recommended option;

- generates deliverables that shall be reviewed by the project lead in preparation for entry to Control Point #1[1] and once approval is granted to proceed, transition to the Preliminary Design work stream.

  [1] For Major Capital Projects, the Control Point #1 review is conducted by the Infrastructure Planning Office and will focus on specific review on deliverables such as, but not limited to:

  - *the updated Business Case and accompanying Basis of Estimate,*
  - *Feasibility Study and/or Functional Report*
  - *alignment with OurWinnipeg*
  - *alignment with Strategic and/or Master Plans*
  - *Secondary Plans, as applicable*
  - *alignment with Asset Management Plan*
  - *Administrative Report to Council and supporting documentation*

*For **Major Capital Projects,** the Administrative Report is presented to Council where a decision is made to select a preferred option or cancel any further analysis and/or approve the recommended Capital Budget for the Preliminary Design.*

Ensure that adequate time is allocated to the schedule to accommodate the Control Point #2 review and then process the Administrative Report to go through Agenda Management and be presented to Council for a decision.

High Level Deliverables

Feasibility work often involves a wide range of activities including but not limited to:

- preparation of feasibility studies comparing alternative routes for services and/or alternative methods of construction or materials, which may be appropriate and advantageous in terms of capital cost, land requirements, operating efficiency, or for environmental or energy conservation reasons;

- high level identification and valuation of land and potential sites;

- evaluations of existing facilities, including building envelope; mechanical, electrical and structural systems;

- environmental impact analysis, if required;

- the financial capability for the City to undertake the project, by identifying lifecycle cost projections: capital, operating, and maintenance costs and sources of revenues, including funds to offset capital and operating costs;

- market/demographic studies and forecast demand;

- functional programs, including general space requirements and functional relationships, to identify the scope of a project;

- functional programming/studies intended to define the needs of the user's based on strategic goals regardless of site limitations. Determine the compatibility of a functional program for a new facility with an existing or renovated building.

Feasibility Complete
Checklist
template
To be developed.

Recommend the use of the Feasibility Complete Checklist to guide the process on expected deliverables for the Feasibility work stream.

3.4 Part 2: Development – Preliminary Design

Purpose

The purpose of the Preliminary Design work stream is to further develop the general project details for the preferred option with a multi-disciplinary team of internal and external professionals.

Preliminary engineering refines and extends the analysis of the preferred option by eliminating uncertainties and critical flaws; and defining the scope of the project, including major project elements, pros and cons, and cost estimates of each option. This information supports the selection of a preferred option with strong consideration to budget constraints and departmental strategies/plans.

The Preliminary Design work stream is a requirement for all Major Capital Projects and is one separate project in and of itself. It is understood that in certain cases, the Feasibility and Preliminary Design work streams may happen in conjunction with each other. This is an acceptable practice with the expectation that all the required deliverables typically produced within the Feasibility and Preliminary Design work streams are reviewed and approved prior to entering the Detailed Design work stream.

Work Stream Progression

The Preliminary Design work stream may start only upon formal approval to pass through Control Point #1. Projects cannot proceed beyond this point without the necessary approvals.

At the end of the Preliminary Design work stream the project definition and design deliverables must be at ~30% complete or better, and the cost estimate class for Construction should be a Class 3 or better, with the accuracy of the cost estimate between -20% to +30%.

At a high level, the Preliminary Design process:

- has an emphasis on the design of the major components (i.e.: civil, mechanical, and architectural design);
- has conducted the required site investigations;
- has reviewed Lessons Learned from comparable past projects;
- considers innovative design solutions;
- has a sufficient number of drawings completed to communicate the design concepts that meet classification requirements;
- has updated costs and schedules that are compared to the originals to ensure that the project remains financially feasible;
- concludes with a preliminary design report prepared with drawings which outline all the disciplines, and the way in which they interrelate with each other and includes an outline of materials and equipment specifications which are then used as a basis to revise original cost estimates.
- helps the project lead to prepare and submit an Administrative Report which outlines initial design details and expected benefits for the recommended option. Generates deliverables that shall be reviewed by the project lead in preparation for entry to Control Point #2[2] and once granted approval to proceed, transition to the Detailed Design work stream.

    *[2] For **Major Capital Projects**, the Control Point #2 review is conducted by the Infrastructure Planning Office and will focus on specific review on deliverables such as, but not limited to:*

    - *the updated Business Case and accompanying Basis of Estimate,*
    - *Preliminary Design Report*
    - *alignment with OurWinnipeg*
    - *alignment with Strategic and/or Master Plans*
    - *Secondary Plans, as applicable*
    - *alignment with Asset Management Plan*
    - *Administrative Report to Council and supporting documentation*

    *For **Major Capital Projects,** the Administrative Report is presented to Council where a decision is made to approve the recommended Capital Budget ask for detailed design and construction.*

    Ensure that adequate time is allocated to the schedule to accommodate:

    - *Control Point #2 review, and then proceed to*
    - *Audit Department Estimate Classification Review (if required), and then process*
    - *the Administrative Report to go through Agenda Management and be presented to Council for a decision.*

High Level Deliverables

Preliminary Design work stream often involves a wide range of activities including but not limited to:

- existing components, systems and functional review;
- surface and subsurface site explorations, measurements, investigations, and surveys;
- compliance with codes and regulatory requirements;
- physical, economic (capital and operating), and environmental studies including evaluation, comparison, and recommendation of alternative preliminary designs;
- development and submission of a preliminary design engineering report and appropriate drawings/specifications documenting data gathered, explaining the assessment made, and stating the resulting conclusions; the report must contain all recommendations relevant to this stage of the project;

- anticipated project delivery method (for design and construction) including value for money analysis;

- completed environmental assessment, if required;

- documented the refined financial capability for the City to undertake the project, by identifying lifecycle cost projections: capital, operating, and maintenance costs and sources of revenues, including funds to offset capital and operating costs;

- meetings scheduled for design review or coordination with project team and Subject Matter Experts;

- list of applicable permits;

- risk analysis;

- preliminary schedule based upon information available during preliminary design;

- preliminary design drawings/specifications showing the proposed design and if applicable any alternates in sufficient detail to establish the design features of each approach and to permit a preliminary estimate to be made of the construction cost.

Preliminary Design Deliverables Complete Checklist template

To be developed.

Recommend the use of the Preliminary Design Deliverables Complete Checklist to guide the process on expected deliverables for the Preliminary Design work stream.

3.5 Part 3: Implementation – Detailed Design

Purpose

The purpose of the Detailed Design work stream is to refine and resolve any outstanding design for all major project components and produce detailed design drawings and specifications based on the selected option.

The Detailed Design work stream is a requirement for all Major Capital Projects and is one separate project along with the Procurement and Construction work streams. It is understood that in certain cases, the Detailed Design, Procurement and Construction work streams may be different projects depending on the complexity of the project. This is an acceptable practice with the expectation that all the required deliverables typically produced within these work streams are reviewed and approved prior to completion of the project.

Work Stream Progression

The Detailed Design work stream may start only upon formal approval to pass through Control Point #2. Projects cannot proceed beyond this point without the necessary approvals.

At the end of this Detailed Design work stream the project definition and design deliverables must be at ~ 99% complete, and the cost estimate class for Construction should be a Class 1, with the accuracy of the cost estimate between -5% to +10%.

At a high level, the Detailed Design process:

- is an iterative process taking the preliminary design, and refining the design to detailed design;

- allows for the details of the design to increase with each iteration, the number of assumptions to be reduced and certainty to increase;

- assembles information in preparation for tender documents;

- generates deliverables that shall be reviewed by the project lead in preparation for entry to Control Point #3[3] and once granted approval to proceed, transition to the Procurement work stream.

[3]For **Major Capital Projects**, the Control Point #3 review is conducted by the Major Capital Project Advisory Committee and will focus on specific review on deliverables such as, but not limited to:

- the Business Case and accompanying Basis of Estimate,

- *Preliminary Design Report*
- *Environmental Assessment, if required*
- *alignment with OurWinnipeg*
- *alignment with Strategic and/or Master Plans*
- *Secondary Plans, as applicable*
- *alignment with Asset Management Plan*

High Level Deliverables

Detailed Design often involves a wide range of activities including, but not limited to:

- ensuring the design meets the needs
- restudy and redesign work required to incorporate documented changes from the design
- modelling/simulations
- professionally sealed set of final drawings, specifications, and test plans, suitable for soliciting bids from contractors
- analyses of codes, regulations, health, safety, environmental, and other project factors that may impact the project
- management of risk, value, quality, cost, design and health and safety
- environmental assessment submitted and approved, if required
- coordination of all design elements and disciplines with other project features, such as utilities, furnished equipment, and portions of the project or related projects being designed by others
- meetings scheduled for design review or coordination with project team and Subject Matter Experts

Final Design
Deliverables Complete
Checklist
template
To be developed.

Recommend *the use of the Final Design Deliverables Complete Checklist to guide the process on expected deliverables for the Detailed Design work stream.*

3.6   Part 3: Implementation – Procurement

Purpose

The purpose of the Procurement work stream is to select and *engage* the right Contractor(s) who is best suited for the specific project.

The bidders should be provided with all the required information for the project, as well as the form of contract and all relevant project information gathered to date, as well as clear indication as to the value and cost criteria that are to be applied.

The tender process follows the City of Winnipeg Materials Management guidelines and should be transparent, *auditable* and *have sufficient information recorded to debrief unsuccessful bidders*.

It is understood that in certain cases, the Detailed Design, Procurement, and Construction work streams may be different projects depending on the complexity of the project. This is an acceptable practice with the expectation that all the required deliverables typically produced within these work streams are reviewed and approved prior to completion of the project.

Work Stream Progression

The Procurement work stream may start only upon formal approval to pass through Control Point #3. Projects cannot proceed beyond this point without the necessary approvals.

At a high level, the Procurement process follows the:

- bid preparation process

- bid solicitation process
- receipt of bids process
- bid approval process
- bid evaluation process
- award process;
- and generates deliverables that shall be reviewed by the project lead in preparation for entry to Control Point #4[4] and once approval is granted to proceed, transition to the Construction work stream.

  [4] For **Major Capital Projects**, the Control Point #4 review is conducted by the Major Capital Project Advisory Committee and will focus on specific review of the deliverable which is a final recommendation of award prior to bidder notification.

High Level Deliverables

Procurement often involves a wide range of activities including but not limited to:

- developing procurement statement of work
- capture procurement requirements
- verify procurement requirements
- create procurement documents
- manage change
- update procurement documents
- conduct procurements
- control procurements
- communicate with bidders and other stakeholders
- close procurements

The City maintains forms, documents and templates used in the procurement processes on a central website at winnipeg.ca/matmgt.

3.7 Part 3: Implementation – Construction

Purpose

The purpose of the Construction work stream is to physically produce the end product, service or result. This is where the elements of the detailed design are executed using the City's project management processes, procedures, tools and templates.

It is understood that in certain cases, the Detailed Design, Procurement and Construction work streams may be different projects and occur independently over a longer timeframe depending on the complexity and scope of the project. This is an acceptable practice with the expectation that all the required deliverables typically produced within these work streams are reviewed and approved prior to completion of the project.

Work Stream Progression

The Construction work stream may only start once the Award Process has been completed and the contract(s) are in place.

At the end of this Construction work stream the product, service or result should be delivered as outlined in the approved business case and transferred and/or commissioned and moved into the Operations and Maintenance stage of the asset's lifecycle.

At a high level, the Construction work stream process is:

- conducting pre-contract meeting;
- finalizing contractual arrangements;
- performing Health, Safety, Security and Environment management;
- monitoring design and construction;
- cost management;
- quality management;
- risk management;
- contractual claims and dispute management;
- preparation for commission, completion, transfer;
- implement commissioning;
- implement work completion;
- implement transfer;
- post-transfer activities;
- perform project close out and implement a means for tracking the benefits realized once in service;
- complete a projects lessons learned/project close out report;
- generates deliverables that shall be reviewed by the project lead in preparation for entry to Stage Gate #2[5] and once approval is granted to proceed, transition to the Operations and Maintenance stage of the asset's lifecycle.

[5] *For* **Major Capital Projects**, *the Stage Gate #2 review is conducted by the Major Capital Project Advisory Committee and will focus on specific review on deliverables such as, but not limited to:*

- *the Business Case and confirm benefits realization*
- *confirm alignment with Strategic and/or Master Plans*
- *Secondary Plans, as applicable*
- *Update asset data within the Asset Management Plan*

[]SECTION 3 – PROJECT DELIVERY FRAMEWORK

3.8   Project Delivery Framework

The goal of project delivery is to implement a project in accordance with its approved Business Case. Project delivery is carried out using a consistent framework that guides project planning and implementation. Project lifecycle phases for the framework are illustrated in Figure 3-2.

Figure 3-2. Project Delivery Framework: Project Phases

Project Lifecycle Phases:

Pre-Project Phase	This phase encompasses Strategic Planning, Investment Planning, and Budgeting.
	These processes must be completed before project initiation. However, considerations for project delivery are integrated concurrently during Business Case development.
Initiation Phase	This phase involves clearly defining the project from planning to delivery, and developing a Project Charter.
Planning Phase	This phase involves planning the delivery of the product, service, or result.
Execution Phase	In this phase, processes are completed whose outcome is a product, service, or result. Activities and deliverables can vary widely between projects, however, the following two sub-phases apply to all projects:
	Delivery sub-phase: Delivering the product, service, or result as per the Project Delivery Plan.
	Transfer sub-phase: Transferring the product, service, or result to the Business Owner.
Close-out Phase	As all projects have a defined life span, this phase defines the processes and activities that end the life of a project.

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Business Case

The Business Case is developed at the beginning of an investment lifecycle and maintained throughout the project's lifecycle. The Project Delivery Framework is tightly integrated with the Business Case and changes resulting from delivery are to be validated, and updated, in the Business Case.

The Business Case establishes the baseline for assessing the initial investment decision, project risk, issues, or changes. Assessment involves determining how the matter affects the viability of the investment objectives and benefits.

The milestone stages that include formal review of the Business Case during a project's lifecycle are shown in Figure 3–2.

- **Develop Business Case** – Acquire information required to make the investment decision. For more information, refer to the Investment Planning Manual.
  - **Validate**: Assess whether the project has a valid Business Case to proceed.
  - **Update**: Update the Business Case with more detailed information not available until the project has expended resources to produce, i.e. planning studies.
  - **Finalize**: Approve the investment to proceed or not based on the Business Case. Information in the Business Case needs to be at a Class 3 Level.
- **Maintain Business Case** – Continue to reference the Business Case in assessing project change control decisions and tracking quantified benefits until the product, service, or result is turned over to the Business Owner or operations (Care & Use Owner).
  - **Confirm Benefits**: Assess whether the intended benefits have been (or will be) realized; occurs primarily after the project is closed.

3.9 Project Delivery Framework Integration

Figure 3-3 shows how the themes, processes, and deliverables of the Project Delivery Framework are integrated. The primary components in the Project Delivery Framework are:

Component	Description
Project Phases	Project phases provide a high-level project delivery roadmap. They are typically sequential however project phases may overlap.
Phase Gates	Gates between project phases are logical points for reviews. Completion of a phase typically means completion of one or more deliverables. The phase gate review includes a status review and Business Case update to validate the benefits before authorization to continue to the next phase.
Project Management Themes	A theme is a concept or direction that is common to all the project phases and is progressively developed or consistently applied in each. For more information, refer to *PMM Section 3.10 Project Management Themes.*
Processes	Processes are at the core of project delivery, and identify what is to be done. PMBOK uses the process groups *initiating, planning, executing, monitoring and controlling,* and *closing.*
Project Phase Deliverables	In project phases, specific results referred to as "project phase deliverables and outputs" are achieved, and may then be used to manage the project and/or support delivery. For example, the Project Delivery Plan (PDP) is a project phase deliverable or output used for management throughout the project.
Product or Service Deliverables	The product, service, or result deliverables are the project's results. An Operations& Maintenance Manual and a new Transit garage are both product deliverables.

Figure 3-3. Project Delivery Framework Component Integration
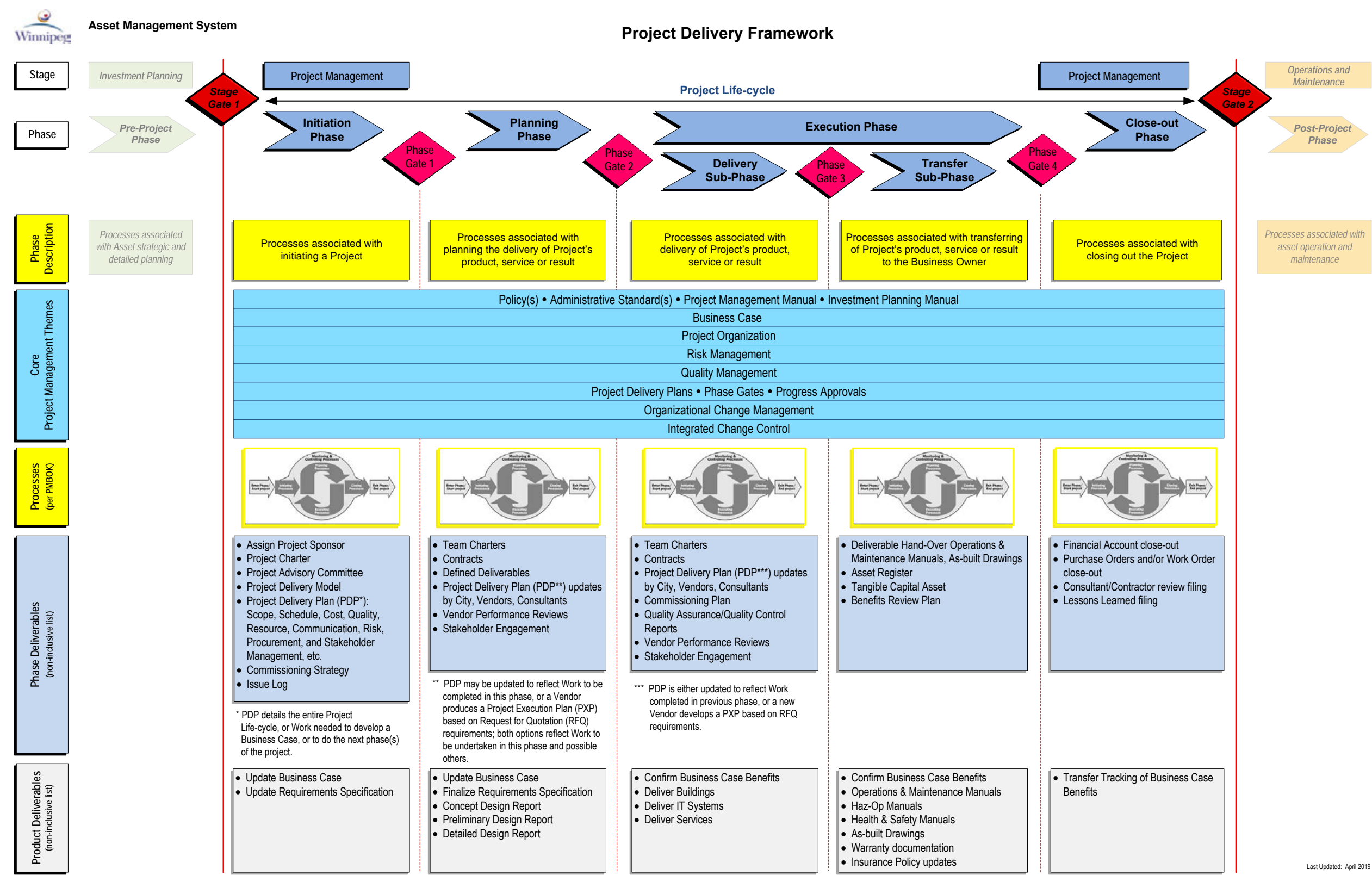
3.10 Project Management Themes

Themes describe aspects of project management that must continually be addressed. To various degrees, themes are applied across all project phases.

Table 3–1: *Project Management Framework Themes*, on the following pages, illustrates the Project Management Framework themes based on the PRINCE2 theme concept.

Table 3-1. Project Management Framework Themes

Project Management Framework Theme	Description	Question Answered	Project Management Manual Reference Section
Policy(s), Administrative Standard(s) and Manuals	Adhering to project governance identified in Polices, Administrative Standards and Manuals.	Who, What, Where, When and Why?	2.0 Project Management Governance
Business Case	Developing and managing the Business Case process that integrates with the project delivery process. How an idea with potential value for an organization is developed into a viable investment proposition, and how project management maintains the focus on the organization's objectives.	Why?	4.1 Acquire Project or Phase Approval 5.2 Plan Scope Management 7.1.1 Monitor and Control Scope 8.1 Update Business Case
Project Organization	Providing project organization by structuring the project human resources with defining roles, responsibilities and authorities. The Project Sponsor allocates work to Project Managers, which leads the project to completion. The project organization addresses the roles, responsibilities, and authority of the project management team and specific stakeholder.	Who?	5.6 Plan Procurement Management 5.7 Plan Communication Management 6.3 Manage Project Team 6.7 Manage Communications
Risk Management	Applying the risk management process throughout the project. Projects typically entail more risk than do stable operational activities. This theme addresses how project management manages the uncertainties in plans and in the wider project environment.	What if?	5.9 Plan Risk Management 7.4 Manage Risks
Quality Management	Providing formal Quality Management through quality assurance and quality control processes. Focuses on the quality attributes of not only the products, service, or result however also on the project management processes to ensure the product, service, or result is delivered as defined.	What?	5.5 Plan Quality Management 6.6 Manage Quality 7.1.4 Monitor and Control Quality

Project Management Framework Theme	Description	Question Answered	Project Management Manual Reference Section
Project Delivery Plans, Phase Gates and Progress Approval	Developing a process that identifies formal review and approve phase gates and reporting requirement. Projects proceed using a series of approved plans, which are the focus for communication and control. Addresses the ongoing viability of plans and is used to determine whether and how a project should proceed.	How? How much? When? Where are we now? Where are we going? Should we proceed?	4.1 Acquire Project or Phase Approval 5.0 Project Delivery Plan (entire section) 6.0 Project Execution 7.4 Report Performance 8.1 Update Business Case
Organizational Change Management	Providing a process to manage organizational change that is created with the initiation of a project and the ultimate delivery of the final product, service, or result.	Who?	1.9 Organizational Change Management
Integrated Change Control	Providing a change control process on how a change request is initiated, analyzed, logged, tracked, approved or rejected, and implemented to the Project Delivery Plan and related project control documents. How project management assesses and addresses issues that may affect project plans and completed products. Issues may be unanticipated general problems, requests for change, or instances of quality failure.	What's the impact?	5.8.5 Define Standard Project Performance Reports 7.0 Integrated Change Control (entire section)

Initiating Process Group

Project Management Manual Sections

Section 1: Introduction

Section 2: Project Management Governance

Section 3: Project Delivery Framework

Section 4: Initiating Process Group

Section 5: Planning Process Group

Section 6: Executing Process Group

Section 7: Monitoring and Controlling Process Group

Section 8: Closing Process Group

Section 9: Contract Administration

4   Initiating Process Group

Initiating is the first of the five project management process groups. Like all process groups, it applies to each phase of a project's lifecycle, from project initiation, planning, through to execution: and to close-out. The initiating process group process(es) define a new project or new phase of an existing project by obtaining authorization to start the project or phase.

The purpose of this process group is to align stakeholders' expectations and the project purpose, inform stakeholders of the project scope and objectives, and discuss how their participation in the project and its associated phases can help to ensure their expectations are met.[4]

As projects are divided into phases, information from processes in the Initiating Process Group are re-examined to determine if the information is still valid. Revisiting the initiating processes at the start of each phase helps keep the project focused on the business need that the project was undertaken to address.

Figure 4-1. Initiating Process Group
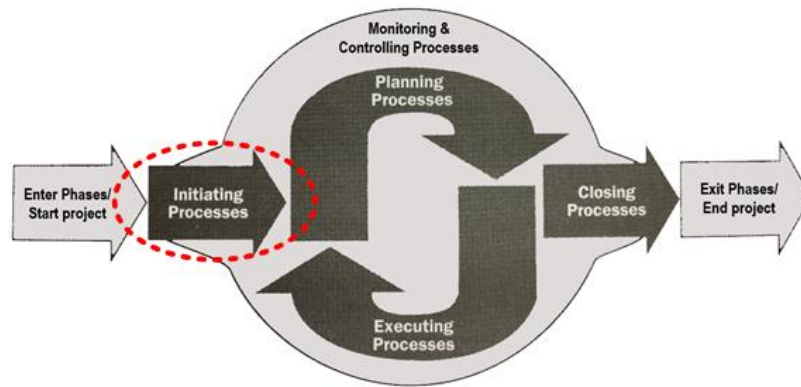
4.1   Acquire Project or Phase Approval

The Project Management Manual methodology includes the concept of phase approvals, with authorization from the previous project phase required prior to commencement of the subsequent phase. The process requires the Project Manager to summarize the prior phase outputs and deliverables and identify potential changes to delivery.

4.1.1   How to Acquire Phase Gate Approval

Project initiation phase begins with Council approval of the project, which normally coincides with the approval of the capital budget. In some instances, projects may be approved by Council in-year, by approval contained within an administrative report.

For subsequent project phases, the phase outcomes and deliverables are summarized by the Project Manager and then reviewed and approved by the Project Sponsor prior to proceeding to the next project phase.

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[4] Project Management Institute (2017). *A Guide to the Project Management Body of Knowledge,* Sixth Edition, p. 554

The phase gate approval will be considered on the basis of these deliverables being approved. In situations where the project is not meeting the Business Case objectives, the Project Sponsor may request that the Project Manager prepare a recovery plan to outline how to move the project back on track, prior to making the approval.

4.2 Identify Project Sponsor, Project Manager, and Other Key Stakeholders

Identifying the Project Sponsor and Project Manager is the first priority, since they will be responsible for project delivery. They will also execute the initiating processes including defining other key stakeholders.

4.2.1 Assign Project Sponsor

The Project Sponsor is the individual responsible to provide resources and support for delivery of the project, program or portfolio within the business unit delivering the project, and for enabling its success. The Project Sponsor must be at a level in the business unit to address the type of issues that will occur based on the magnitude of the project.

All projects must have a Project Sponsor.

The department responsible for the project budget is identified in the annual capital budget. The Department Head of that department is responsible for appointing a Project Sponsor. For example, if the capital budget identifies a Public Works budget account number for the project in the Capital Budget (#18XXXXXXX), the Director of Public Works is responsible for assigning a Project Sponsor to that project.

The Project Sponsor must be identified in the Project Charter and Team Charter, and their role and responsibilities must be defined in the Project Delivery Plan.

The Project Sponsor, at a minimum, is expected to maintain awareness of the project, its progress, its issues, and to be available for participation in decision-making and dispute Define Boundaries resolution.

For more information, refer to *PMM Section 5.7: Plan Resource Management* for details on the Project Organizational Structure and responsibilities and authorities of the role.

4.2.1.1 How to Select and Assign a Project Sponsor

The Department Head responsible for the project delivery organization selects a Project Sponsor appropriate for the magnitude of the project that is being delivered.

The Project Sponsor will:

- Be at a level within the business unit delivering the project to provide resources, break down barriers, and be the champion for the project.
- Provide the support necessary for the project to succeed and meet the Business Owner's requirements.

There are no specific rules for assigning the Project Sponsor.

The Project Sponsor's formal commitment to the project is confirmed through endorsement of the Project Charter.

4.2.2 Assign Project Manager

A Project Manager (PM) is required at the beginning of the project initiation phase and continues through to the project close-out phase. The organization assigns a Project Manager to deliver the project, with the expectation that the project objectives will be met, as defined in the Business Case.

The Project Manager must have the necessary technical and management skills and the qualifications to plan, manage, administer, coordinate, control, and report on the entire project lifecycle, and must have the competencies appropriate for the size and nature of the project.

Project risk implications, such as Project Manager workload, should also be considered in Project Manager selection, and, as with any risk areas, a risk response must be defined where warranted.

4.2.2.1   How to Select and Assign a Project Manager

The business unit is responsible to select a Project Manager, along with input from the Project Sponsor.

A Project Manager requires:

- knowledge of project management practices acquired through formal training
- experience on similar size and types of projects
- a track record of project management success
- proven leadership; planning, organizing, and communication skills

All of the above characteristics are useful in predicting good project performance.

Expectations for the City's technical or business participation must also be considered when selecting the Project Manager.

If the City will provide quality assurance, a Project Manager with knowledge of the product function, service, or operation will be an asset.

If the Vendor is responsible for the deliverable, however, a Project Manager's product knowledge may not be an asset and may in fact make it difficult for the Project Manager to abstain from contributing inappropriately.

The business unit's ability to commit the Project Manager's time fully to the project is critical – this ability must be ascertained before a Project Manager is selected.

4.2.3 **Assign Business Owner**

A Business Owner is the entity in the project organizational structure that accepts receipt (ownership) of the final product, service, and/or result (deliverables) of a project.

The Business Owner also known as Control & Use Owner of the Investment, which the project was created to deliver, and is a separate role in the Project Organizational Structure.

The Business Owner can be the Project Sponsor if the project is being initiated within the same business unit. Typically, however, the Business Owner is from a different division within the same City Department or even a different Department.

The Business Owner must be identified in the Project Charter and Team Charter, and their role and responsibilities must be defined in the Project Delivery Plan.

For more information, refer to *PMM Section 5.7 – Plan Resource Management* for details on the Project Organizational Structure and responsibilities and authorities of the role.

4.3   Determine Committee Requirements

The requirement for a project to form a committee will depend on both the level of risk and size of the project. The major objective is to expend additional resources where there is significant risk or large dollar amounts at stake.

The guidelines below were developed considering the impact on resources and cost benefit. As committees involve multiple individuals, there is a significant cost to the establishment of a formal committee(s).

In determining the required level of documentation for the project, the Project Manager will have made a determination as to both the project level of risk and project size. To determine project size and level of risk, refer to *PMM Section 1.5 – Program or Project.*

All projects that meet the major capital threshold, as defined in the Adopted Budget Capital Project Detail Volume 3 within the appendix Major Capital Projects, requires a Major Capital Project Advisory Committee as per FM-004 Asset Management Administrative Standard.

Table 4-1 shows a summary of a project's Committee requirements based on project size and level of risk.

Table 4-1. Summary Committee Requirements based on Project Size and Level of Risk

Project Size and/or Level of Risk	Committee Requirement
Major size project, $23 million[5] or greater	Major Capital Projects Advisory Committee is required. (FM-004 Asset Management Administrative Standard)
Large size project, High, Moderate or Low level of risk	Project Advisory Committee is required.
Medium size project, High or Moderate level of risk	Project Advisory Committee is required.

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[5] City of Winnipeg, 2019 Adopted Capital Budget, Volume 3

Table 4-2. Guidelines for Committee Requirements

		Project Size			
		Small	**Medium**	**Large**	**Major**
Project Level of Risk	**High**	Project Advisory Committee Recommended	Project Advisory Committee	Project Advisory Committee	Major Capital Project Advisory Committee
	Moderate	None	Project Advisory Committee Recommended	Project Advisory Committee	Major Capital Project Advisory Committee
	Low	None	None	Project Advisory Committee	Major Capital Project Advisory Committee
		Below $1.0 million	**$1.0 million to $4.99 million**	**$5.0 million to $22.99 million ***	**$23.0 million and above ***

*The Major Projects' capital budget lower range is set every year in the *Adopted Budget Capital Project Detail, Volume 3*, in Appendix Major Capital Projects. This limit is subject to change each budget cycle, and will impact the upper range for large size projects as well.

This table depicts ranges defined in the 2019 *Adopted Budget Capital Project Detail, Volume 3*, in Appendix Major Capital Projects.

4.3.1 How to Establish the Major Capital Project Advisory Committee

The process for establishing the Major Capital Project Advisory Committee is defined in FM-004 Asset Management Administrative Standard.

The department head for the control and use department is responsible for establishing the Major Capital Project Advisory Committee in accordance with FM-004 Asset Management Administrative Standard.

Due to the Senior Management representation on these committees, Major Capital Project Advisory Committees provide direction to Project Managers.

4.3.2 How to Establish a Project Advisory Committee

The department head for the department responsible for the project budget is responsible for establishing the Project Advisory Committee.

The Project Manager shall conduct the analysis as outlined in Table 4-2 above, to determine if there is a requirement for a Project Advisory Committee.

If there is a requirement for a Project Advisory Committee, the Project Manager shall advise the Project Sponsor of the requirement.

The Project Sponsor is the chairperson of the committee, and appoints a minimum of two other members of the committee.

For clarity, the Project Manager reports to the committee, and is not a member of the committee.

The Project Sponsor's appointment of committee members shall be approved by the Department Head responsible for the Project Budget.

Project Advisory Committees are advisory in nature and is not intended to give direction to the Project Manager on the project, only to provide an additional resource to the Project Manager, to aide in the successful delivery of the project.

4.4 Stakeholder Assessment

Stakeholder Assessment and Communication Plan template

Download from the City's Infrastructure Planning Office website

In addition to the major stakeholders already identified through the committees established above, and initially identified in the Business Case, all other individuals and organizations affected by the project or who have an interest in the project must be identified. Stakeholders are any group or representatives of a group who may be interested in providing input prior to a decision being made by the City. This may include: residents groups, businesses, special interest groups, community organizations, government agencies, and any other organization or representative of an organization interacting with the City.

It is important to identify the stakeholders early in the process and outline their interest and determine their level of participation, since the level of effort in interacting with stakeholders can vary widely, and in some cases, may be extensive. Comprehensive stakeholder assessment ensures that all perspectives are brought to the table. This improves the likelihood that a broad range of perspectives are addressed, that there is a positive attitude to decision outcomes, and that as a result it is less likely to result in changes to project scope, schedule and costs.

For the Winnipeg Public Service, the number and types of stakeholders may vary widely according to the project type. Stakeholders may include:

- Project Team members
- Internal employees
- Functional Managers
- Operations and maintenance
- Business Partners
- Regulators and other authorities
- Customers/Users
- Vendors
- Special Interest Groups
- Members of the Public
- Property Owners
- Utilities
- Biz Groups

4.4.1 How to Perform a Stakeholder Assessment

A stakeholder assessment shall be performed and documented in the Stakeholder Assessment and Communication Plan template, to identify and record stakeholder interests and expectations and to define their importance and influence on the project. This information is used to categorize stakeholders by potential impact on the project, and strategies shall be developed to minimize potential negative impacts and maximize positive impacts.

The stakeholder assessment is part of the project communication plan and public engagement plan. The stakeholder assessment guides how project communication will be managed. As well, the assessment will be used on any organizational change management activities occurring on the project and how public engagement activities are planned and executed.

For more information, refer to *PMM Section 5.8 – Plan Communication Management.*

4.4.2 Update the Stakeholder Assessment

The stakeholder assessment is updated as the project progresses since new stakeholders may be identified who were previously unknown. The communication plan is reviewed at the same intervals for the same reason.

New stakeholders and/or multiple parties not known at the outset of the project will require the communication plan to be updated.

4.5   Project Charter

Project Charter
template

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website

The Project Charter initiates the transition from the pre-project phase to project initiation phase. It formally authorizes the project to proceed and forms the agreement between the Project Manager and the Project Sponsor. It functions like a work-order by setting out the high-level expectations for delivery and commits the organization to providing the identified capital (and/or operating) budget, resources, and project support. The completed Project Charter provides a clear set of expectations for the Project Manager and is used to develop the Project Delivery Plan, which is the baseline for monitoring progress and performance.

The Project Charter is developed from existing information, which may be known at the initiation phase only at a high level.

At a minimum, the Project Charter should provide the following information:

- A project definition and estimated costs from the Business Case.
- The approved capital (and/or operating) budget and any anticipated commitments, allowances, and contingencies identified.

It is imperative that the Project Charter be endorsed by the Project Sponsor and the Project Manager. After this mutual agreement, the Project Charter provides the basis for the Project Manager to develop the Project Delivery Plan.

4.5.1   How to Develop the Project Charter

The following items should be included when available:

1. Project Description
2. Project Organization – governance, team structure, roles and responsibilities, facilities and resource, stakeholders
3. Project Scope – high level objectives, boundaries, milestones, deliverables, dependencies/synergies
4. Project Costs Estimate and Sources of Funding
5. Flexibility Matrix – Establish the order of priority for the project scope, budget and schedule
6. Risks and Opportunities
7. Public Engagement requirement

Even though the Project Charter is much less detailed than a Project Delivery Plan, it helps to use a similar structure for each, as the information in the Project Charter is carried forward to the Project Delivery Plan.

4.5.2   Endorse the Project Charter

The Project Charter provides the Project Sponsor's instructions for delivering the project to the Project Manager, whose skills and expertise are used to develop the details, carry out the work, and fulfil the Project Sponsor's expectations.

The Project Sponsor's endorsement of the Project Charter confirms the corporate/departmental expectations for the project and commits the resources needed for completion.

The Project Manager's endorsement of the Project Charter indicates understanding of the corporate expectations, the nature of the work, and the impediments to delivery, documented in the Project Charter (if any).

In many cases, the Project Manager will have prepared the Project Charter and thus be able to endorse it with confidence. If not, the Project Manager should be given time to review the Project Charter and potentially contribute to it, to increase the project's chance of success.

Prior to finalizing the Project Charter, the Project Charter should be compared to the Business Case to ensure that the benefits identified in the Business Case are still there.

4.6   Starting a New Phase of the Project

Prior to starting the next phase of the project, the following should be completed:

- ❑ Project Sponsor assigned
- ❑ Project Manager assigned
- ❑ Business Owner assigned
- ❑ Committee(s) (if required), appointed and established
- ❑ Project Charter – completed and signed by the Project Sponsor, and Project Manager. Depending on the project, the Project Charter may also be signed by Business Owner.
- ❑ Key Stakeholder Analysis.

Planning Process Group

Project Management Manual Sections

Section 1: Introduction

Section 2: Project Management Governance

Section 3: Project Delivery Framework

Section 4: Initiating Process Group

Section 5: Planning Process Group

Section 6: Executing Process Group

Section 7: Monitoring and Controlling Process Group

Section 8: Closing Process Group

Section 9: Contract Administration

5 Planning Process Group

Planning is the second of the five project management process groups. Planning is a critical component in Project Delivery. While improper planning is the number one reason for poor performance, high-quality planning is the most effective way to increase the chance of exceeding expectations.

The purpose of this process group is to establish the total scope of effort, define and refine the objectives, and develop the course of action required to attain those objectives.[6] These processes develop the Project Delivery Plan and the project documents used to manage the project.

The Project Delivery Plan is continually refined through progressive elaboration as more project information are collected and understood and by incorporating the changes that occur throughout the project lifecycle.

The Project Delivery Plan and its compendium of sub-plans that must be continually updated throughout the Execution and Close-out Phases and are used as the basis for monitoring and controlling the project.

Figure 5-1. Planning Process Group
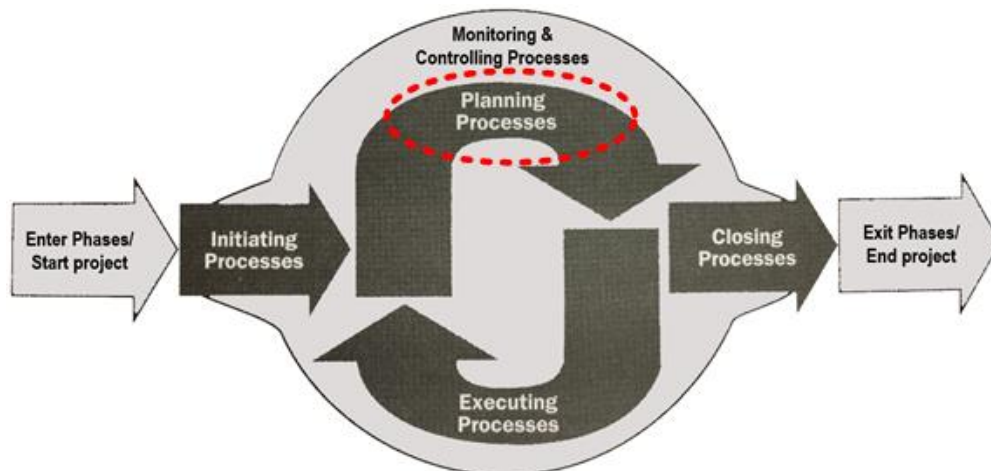
5.1 Develop Project Delivery Plan

Project Delivery Plan template

Download from the City's Infrastructure Planning Office website

The Project Delivery Plan (PDP) is a comprehensive document that describes how processes will be executed for a specific project management process in the delivery of a project. The PDP is a compendium of subsidiary plans based on the project management processes.

The initial Project Delivery Plan is where the Project Manager presents their project understanding and project delivery approach, to the Project Sponsor.

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[6] Project Management Institute (2017). *Guide to the Project Management Body of Knowledge,* Sixth Edition, p. 565

Project Management
Checklist
template

Download from the
City's Infrastructure
Planning Office
website

In reviewing and approving the Project Delivery Plan, the Project Sponsor accepts the project delivery approach and project resource requirements. The Project Sponsor may reject all or parts of a Project Delivery Plan and request revisions for better alignment of resources with the Business Case.

After approval, the Project Delivery Plan becomes the roadmap for executing, monitoring, controlling, and reporting on project work.

Use the Project Management Checklist tool to assist Project Managers by verifying whether everything required for a successful project has been considered and/or planned for.

5.1.1 Project Delivery Approach

The Project Delivery Plan applies to two project delivery approaches:

1. Consultant Delivered Projects:

    The Consultant has a sub-project within the City's project.

    The City's Project Delivery Plan defines the nature and extent of the Consultant's services; however, the Consultant provides the details of the product planning and associated Project Management in a Project Execution Plan (PXP), which complements the Project Delivery Plan (PDP);

2. In-House Delivered Projects:

    The Project Delivery Plan includes product planning and delivery details.

In either project delivery approach, the Project Delivery Plan encompasses the City's Project Planning.

5.1.2 Project Delivery Plan and Project Execution Plan Relationship

If the project is to be Consultant-delivered, the Consultant will develop a detailed Project Execution Plan (PXP) also known as Consultant Delivered Project Delivery Plan with a WBS, schedule, and task descriptions for their specified deliverables based on the Project Management Manual.

The City's Project Delivery Plan will identify the Consultant's deliverables (i.e.: Preliminary Design Report), the City's deliverables and tasks associated with each Consultant deliverable, for example, Consultant contract (deliverable) – soliciting, awarding, and contract administration (activities).

5.1.3 How to Prepare a Project Delivery Plan

The Project Delivery Plan describes how project management processes will be executed for a specific process and provides the Project Manager, Project Sponsor, Project Delivery Team, and stakeholders a common understanding of the work plan and planning requirements throughout the project.

Project Managers have two choices to describe the project management processes right within the Project Delivery Plan template or to describe them in a separate subsidiary plan document.

The Project Delivery Plan is articulated by developing project specific, detailed processes, based on the following processes, listed below:

- Scope Management
- Requirements Management (future to be developed)
- Schedule Management (including identification of the critical path)

- Cost Management (budget and cost per deliverable)
- Quality Management
- Resource Management (human & other material resources)
- Communications Management (Public Engagement)
- Risk Management
- Issue Management
- Procurement Management
- Change Control Management (integrated change control)
- Issue Management
- Health, Safety, Security, and Environment (HSSE) Management
- Commission
- Close-out

The Project Delivery Plan provides the baselines that are used for monitoring and controlling the project.

5.2 Plan Scope Management

Scope is an important aspect in project management, as without scope being defined, it is difficult to estimate cost or time required to complete the project.

Scope management documents how the project scope will be defined, validated and controlled throughout the project.

5.2.1 Plan Requirements Management (future to be developed)

5.2.2 Define Scope

Scope Management is the collection of processes used to ensure that the project includes all the tasks required to complete the project while excluding all work which is out of scope. The Scope Management Plan details how the project scope will be defined, developed, monitored, controlled and validated.

The Project Manager is responsible for developing details of the scope defined in the Business Case and Project Charter. As noted in *PMM Section 4.5 – Project Charter*, the Project Charter describes the product, service, or result to be delivered, and may identify key project objectives and deliverables. Further project development includes identification of the project delivery approach, project implementation phases, and support service requirements.

All project definitions begin with a scope statement. The scope statement is an overview that describes the project and its product, service, or result. It provides a common understanding of what is included and what is not included in the project.

5.2.2.1   How to Develop a Scope Statement

The Project Sponsor, Project Advisory Committee (if applicable), and other relevant stakeholders should be involved in developing the scope statement. Often the author of the Business Case and members of the Project Delivery Team contribute to or are involved, to at least review the draft scope statement.

Since the sole purpose of the project is to meet the needs expressed in the Business Case, the scope statement must be consistent with the Business Case.

The scope statement should be a narrative describing the scope and its deliverables, cost and time elements of the project, and should provide any needed clarifications, including out-of-scope work or deliverables, constraints, assumptions and acceptance criteria.

The scope statement must have sufficient detail and clarity to be used as a metric for performance reporting. It is usually based on levels of service and defined in terms of products or services.

If the deliverables change during the project, a review using the change control process is warranted.

5.2.3 Plan Work

Planning work involves development of a number of project management and product work plans for a defined scope. The work plan is a collection of all the project components, arranged according to a Work Breakdown Structure (WBS).

The work planning process requires hands-on effort by the Project Manager, expert judgement and preferably with input from an experienced team.

A commonly used project planning tool is Microsoft Project. The intent is for Microsoft Project to be applied to PMBOK-based project management processes and procedures. In general, this can occur seamlessly. However, one of the cases where Microsoft Project cannot be modified to match terminology from PMBOK is with the use of the term task.

For Microsoft Project, the task can refer to phases or deliverables or work packages. Each phase can be broken down to deliverables, a deliverable to work packages, etc.

The tasks or activity for each deliverable will have:

1. a work description which defines the effort required for specific outcomes or deliverables;

2. resources (people and time) required; and

3. a schedule.

Each of these three parts is essential for effective planning, monitoring, and controlling of projects. A change to any one of these will result in a change in one or both of the others. The three parts are integrated in the project management approach shown in Figure 5-2.

Figure 5-2. Task Components Integrated into the Project Management Approach
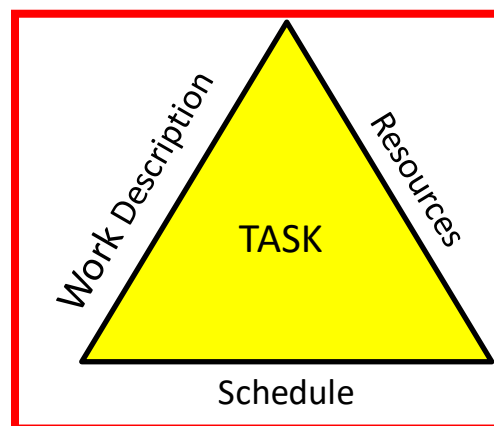
5.2.4 Work Breakdown Structure

The Work Breakdown Structure (WBS) is a deliverable-oriented representation of the work. It presents a hierarchal view of the project comprising the total project as defined in the scope statement. The WBS subdivides the project into smaller packages for effective planning, management and delivery of the work. It defines, in explicit terms, what deliverables the customer/stakeholder will receive when the project is completed and also the specific project deliverables that are produced for the project itself, for example, a Project Delivery Plan.

All projects require a Work Breakdown Structure.

Creating a WBS is the process of sub-dividing the deliverables and project work into increasingly smaller and more manageable components. Work packages are at the lowest level and are defined such that they can be scheduled, estimated, monitored and controlled.

The WBS provides the formal record of deliverables and associated costs. Deliverables for a project are fixed and can only be changed through the change control process. Activities, on the other hand, are what is required to produce the deliverables; and, within limits, can change during the delivery of the work.

Various layouts are commonly used for the WBS. Selecting a WBS layout depends on the type and nature of the project, with the level of detail being based on the complexity of the project.

The Project Management Manual structure for project delivery aligns with the Project Delivery Framework as presented in the "Deliver a Capital Project" example in Figure 5-3: *WBS Tree Structure organized by Project Phases,* which is for a typical Design-Bid-Build (DBB) project. It includes a series of levels, starting from the top and cascading down.

- Top level is the project
- Next level down is project phases
- Next level down is specific project or product deliverables
- Next level down is work packages at the lowest level

The example has been prepared for illustration and explanation purposes; it is not intended to be complete, and the illustration includes features not normally shown on a WBS:

- Swim lanes for levels and the vertical bars for project phases are included for clarity
- The deliverables are shown in a vertical orientation to accommodate the page size
- The activities are not detailed, however, and just shown as placeholders

Figure 5-3. WBS Tree Structure organized by Project Phases
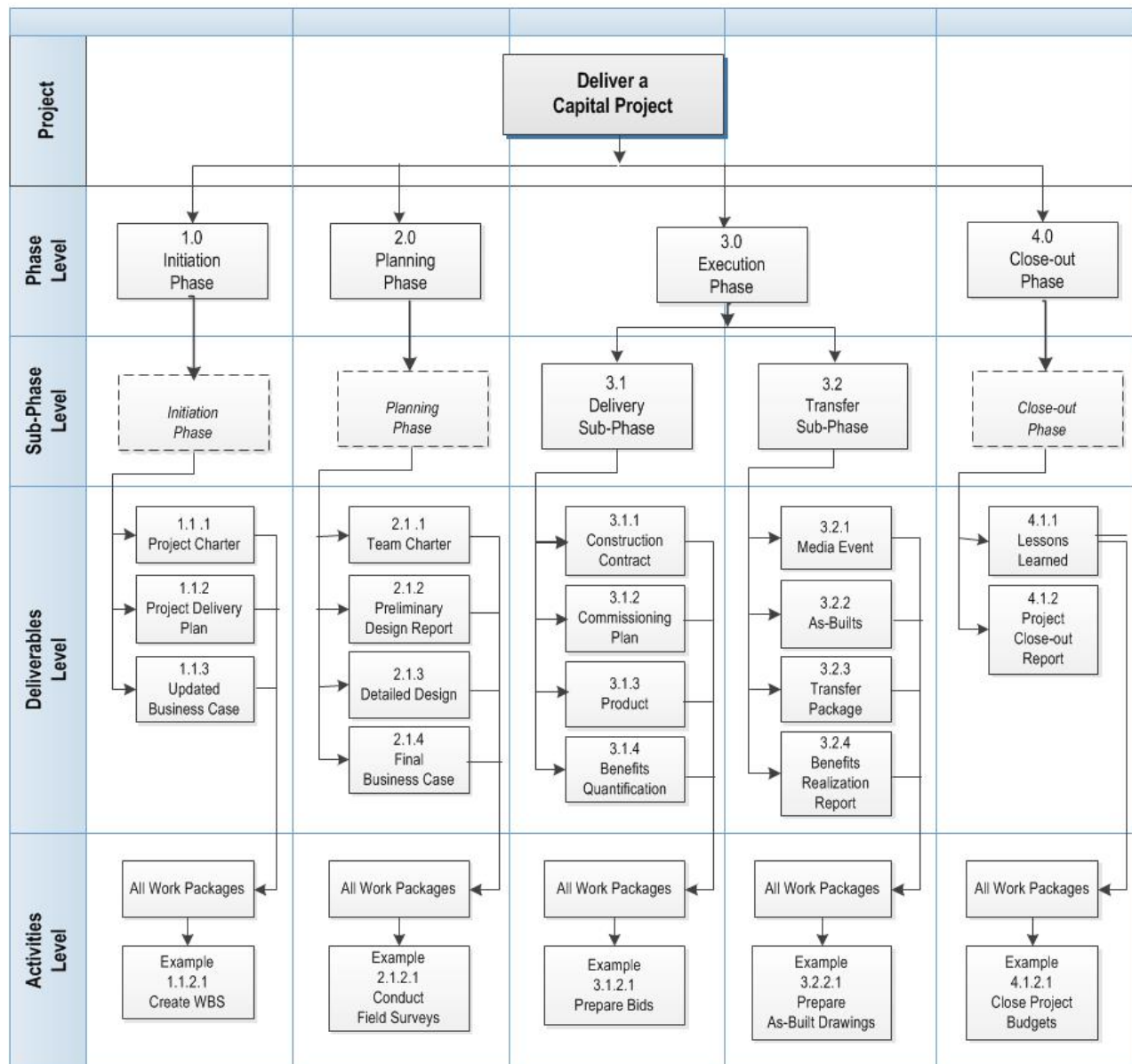
5.2.4.1   Levels of a Work Breakdown Structure

Table 5-1. Work Breakdown Structure levels

Level	Description
Project	The top-level of the WBS is the project itself; often referred to as Level 0.
Phase	The level immediately below the Project is the project phases, often referred to as Level 1. The Project Delivery Framework includes four top-level project phases.
Sub-Phase	The execution phase for the Project Delivery Framework is further subdivided into two sub-phases. The actual number of phases and sub-phases in the WBS will depend on the project requirements. • The use of phases and sub-phases must also be accommodated by phase gates. • In some cases, additional sub-phases may be required for intermediate cost estimates, project reviews and decision-making. • For more information, refer to *PMM Section 5.2.4.4 – How to Select Delivery Sub-phases.*
Deliverables	The deliverables level must include all project and product/service deliverables. • The deliverables must be tangible items that can be quantified when delivered; and should not be task activities. • The degree of breakdown and size of the end packages may vary by project size and type. • More than one level of deliverables may be used. That is, a large deliverable may be broken down into more deliverables. • It is critical to ensure that all deliverables are included.
Activities	The activities are not known for each deliverable at the early stages of the project, and therefore are not included, unless they are known at this stage. The activities are the detailed steps necessary to complete the deliverable as defined. The activities may be in terms of the work to be done for the deliverables, or in terms of defined work packages. All activities must roll up into a deliverable.

5.2.4.2   Rolling Wave Planning Technique

The refinement of the work breakdown structure occurs progressively in each phase, which is known as the Rolling Wave Planning technique.

In the example, the Consultant and Contract sub-projects have been included at the highest level in the early stages of the project and will be broken down into more refined deliverables and activities as the project progress.

The Rolling Wave Planning technique often results in the earlier phase WBS having less detail than the WBS in the later phases, specifically at the activity level. An important design principle for work breakdown structures is called the **100** percent rule.

The **100 percent rule** states that the WBS includes **100 percent** of the work defined by the project scope and captures all deliverables – internal, external, interim – in terms of the work to be completed, including project management.

The **100** percent rule applies to each phase and level of the WBS:

- Each level of the WBS must include all of the work.
- Each of the levels in a project phase must include all the deliverables necessary to complete the project.
- With reference to Figure 5-3*: WBS Tree Structure organized by Project Phases*, just as the top-level encompasses the entire project, so does every level below it.
- Because of the 100 percent rule, the total project cost at the top-level will be equal to the sum of the phases, the sum of the deliverables, and the sum of the activities. This allows the WBS to be either broken down or rolled-up by each phase to any selected level.

The WBS is a building-block for further project definition. It provides the structure for developing the basis of estimate and the schedule.

5.2.4.3   How to Create a Work Breakdown Structure

A Work Breakdown Structure is developed by subdividing the work described in the scope statement into successively smaller components (deliverables) until each is in a manageable work package.

To develop a WBS:

1. **Identify deliverables.**

   The WBS is a deliverable-oriented representation of the work, and must encompass all project and product deliverables.

   The first step is to identify and analyze the project and product deliverables and related work, and then determine what activities are needed. The project management deliverables will be defined in the Project Delivery Plan and tailored for the project. These include tangible deliverables such as the Project Delivery Plan itself. The Project Delivery Plan may be further broken-down into its components such as the Project Charter, risk assessment, requirements specification, etc., or they may be included as part of the Project Delivery Plan.

   The **critical** requirement is that **all deliverables** must be **included**. The deliverables must also include the main product deliverables which may be capital assets, a result, or a service, and will be known from the Project Charter and scope statement. For the first version of the WBS, these may be defined at a high level and later broken down to greater levels of detail through the Rolling Wave Planning technique process.

2. **Create the WBS structure.**

   The WBS is to be organized in a tree structure as illustrated in Figure 5-3: *WBS Tree Structure organized by Project Phases.* Use of the tree structure permits the lower levels to be rolled up to the higher levels with the complete roll-up encompassing the entire project.

   The project title is placed at the top level, with the project phases (initiation, planning, execution, and close-out) as defined in Figure 3-2: *Project Delivery Framework: Project Phases* Figure 5-3 on the second level. The subsequent phases will depend on the project requirements, and may be subdivided into the two standard project phases on the third level (delivery, and transfer) or even further.

   Project-specific deliverables are to be included under each project phase or branch of the tree. The level of detail for deliverables must be selected to suit the project size and complexity. For large projects, there may be two or more levels for deliverables with increasing levels of detail.

   It is **critica**l that the deliverables be defined as tangible products, services, or results that will be created or produced by the project; not work activities or effort to produce them. As a result, the deliverables are always defined as a noun.

   The activities taken to create or produce the deliverables are included in the WBS level below the deliverables. They are defined as the direct activities needed to produce the deliverables, or are work packages describing a sequence of actions or steps to produce the deliverables. The activities must all roll up into the deliverables.

3. **Defining Work Packages.**

   The extent of the work breakdown for the activities depends on the granularity required for delivery and management of the project.

   As a guide, a work package is deemed small enough when it can be estimated for work effort, cost, and time.

   The breakdown should not proceed to the point where it becomes overly restrictive or causes excessive effort to manage.

4. **Identify WBS names and WBS codes.**

   An outline naming and numbering scheme is required for the WBS.

   For WBS numbering, the project level is typically considered to be Level 0 with the subordinate levels numbered sequentially.

Note: In Microsoft Project there are two options: Outline numbers or WBS codes.

The WBS structure can be listed in an outline view as shown in Table 5-2. This results in the complete WBS sequenced by phase.

The outline view for the WBS is the most useful and practical method of presenting the WBS. While the tree approach provides a good illustration, it is not easy to integrate with the WBS dictionary, schedule, and resource matrix.

Table 5-2. Example WBS Outline View for Deliver a Capital Project

Project	Deliver a Capital Project
1.0	**Initiation Phase**
1.1	Initiation Phase (intentional duplicate)
1.1.1	Project Charter
1.1.1.1	*Develop Project Charter*
1.1.1.2	*Endorse Project Charter*
1.1.2	Initiation Phase Closure
1.1.3	Updated Business Case
1.1.3.1	*Update Business Case*
1.1.3.2	*Acquire Phase Approval*
2.0	**Planning Phase**
2.1	Planning Phase (intentional duplicate)
2.1.1	Project Delivery Plan
2.1.2.1	*Define Scope*
2.1.2.2	*Create WBS*
2.1.2.3	*Determine Budget*
2.1.2.4	*Prepare Schedule*
2.1.2.5	*Plan Procurements*
2.1.2.6	*Plan Communications*
2.1.2.7	*Approve Project Delivery Plan*
2.1.3	Updated Business Case
2.1.3.1	*Update Business Case*
2.1.3.2	*Acquire Phase Approval*
....	....etc.
3.0	**Execution Phase**
3.1	Delivery Sub-phase
...	...etc.
4.0	**Close-out Phase**
...	...etc.

The outline numbering can be structured to best facilitate execution of the project.

If Microsoft Project is to be used, it is desirable to assign the items in each WBS level at the same hierarchy in the numbering. By doing this, similar types of information will be displayed when sorting by outline levels in the software.

For the above example this would require the insertion of item "1.1 Initiation Phase" which would be a placeholder and a repetition of the Initiation Phase item.

5.2.4.4   How to Select Delivery Sub-phases

The standard project phases may be subdivided to accommodate complex projects.

These sub-phases may be used to identify discrete review points (phase gates). A common practice is to provide cost estimates and technical review of products at the end of these various phases.

5.2.5 Develop a Work Breakdown Structure Dictionary

The Work Breakdown Structure Dictionary is an output of the created WBS process. It is a document or spreadsheet that provides more detailed descriptions of the WBS components, including work packages and control accounts. The descriptions support development of the delivery schedule and estimation of the resources required to complete the work.

5.2.5.1 How to Develop a WBS Dictionary

The WBS Dictionary should be developed based on the project complexity. An example WBS Dictionary is provided in Table 5-3.

The information must include the WBS name, deliverable number, and the WBS code so that it can be related back to the schedule and budget. Additional information as determined by the Project Manager may be included or referenced.

Table 5-3. WBS Dictionary example

WBS Dictionary	
Project Name: Deliver a Capital Project	
Deliverable: 1.1.1 Project Charter	
Work Package ID: 1.1.1.1	**Account Code:** XX-XXXXXX
Work Package Name: Develop Project Charter	
Description of Work: Develop a Project Charter based on PMM procedure Section 4.3.1.1	
Assumptions:	
Assigned to:	**Date assigned:**
Estimated cost:	**Due Date:**
Resources:	

5.3 Plan Schedule Management

Scheduling is one of the three integrated project components, as shown in Figure 5-2. Every project must have at least one schedule.

The schedule, developed by the Project Manager at the outset of the project and reported in the Project Delivery Plan (PDP), is the master schedule for the entire delivery chain and encompasses all the project components whether in detail or rolled up. The schedule must commence from the date the Project Charter is approved and continue to the end of the Project Close-out phase. There may be multiple sub-schedules within the overall master schedule for delivery of various components, with the level of detail depending on the purpose of the schedule.

The schedule, prepared with the Project Delivery Plan as well as schedules incorporated into consulting and construction contracts are the baselines for monitoring and control. Project progress is measured against these schedules, and these schedules can only be revised through a formal authorization through the change control process.

The standard schedule format is the Gantt chart. Microsoft Project is the City's de facto scheduling tool. This tool, along with others on the market, provide many useful features, such as resource-loaded schedules that can be developed with unit rates for labour and material, and can be used for load levelling, critical path management, tracking, and progress reporting.

A Critical Path Method (CPM) schedule is another type of schedule often used on complex projects. The CPM provides a method for finding the series of interdependent tasks that, if carried out in a particular sequence, will result in the shortest time the project can be completed. These tasks are then defined to be critical and delays to any of them will extend the project duration. The CPM is a useful tool under some circumstances for specific projects.

5.3.1 GANTT Chart Schedule

The Gantt Chart is the basic schedule used on most projects. It provides a graphic display of schedule information with bars representing work durations on a timeline for a series of activities. An example Microsoft Project Gantt Chart is provided in Figure 5-4 for the first few components of the Work Breakdown Structure (WBS) previously presented.

5.3.1.1 How to Develop a Gantt Chart Schedule

The Gantt Chart schedule is developed by:

1. **Sequencing the WBS Activities:** The logical relationships between the activities must be identified. Most projects will have relationships where one activity cannot commence until a previous one has been completed, or where one activity must follow another one.

2. **Defining Project Milestones:** A milestone is a significant point or event in the project, this may be a completion date, required in-service date, contractual date, or a combination of dates.

3. **Estimating Activity Resources and Durations:** The activity durations and material delivery times must be identified and considered in scheduling. The activity durations will depend on the resources available and level of effort, and is closely tied to the process of creating a Project Team.

4. **Developing the Schedule:** This is the process of analyzing the inputs and creating a schedule. This is often an iterative process until the best fit is achieved. Scheduling software, such as Microsoft Project, provides a valuable tool for this process.

Figure 5-4. Example Microsoft Project Gantt Chart
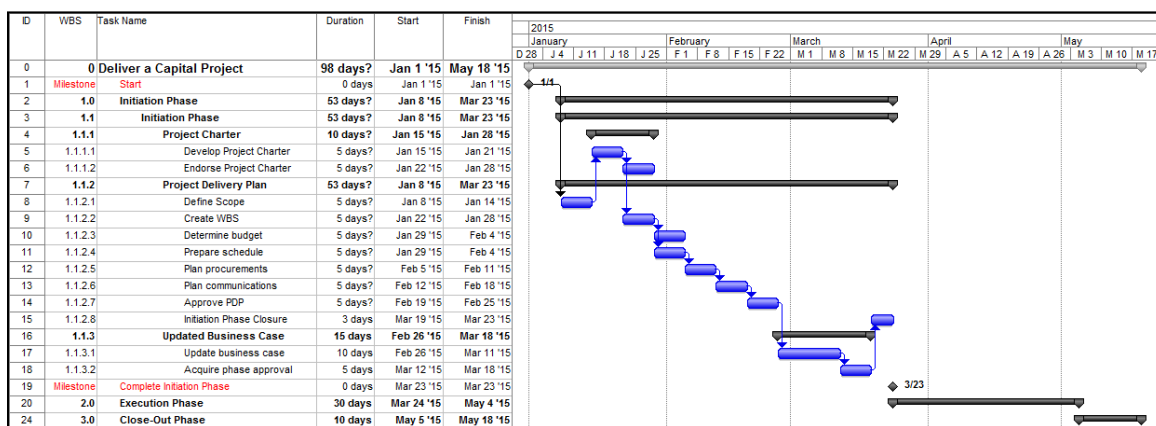
The Microsoft Project example schedule, shown above, is based on the Work Breakdown Structure (WBS) in Figure 5-3: *WBS Tree Structure organized by Project Phases* and includes the following:

- The WBS outline numbering has been included on the schedule, and provides a cross-reference for all WBS components. The third level defines the deliverables and the fourth level defines the activities.

- Microsoft Project has user defined calendars, and the Gantt chart time-scale can be adjusted as desired.

- The Gantt chart includes a summary task "*Deliver a Capital Project"* at the first line, this is the project title, and defines the total project duration. If labour hours, resources and costs are included within, the tool the will also be rolled up in the summary task. The entire duration for the summary task is calculated from individual tasks beneath it.

- The Gantt chart shows selected outline levels; the third and fourth levels for the Execution Phase are hidden, as well as the second, third and fourth for the Close-out phase.

- Work is only assigned to activities (fourth-level tasks on the chart); higher level tasks only provide summaries.

- A series of finish-to-start links have been included (the preceding task must be completed before the next task commences); links can be modified as needed. Other relationships that can be used are start-to-start, start-to-finish, and finish-to-finish, or none at all, with only fixed dates specified. The resulting schedule includes a number of work packages being carried out concurrently and a number sequentially.

- Milestones have been inserted at the start and end of the Initiation Phase, and the activities have been sized to fit within the timeframe. The milestones are of 0 duration (days) and they are represented as filled-up diamonds. Note that milestones need not be of zero duration. Though a milestone is not needed while creating a WBS, it is a good idea to have.

- Microsoft Project is a very useful tool with a number of additional features not mentioned in the preceding example, including tracking and reporting capabilities.

5.4 Plan Cost Management

Plan Cost Management defines how the project costs will be estimated, budgeted, managed and monitored and controlled throughout the project lifecycle.

5.4.1 Estimate Costs

Estimating costs is the process of developing an approximate value of the monetary value needed to complete the project component. The initial cost estimate is provided from the Business Case, developed in the pre-project phase and updated by the Project Manager based on development of the Project Delivery Plan. As the project proceeds and additional information becomes available, the Project Manager will also be responsible for developing, updating, compiling and reporting a number of intermediate cost estimate updates at different phases of the project for input to approval processes.

The cost estimate accuracy increases through the project lifecycle as the information on the product becomes more defined. At the early stages of a project, the level of accuracy is the least and the cost uncertainty is the highest. The cost estimate classification system endeavours to improve communication amongst stakeholders and reduce the misunderstanding of what they represent.

5.4.1.1 How to Classify Costs

The City has adopted the *Association for the Advancement of Cost Engineering* (AACE International) cost estimate classification system as the de facto standard. This cost estimate classification system has reasonably broad acceptance within engineering and construction communities.

Within the cost estimate classification system, the cost estimating accuracy is based on the primary characteristic of the maturity level of project definition deliverables.

The levels of project definition used correspond to the typical parts or phases of a project and their corresponding approval gates or control points.

The primary characteristic used to define the classification category is the level of project definition. A countdown approach using five estimate classes is used, labeled Class 5 through Class 1, with Class 5 being the lowest level of project definition, and Class 1 being the close to complete project definition, thus considering that estimating is a process whereby cost estimates are successively refined down to the point where a final estimate with complete project definition is achieved.

The cost estimate classification system relates a level of accuracy to the cost estimate expressed as an over or under (+/-) percentage that decreases in value as the project progresses.

At a Class 5 cost estimate, with an accuracy of +100/-50 percent means that the real value could reasonably end up being:

- as high as double
  (i.e.: 100 percent of initial + 100 percent of increase = 200 percent of initial),

  or

- as low as half of the expected value.

As an example, a cost estimate of $500,000 could be as high as $1,000,000 or as low as $250,000. Unlike contingency, the accuracy estimate is not added to the estimate however is used to demonstrate the potential range. It is also a factor for consideration in setting the contingency allowance.

Application of the Cost Estimate Classification system to the Project Delivery Framework is shown in Figure 5–5. At the pre-project phase, the cost estimates are likely to be a Class 5 cost estimate; and with the progressive refinement of project scope, the accuracy of the cost estimate increases as the project proceeds.

Figure 5-5. Cost Estimate Classification System applied to Project Delivery Framework

Cost Estimate Classification

Cost Estimate Class*	Project Definition	Project Definition/ Design % Complete	Accuracy of Cost Estimate
Class 5	Concept Screening, Rough Order of Magnitude Estimate	~1%	-50% to +100%
Class 4	Feasibility	~10%	-30% to +60%
Class 3	Preliminary Design (for Budget Authorization)	~30%	-20% to +30%
Class 2	Detailed Design in progress	~60%	-10% to +20%
Class 1	Detailed Design Documentation Complete, Pre-Tender Estimate	~99%	-5% to +10%
Scalable	Project/Program scope can be adjusted to fit the Budget	N/A	N/A

Cost Estimate Class Descriptions

Class 5	Rough estimate prepared based on very limited information. Used to make an assessment of initial viability and for long range capital planning.
Class 4	Estimates prepared based on limited information with some engineering work completed and preliminary scope determination.
Class 3**	Estimates based on completed preliminary design documentation. This Class 3 estimate will form the basis for budget authorization and set initial control estimate against which project deliverables will be measured (i.e. on budget).
Class 2	Estimates prepared in progressive detail from a Class 3 and are used to establish a contract value against which decisions can be made to revise the scope of the project and manage risk at a specific milestone in the design development.
Class 1	Pre-tender estimates prepared based on completed detailed design documentation (i.e. drawings, plans, specifications, etc.) as well as complete project delivery plans.
Scalable	Scalable projects/programs will be sized according to the final budget authorization.

* Determined using the AACE International Recommended Practices 17R-97, 18R-97 & 56R-08

** City Auditor has recommended that a Class 3 estimate be prepared one year in advance of construction

5.4.1.2 How to Estimate Costs

Cost estimates are required for each component of the project.

A Basis of Estimate (BoE) template is used to standardize how estimates are developed and presented.

The work breakdown structure (WBS) provides the structure for cost estimates. All costs must relate to specific deliverables in the WBS. A well-developed WBS with all deliverables identified and activities defined for their delivery, provides the basis for the project and product costs.

5.4.1.3 Project Management Costs

Project management costs are those associated with running the project. Costs are developed through bottom-up estimating for each deliverable detailed in the WBS.

The resource matrix which relates the number of hours for each individual and their billing rate to the tasks is used for this purpose. It includes a table with resources and their estimated time commitments for each task.

The project management cost estimating process takes the following steps:

1. Assign a labour rate to each individual, including a percentage for benefits (~2014-19 percent).
2. Multiply the labour rate by the number of task hours for each individual.
3. Total the values for the entire project.
4. Add any additional project expenses for materials, equipment, and incidentals.

The task costs then may be rolled up from the deliverables to higher levels of the WBS. Rolling the costs up to the top-level for every deliverable provides the total cost for the project.

A number of internal services and expenses identified in the Project Delivery Plan may not be allocated to the project budget. These may include internal support employees' time, office overhead, etc., or, in some cases, the Project Manager time may even be allocated to a non-project budget. While it is important to identify them, they must be considered separately for comparing the cost estimates with the budget.

In the future, the City may track and record all capital-project-related costs; however, this system is not yet defined.

5.4.1.4 Land Acquisition and Expropriation Costs

Land Acquisition and Expropriation costs are the costs associated with acquiring property (residential, commercial, industrial or vacant) for a particular project. This can include full takings, partial takings, easements (including right of way), corner cuts, land improvement costs and the associated administration costs.

The City's Real Estate Branch acquires land through two methods:

1. Purchase and Sale: a mutual agreement is made between the City and the landowner.
2. Expropriation: the City takes the land without the consent of the landowner.

The City prefers to acquire private property by way of purchase and sale but in some cases where a mutual agreement is not possible the City may need to acquire private property through expropriation. The City of Winnipeg Charter allows City Council to expropriate private property in accordance with the Expropriation Act, which outlines the city's requirements and responsibilities during an expropriation, as well as a property owner's rights.

Project land acquisition can be a significant risk to a project and is an important project cost. For more information, refer to FM-004 Asset Management Administrative Standard's appendix titled Land Acquisitions and Expropriations.

5.4.1.5 Consulting Service Fees

Consulting services such as those for engineering Consultants, relate to specific deliverables(s) defined in the WBS. Consultants will track and submit costs to these identified deliverables in order that costs can be managed per the change control process.

5.4.1.6   Product Cost

For the initial Project Delivery Plan, the Project Manager should start with the costs presented in the most current Business Case and update as required. As the project is now live, the Project Manager should be performing additional due diligence – taking a deeper dive into cost estimates. If the Project Manager has access to or knowledge of additional information, such as more relevant estimating tables, or experience from previous projects for cross-checking the costs, the Project Manager should include the additional information to increase the accuracy of the Project Delivery Plan.

Product costs are then developed and refined as part of the project execution. For large projects, the product cost is typically the largest cost component of the project, and development of the costs should be appropriate based on the project's complexity.

In many cases, qualified estimators or quantity surveyors are required to perform this function.

5.4.1.7   Other Incidental Costs and Fees

Other incidental costs and fees must be identified and updated. If not specifically detailed, they may be accounted for in an all-inclusive capital cost estimate or considered as part of a contingency allowance. Identifying and tracking incidental costs and fees on an individual basis becomes more important as the project becomes more defined.

Potential costs in this category include:

- Costs from other levels of government and authorities for permits, inspections, and approvals
- Third-party costs for specialist inspections, miscellaneous work, and services
- Regulatory and intervener costs for which special approvals are required
- Utility services and upgrades
- Public open houses and official openings for public programs
- Commissioning costs and customized manuals
- Operating costs during commissioning and start-up
- Use of temporary facilities and equipment
- Training costs
- Inflation
- Overhead
- Taxes

5.4.1.8   Cost Escalation

Inflation is a universal cost category that requires special attention. The estimating process must identify how inflation has been or will be addressed and managed.

The most conservative approach is to assume inflation rates are applicable, and then apply them on an annual basis to each of the component estimates. This requires that the schedules be defined and that this method be permitted in the budgeting process. Using a transparent method like this allows for proper monitoring and addressing unanticipated marketplace fluctuations.

5.4.1.9   Contingency Allowances

Contingency allowances are added to estimates to account for project uncertainty (risk) that could have a financial impact. Risks and consequently contingency allowances are generally higher at the early stages of a project, and are reduced or eliminated as more precise information becomes available.

There are several methods available for quantification of contingency amounts. Selection of the method will depend on the type of contingency under consideration, and nature of the project.

A variety of contingency allowances are used for different purposes at different points in the project, as shown in Table 5-4.

Table 5-4. Types of Contingency Allowances

Contingency Allowance	Cost Risk Type	Purpose	Owner	Value	Updating	Release
Estimating Contingency	Known-unknown	Accounts for imprecise knowledge of product details.	Project Manager	Varies with the level of cost estimate.	Updated at milestones, such as preliminary or detailed design.	The size of the contingency decreases during the project lifecycle and is eliminated or replaced by the capital cost allowance upon construction award.
Risk Reserve	Known-unknown; should be identified in the Business Case; if not, they are unknown-unknown	For response to realized risk events.	Project Manager	Determined through risk analysis, and set based on risks and risk tolerance.	Continually monitored and adjusted as risks change.	Formal process for release if risk is realized; surplus funds are retired after the risk has been eliminated.
Capital Cost Allowance	Unknown-known	Accommodates routine changes during execution	Project Manager and Project Sponsor	Usually set at a fixed percentage, such as 5 percent.	Only changed by exception.	The allowance is drawn down by issuing change orders.
Management Reserve	Unknown-unknown	For expenses outside of formal project delivery.	Project Sponsor (Senior Management Director)	Varies.	Varies.	Upon authorization of the Project Sponsor.

Table 5-4 shows that the cost risk type may be *known or unknown*, and a risk's extent and consequences may be *known or unknown*, which yields the following combinations:

Known-unknown   The risk has been identified, however whether it will actually occur and, if it does, to what extent, is unknown. Knowing what the risk could be allows a rough estimate of the consequence to be made.

An example is the effect of inflation on input costs due to global economy fluctuations.

Unknown-unknown   Neither the risk nor its extent and consequences are known in advance. An example is encountering archaeological ruins in an excavation.

Unknown-known	The particular risk has not been identified; however the general risk is expected to occur to a predictable extent with known consequences.
	An example of this is cumulative minor changes in a construction project.

Proper application, management and control of contingencies require that they have definitions and rules for how the values are determined, who owns them, how they are released, and how they are retired. The method of determining and applying contingency allowances is included in the following section.

The method of identifying and quantifying project-specific risks that affect risk reserve contingency values is described in *PMM Section 5.9 – Plan Risk Management,* and the process for tracking and managing contingency allowances are described in *PMM Section 5.4.1.10 – How to Apply Contingency Allowances.*

5.4.1.10   How to Apply Contingency Allowances

A fundamental issue that the Project Manager must deal with is whether the project budget is sufficient to complete the project.

Contingency allowances may be added to estimates to address various types of uncertainty and risks to improve the chances of the project being within budget, however, they must not be applied to the point where the additional commitment will encumber funds that could otherwise be put to productive use or negatively impact the project's Business Case.

The use of contingency allowances as they apply through the project lifecycle is illustrated in Figure 5-6.

Figure 5-6. Application of Contingency Allowances through Project Phases
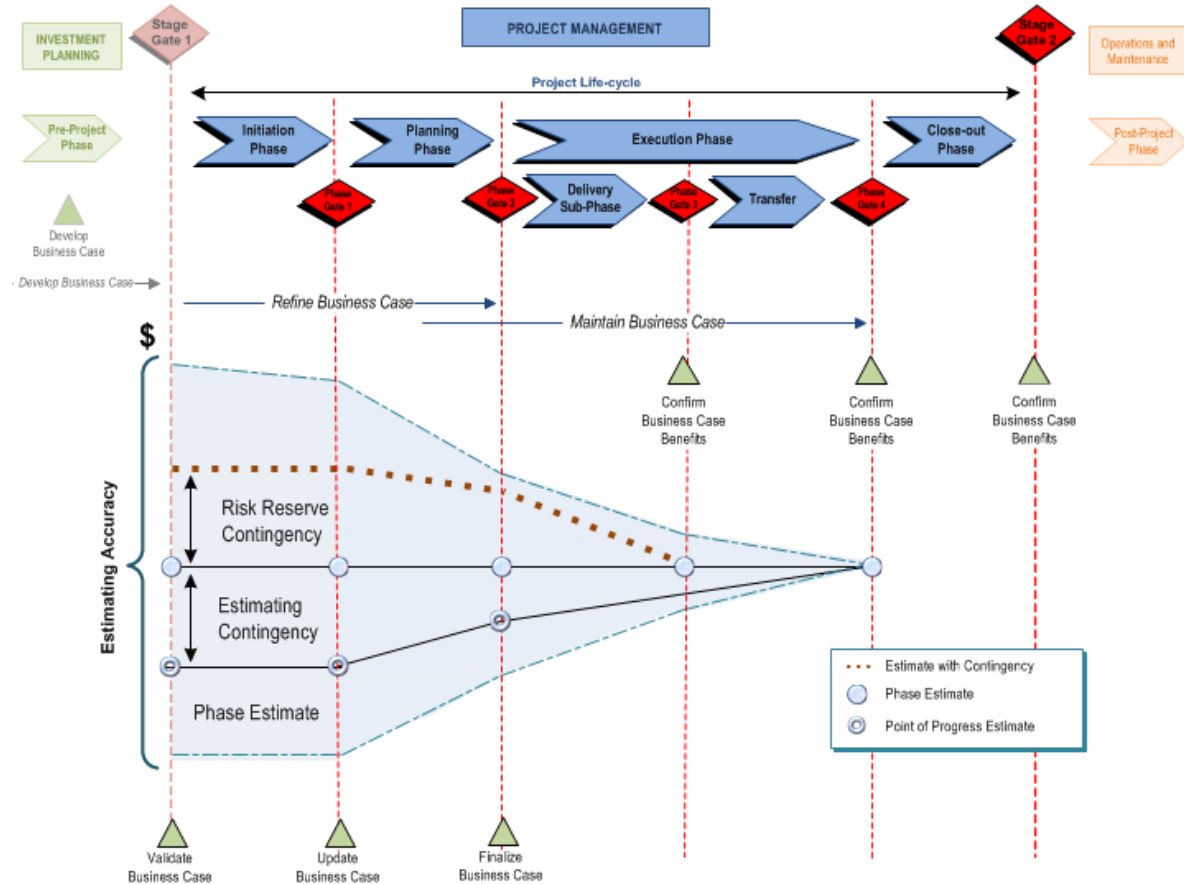
The estimating contingency, capital cost allowance, risk reserve contingency and management reserve are applied to the project estimates at the project phases as follows.

5.4.1.10.1 Estimating Contingency

At the early phases of a project, the product cost estimate will be based on a limited amount of information, a low degree of project development and will have a high degree of uncertainly. It is generally accepted that a number of factors (known-unknowns) will cause the subsequent estimates to increase and therefore an estimating contingency is added to the phase estimate to account for the expected increases. The value of the contingency depends on the nature of the product and the level of project development. The estimating contingency is maintained through the project phases at diminishing values in general proportion to the estimating accuracy until a fixed value is received for the product.

5.4.1.10.2 Capital Cost Allowance

When a project proceeds to the delivery sub-phase, a bid for the product is received which, in effect, eliminates the estimating risk because a price is received which provides a level of cost certainty. The estimating contingency then in effect is converted to a capital cost allowance to address the unknown-known items of the delivery sub-phase. The capital cost allowance is released during the execution based on the change control process or retired at the end of the delivery sub-phase. There is no fixed rule for its quantification; however, a value of 5 percent is common based on industry practices and precedence for most major projects.

5.4.1.10.3 Risk Reserve Contingency

The risk reserve is a contingency added to the phase estimates to improve the chances that the project will remain within budget. The risk reserve contingency addresses both systemic and project specific risks and is quantified through the risk management process as described in *PMM Section 5.9 – Plan Risk Management*. The risk reserve contingency addresses the following:

- Risks that are to be accepted or are to be managed through a defined contingency allowance response will increase the required amount of the risk reserve contingency.

- Risks not to be included in the risk reserve include:
  - Extraordinary events such as extreme weather, earthquakes, riots, acts of war, new government regulations, major strikes, etc.
  - Major scope changes such as changes in product specifications, building sizes, etc. This risk should be eliminated early in the process through stakeholder requirements gathering.

5.4.1.10.4 Management Reserve

Management reserve is a provision held by the Project Sponsor for possible changes in project scope, extraordinary risks, and unforeseen external risks. Due to its nature and variability between projects, there is no industry practice or standard recommended for its quantification.

5.4.2 Determine Budget

The total funds authorized to execute the project is termed the "budget". The budget is critical for work planning, progress and performance reporting. All Business Cases proceeding to implementation are accompanied by an approved budget, which cannot be changed without further formal approval.

For total cost accounting, all internal costs for delivery of the project are included in the budget. However, the City does not always use total cost accounting, and often projects span multiple budgets, so the Project Manager must account for which costs are allocated to the project budget, and which are funded from separate accounts.

The budget will be set based on compilation of cost estimates developed at the pre-project phase, and may be updated based on revised estimates during subsequent project phases.

Often the Business Case will have been developed from projection of historical costs or from parametric costs with a low-level of accuracy, however with a compensating contingency allowance.

Updated estimates at subsequent phases must be compared to the budget as the project proceeds. Phase gates (and/or control points for major capital projects) are the formal points for review and comparison of updated estimates with the budget.

5.4.2.1 How to Determine Budget

The initial budget is provided to the Project Manager at the outset from the Business Case, prior to the process, for developing the Project Charter. This is the first opportunity for the Project Manager to flag issues prior to acceptance and buy-in. The Project Manager must review the budget, and request any necessary clarifications to confirm or identify necessary changes to the budget. Determining a budget involves aggregating the expected cost estimates for individual deliverables and any other project cost components to establish a total cost.

The cost estimates typically include the following components of a project:

- project management costs
- Consultant or in-house engineering costs(in some cases, team members salaries)

- Construction costs
- Operational costs – additional details below
- Third-party involvement costs
- Administrative Charges – additional details below
- Contingencies
- Inflation
- Insurance costs (Course of Construction and Wrap Up Liability Insurance)
- Other costs and fees

5.4.2.1.1 Operational Costs

The Business Case considers the asset lifecycle, with operational costs forming a major component. Project delivery does not directly address operating costs; however, when the capital program changes, operating costs may change and must be updated in the Business Case's section of operating and project budgets.

5.4.2.1.2 Administrative Charges

With some specific projects, the City makes a major investment outside of normal budget categories. The City recoups these costs through administrative charges to the project.

Administrative charges include:

- *Departmental staff*
- *Corporate Administrative charges* of 1.25 percent* to a maximum capital value of $100,000 are applied to the capital budget to recover the City's internal administrative costs for expenses such as making awards, preparing contracts, and providing associated legal services.(*consult with departmental Controller for current percentage)
- *Municipal Accommodation charges* (if Municipal Accommodations is delivering the project)
- *Research (SMIR)* (Construction Only) – only applies to Public Works and construction cost items.
- *Corporate interest charge* is charged at a rate of 2 percent to the capital budget to reimburse the operating budget for interim financing. Interim financing includes the City's share of the funding and debt charges and all other costs except for salaries, Consultant fees, and legal fees. Interest is not applied to external funding, such as grants.

5.4.2.2 Estimates roll-up to the Deliverable level per the WBS

The above cost estimates roll-up to each project deliverable to facilitate consistent project reporting and the monitoring and tracking of progress, generally:

- Costs internal to the City and assigned to external parties need to be assigned to each deliverable.
- Consulting and construction contracts will have separate estimates and need to be assigned to each deliverable.
- Management reserves and risk reserve contingencies are managed as separate line items.

Project costs are continually forecasted and compared with the baseline estimates and the project budget during project execution, which may lead to the need to transfer of funds between line items or the need to obtain additional budget funds or a reduction of budget funds.

5.4.3 Basis of Estimate

Basis of Estimate (BoE) template

Download from the City's Infrastructure Planning Office website

The *Association for the Advancement of Cost Engineering International* (AACE) recommends that a Basis of Estimate (BoE) document be prepared as a deliverable to accompany the cost estimate.

The BoE clearly and concisely, indicates the purpose and scope of the estimate, pricing basis, methodology, allowances, and classification of estimate, other assumptions and any deviations from standard practices.

The BoE is the foundation for the budget request outlined in the Business Case (BC). The initial BoE is typically developed in the Investment Planning Stage of an Asset's lifecycle, and accompanies the Business Case over into Project Delivery.

Although the development of the BC and the BoE is an iterative process and will be updated multiple times as an investment matures along the project lifecycle, the BoE and BC need to be tightly integrated and aligned at specific reporting milestones.

In addition to providing the background for development of the cost estimate, it is intended to support the review and validation of the estimate.

The basic BoE includes:

- Project summary information that provides key information specific to the investment and how the estimate was assembled.
- Project Cost Detail that itemizes costs to perform all activities to deliver the investment, referencing the Work Breakdown Structure deliverable.
- Operating Cost Detail that shows the operating budget impact as a result of the capital project. This includes incremental FTE's, operation and maintenance costs and debt and financing charges.
- Class of estimate.

5.4.4 Cost Sharing Projects (to be developed)

5.5   Plan Quality Management

Quality – the degree to which the project fulfills requirements as intended in the Business Case – is one of the four project objectives. Poor quality can affect project delivery success, the product function, performance, lifecycle costs, and customer satisfaction.

The quality management process is to identify the quality requirements and standards that will be used on the project. The documenting of how the project will demonstrate compliance with those quality requirements.

5.5.1   Develop a Quality Management Plan

The Quality Management Plan (QMP) documents the quality requirements for the project and product, service and/or result, and how the project will achieve compliance.

The skills and qualifications of the resources providing services greatly affect planning for and delivering quality requirements. The Quality Management Plan must therefore also specify selection of a suitable delivery team using the following guidelines:

- Adherence to professional or trade standards may be required for certain types of work.
- Minimum qualifications and levels of experience should be considered in filling all positions.
- The procurement plan should consider the relationship between qualifications, quality, and risk in the selection criteria, and be commensurate with the project needs.

The Quality Management Plan is part of the Project Delivery Plan.

The Project Manager identifies the foundation quality requirements that will be used by the project.

For project delivery, the Project Manager will utilize the Project Management Manual as a foundational quality requirement. Other foundational requirements are included in industry-standards for a specific product, service, or result. This could include industry-standards such as the City Construction Specification, American Water Works Association (AWWA) standards, and Building Codes, etc.

The intent is to identify the core quality requirements in order that the Project Team understands what processes and procedure are to be followed on the project. The quality requirements are known at a high-level at the early stages of the project and can be refined as the project evolves. The quality requirements are also included in other documents such as Consultant and Contractor specifications (Contracts) as the project evolves.

Quality assurance and quality control activities are generated from the quality management requirements.

5.5.2   Plan Quality Assurance and Plan Quality Control

Quality Assurance (QA) – The process of reviewing (or auditing) the quality requirements and the results from quality control measurements to ensure that appropriate quality standards and operational definitions are used.

Quality assurance ensures you are doing the right things, the right way. Results from this process are used to adjust the plan, technical specification or way the work is being performed in order to ensure customer requirements and expectations are met.

Quality Control (QC) - The process of monitoring, evaluating, and recording results of executing the quality activities to assess performance and recommend necessary changes.

Quality control ensures the results of what has been done are what were expected. If not, actions must be taken to assess the reason and adjust either the process or the control parameters.

A comparison of quality assurance and quality control is described in Table 5-5.

Table 5-5. Comparison of Quality Assurance and Quality Control

	Quality Assurance (QA)	Quality Control (QC)
Definition	QA is a set of activities for ensuring quality in the processes by which products are developed.	QC is a set of activities for ensuring quality in products. The activities focus on identifying defects in the actual products produced.
Focus on	QA is **process oriented** and focuses on defect *prevention.* QA is a proactive quality process.	QC is **product/service oriented** and focuses on defect *identification.* QC is a reactive quality process.
Goal	The goal of QA is to improve development and test processes so that defects do not arise when the product is being developed. QA makes sure you are doing the right things, the right way.	The goal of QC is to identify defects after a product is developed and before it's released. QC makes sure the results of what you've done are what you expected.
How	Establish a good quality management system/plan and the assessment of its adequacy. Periodic conformance audits of the how the system/plan operates.	Finding and eliminating sources of quality problems through tools & equipment so that customer's requirements are continually met. Results are used in QA to adjust the process to eliminate consistent defects.
What	Prevention of quality problems through planned and systematic activities including documentation.	The activities or techniques used to achieve and maintain the product quality, process and service.
Responsibility	Everyone on the team involved in developing the product is responsible for quality assurance.	QC is usually the responsibility of a specific team that tests the product for defects.
Example	Verification is an example of QA. Verify that the Project Manager followed the Project Management Manual and Project Delivery Plan. Verify that a Supplier follows their mixing procedure or IT followed their scripts.	Test results are an example of QC. The number of change orders on a project. Concrete testing is an example of QC.
As a tool	QA is a managerial tool.	QC is a corrective tool.

The quality assurance and quality control processes are required for every project. The expectation is for the Project Manager to use these tools to plan, arrange, monitor, and administer the project to a standard that meets the project quality requirements.

The Quality Assurance Plan and Quality Control Plan, and their monitoring may be assigned to a QA/QC Manager or be undertaken by the Project Manager. Reviews must be undertaken by someone other than the person who performed the work.

5.5.2.1   How to Plan Quality Assurance

The Project Sponsor, Project Manager, and Project Team are to provide quality assurance throughout all project phases, regardless of the delivery method. The Project Manager promotes quality assurance by ensuring Project Team members follow a quality process.

Refer to Table 5-6 for an example Quality Management Plan illustrating quality assurance and quality control.

The Quality Management Plan will include specific processes for checking the work, outputs, and deliverables. The Project Manager coordinates the internal reviews and clearly defines reviewer expectations.

Formal quality assurance reviews may include:

- The Project Sponsor utilizing the Project Management Checklist template to ensure the Project Manager is following the processes outlined.

- Project Sponsor review and sign-off of the Project Delivery Plan (PDP) at phase gates or control points for large projects.

- Review of technical memoranda and reports, which are typically submitted as drafts and updated to final documents after the review.

- Staged reviews for large and complex projects; this may include splitting the product lifecycle into multiple phases: for example, splitting preliminary design into conceptual and functional design.

- For detailed design, sequential design reviews at the 30, 60, and 99 percent complete steps are common.

The Quality Management Plan identifies the process, who will participate in the reviews, and includes updated review schedules. The Project Manager needs to define the review period expectations so that the Project Team can properly plan and schedule its input.

The Project Manager is responsible for initiating corrective action when the quality assurance objectives are not met.

5.5.2.2 How to Plan Quality Control

Quality control applies to meeting identified project quality requirements for both project management and product delivery. The project quality requirements define the specific quality control processes and activities that need to be undertaken to ensure the product, service, or result is meeting the specification identified.

This is a monitoring and control process, and is where every deliverable is inspected, measured in some way, and tested.

The quality control process:

- checks that the results conform to quality requirements (standards)
- covers both the project and its products through the project
- detects if any defects are found, then they will need to be corrected
- needs to identify what the process is to address non-conformance

5.5.2.3 How to Develop a Product Quality Control Plan

A Product Quality Control Plan includes processes for adherence to the quality requirements for the following:

- Quality control review and inspection events
- Procedures for reviews and inspections
- Timing of quality control events and identification of reviewers and inspectors
- Checklists and forms for event tracking and documentation
- Quality metrics for comparison of results
- Process for addressing deficiencies, corrective actions and non-conformance

- Quality control sign-off forms

5.5.2.4 Example of Project Quality Management Plan

The following table is illustrates an example of how the three quality elements integrate.

Table 5-6. Integration of Quality – Requirements, Assurance, and Control

Quality Requirement	Quality Assurance	Quality Control
Follow the Project Management Manual	Project Sponsor to utilize the Project Management Checklist template to ensure the processes are followed.	Phase Gate and/or or Control Point reviews. Sign-off on key deliverables.
Develop a Training Plan	The Project Manager would review the training to ensure the processes outlined are being followed.	
Concrete meets a specific Canadian Standards Association (CSA) standard	The Contract Administrator ensures that the Consultant, Contractor and supplier are aware and follow the CSA standard (process).	Concrete tests. Concrete test results. Non-conformance identification and actions.

5.5.3 Plan Value Engineering

Value Engineering (VE) is a technique that can be used on most projects to increase value and should be considered for all large projects.

Value Engineering identifies unnecessary costs for products and services that can be reduced while still ensuring that quality, reliability, performance, and other critical factors meet or exceed customer expectations. It seeks to develop best-value solutions, not necessarily lowest capital costs.

A multi-disciplinary team identifies the improvements through structured application of VE.

The team identifies:

- the product function or service
- establishes a worth for the function
- generates alternatives through brainstorming and creative thinking
- provides the needed functions and reliability at the lowest cost

Led by a Value Engineering facilitator, the team can include those involved in design, construction, and maintenance, as well as technical experts. A number of firms with qualified practitioners can provide value engineering expertise.

5.5.3.1 How to Plan Value Engineering

For a large and complex project, value engineering is usually undertaken at the end of the functional design phase, and results are incorporated into the Functional Design Report.

The Value Engineering Team's recommendations are suggestions only; the City and the project Consultant make the decisions.

The cornerstone of effective value engineering is the generation of a large number of ideas that may be developed into feasible changes. One of the best methods for obtaining a wide spectrum of ideas is to use an interdisciplinary team of specialists. It is helpful to have at least one team member from a markedly different background since their comparatively naive viewpoint often

produces fresh, unconditioned questioning. The team is led by a person specifically trained to conduct value engineering reviews, and should include the project engineer or another employee of the project Consultant who is familiar with the project design. Whenever practical, a representative of the City should participate.

The Value Engineering Workshop is an intense working session that culminates in an oral presentation of the value engineering recommendations.

Each member of the Value Engineering Team contributes a different pattern of thinking and ideas that reflect their own experience. The ideas of each team member tend to stimulate responses and contributions from other team members, based on their backgrounds. Each team member readily responds, and the effect is that ideas represent each participant's own area of interest.

All value engineering efforts include some form of cost estimating or economic analysis; however, experience has shown that the beneficial effect is not restricted to economic savings. Significant improvements are often made in function, reliability, maintainability, reduction in complexity, and other attributes.

Early value engineering tends to produce greater results, however, there are opportunities for improvement at any stage. The ideas that are feasible for adoption change as a project moves from concept to completed design to construction and through to operations.

The conceptual design phase is one of the most productive times for value engineering review. Value engineering is undertaken at the end of the functional design phase. Changes are more readily adopted before the detailed design phase has been started. However, at the conceptual design phase, the engineering experience and competence of the Value Engineering Team is critical since appraisals must be made before the complete design is available.

Another type of value engineering review is often conducted when detailed design is 80 to 90 percent complete. At this stage it is usually too late to change basic concepts, however, there are opportunities for improvements in details.

During the Operations & Maintenance stage of an Assets lifecycle, cost-saving studies have not generally been called value engineering, however, a value engineering-like process can still be carried out. To obtain savings at this stage, additional capital expenditure is often required. The Value Engineering Team for an operational facility should have a combination of practical and theoretical skills.

Use of value engineering to reduce costs or enhance a facility's reliability, efficiency, or performance has been demonstrated in many different projects. The Value Engineering Team has a rare opportunity to review the conceptual or functional design. For a relatively low expenditure, the Value Engineering Team may identify substantial cost savings. At a minimum, a value engineering study increases overall sensitivity to project costs and boosts confidence for both the City and the project Consultant even if significant changes in the design are not made. The City is thus assured of receiving the best value for the project budget.

Several approaches are used for value engineering reviews. The most direct uses are steps labeled: Information, Creative, Evaluation, Development, Presentation, and Report, and are described below:

Information – During the Information step, the Value Engineering Team reviews the proposed design, becoming familiar with available information on function, design, construction techniques, and costs. The worth of each project element (the least-costly way to perform it) is then determined, and the cost-to-worth ratio is calculated. A high cost-to-worth ratio indicates an area where value engineering effort may be profitable. Several other techniques are also used to help the Value Engineering Team target the project elements that have high potential for cost savings or project improvement.

Creative – After identifying areas with high improvement potential, the Value Engineering Team begins a creative effort, sometimes called brainstorming, to generate ideas for alternative methods of providing the basic function. Criteria and indicated requirements are challenged, and the broadest possible range of alternatives is considered.

Evaluation – The team leader rejects ideas obviously not suitable for implementation. The entire team then ranks the remaining ideas, listing advantages and disadvantages of each and evaluating items such as technological risks, time required for implementation, and cost. The most promising alternatives are selected for further study and refinement.

Development – The best alternatives are developed into more complete proposals with more detailed cost estimates and a summary of relevant information. Cost comparisons, as estimates of savings, are made on a total lifecycle cost basis that includes both construction cost and operation and maintenance cost.

Presentation – The Value Engineering Team presents the alternatives to the City, the project Consultant, and other decision-makers. The City usually considers the Project Consultant's response before making a final decision on which alternatives to incorporate into the project.

Report – A formal report of the value engineering study is prepared listing recommended alternatives, providing complete background information on the study, and describing the basis of recommended changes. The report ordinarily summarizes the lifecycle cost savings that would be achieved through adoption of the recommended changes.

Sometimes, the most valuable value engineering suggestions do not result in cost savings, however, all are included in the report.

5.6　Plan Procurement Management

All capital projects must have previously considered the project delivery method at a higher level of analysis as part of the Business Case development. Considerations may include:

- Public Private Partnership (P3)
- Design-Build (DB)
- Construction Manager (CM)
- Design-Bid-Build (DBB)
- In-House

The project delivery method is reviewed as part of the planning phase, and a more in-depth analysis of the delivery method approach may be warranted.

The Public Service normally procures infrastructure using the Design-Bid-Build approach, which is the most common delivery model for most government projects in Canada. Therefore the City has standardized contracts in place for this model. The allocation of risk between the City and the Contractor is well defined and understood by all parties. Thus the City has established processes and experience in the administration of Design-Bid-Build contracts.

Standardized contractual documents do not normally exist for other project delivery methods and would have to be specifically developed for the project. Therefore, there is additional time and expense associated with developing new contracts for alternative delivery methods. These contracts have a different allocation of risk between the two parties, and the City employees would not have experience in drafting or administering these contracts. Thus, there may also be additional risk associated with pursuing alternative project delivery approaches.

Therefore, due to cost, schedule and contract risk, alternative project delivery approaches is only normally considered for Major Capital Projects. Alternative project delivery approaches do not normally provide significantly positive value on smaller dollar value projects, thus would not normally be pursued on projects below the major capital projects classification.

5.6.1　Review Project Delivery Methods for Major Capital Projects

As Major Capital Projects involve large dollar amounts and risk, it is important to select the correct project delivery method at an early stage in the project. Different project delivery methods involve different allocations of risk between the Contractor and the City, and have the potential to

impact the City's finances in both a positive and negative manner. The Project Manager examines the project, and determines the best project delivery method for that project with consideration of alternative delivery methods.

Determining the best method of project delivery takes considerable judgement on the part of the Project Manager. Refer to *PMM Appendix C: Alternative Project Delivery Methodology Analysis*, which is a technical memorandum which serves as a general guide to assist the Project Manager in determining the best project delivery method.

The analysis performed by the Project Manager should consider the project risk profile, past experience with similar projects delivered using the Design-Bid-Build model as well as the overall project fit with a particular project delivery method.

A professional consultant may need to be retained to assist the Project Manager in the determining the best method of project delivery for a specific project.

5.6.1.1   Process for Review of Project Delivery Methods for Major Capital Projects

For all Major Capital Projects, the process is for the department to determine the best project delivery method for the project. The assessment of the various project delivery methods is performed by the Project Manager and approved by the Project Sponsor. Department Head approval should be obtained prior to submission to Manager, Major Capital Projects Oversight in the Infrastructure Planning Office.

The Project Manager would then submit the recommendation and supporting analysis to the Manager, Major Capital Projects Oversight of the Infrastructure Planning Office.

The Manager, Major Capital Projects Oversight performs a second-party review on behalf of the Chief Asset and Project Management Officer and Chief Financial Officer.

If confirmed by the Manager, Major Capital Projects Oversight, the Project Sponsor presents the recommendation of the project delivery method to the Major Capital Projects Advisory Committee for approval.

In the event the recommendation is for the project to be procured using an alternative project delivery method, the next step is to perform an independent assessment of Value for Money.

Consideration should be given to whether Council approval of the delivery method is required, as there is some precedent in having alternative project delivery methods approved by Council.

The Project Manager must also ensure that all projects delivered using an alternative project delivery method are compliant with Provincial Legislation and Regulations (i.e.: The Public-Private Partnerships Transparency and Accountability Act).

5.6.2 Review the Design-Bid-Build Delivery Option

The most common project delivery method for infrastructure projects is the Design-Bid-Build (DBB) delivery method. This method is routinely selected for a Consultant, and is the base assumption for the processes and procedures in this Project Management Manual.

At least two procurements are required for DBB projects delivered by a Consultant:

1. First procurement is for the Consultant, who is assigned specific product delivery responsibilities. The City's Project Manager administers the Consultant's services Contract.

2. Second procurement is for the Contractor.

With this approach, the Consultant and Contractor do not form a contractual arrangement with each other; instead, the project owner has a contract with each. The City authorizes the Consultant to act on the City's behalf in inspection and oversight of construction, as illustrated in Figure 5-7.

Procurement and monitoring and control procedures consistent with the contractual arrangements are required. Roles, responsibilities and authority for the DBB delivery approach are provided in *PMM Section 5.7.3 – Roles, Responsibilities, and Authority.*

Figure 5-7. Design-Bid-Build (DBB) Contractual Relationships
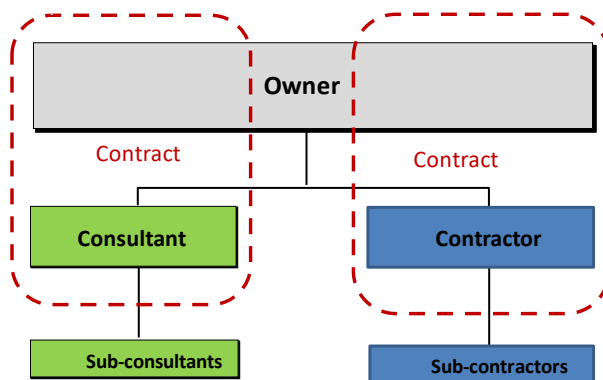
The procurement plan must consider which procurements are required, the schedule for procurements, how assignments will be made, who will be involved in the process, and whether any special requirements exist. Refer to *PMM Section 6.4 Conduct Procurement* for detailed descriptions of the procurement process and links to related City websites.

5.6.2.1   Consultant Selection

All supplies are initiated through competitive offers, unless permitted as an exception, under the FI-003 Materials Management Policy (Policy Clause B3).

FM-002 Materials Management Administrative Standard further defines rules for exceptions on consulting assignments for capital and non-capital projects.

For assignments below the threshold limits single-source (direct) assignments are permitted. Single-source assignments exceeding the FM-002 Materials Management Administrative Standard values must be approved by the Executive Policy Committee. In most cases, a competitive process is required for Consultant selection.

Before soliciting proposals, the City must define its requirements by developing a Request for Proposals (RFP). The RFP approach is well-suited to consulting services since it allows Consultants to use their creativity and expertise in crafting proposals with unique features and approaches. For competitive proposals, the Consultant balances features with costs in attempting to arrive at a winning proposal. In all but exceptional circumstances, the Consultant pays proposal preparation costs.

Although required for every Consultant assignment, a Request for Proposal may vary in content and complexity depending on the size and nature of the project. Request for Proposal preparation is discussed in the executing process group in *PMM Section 6.4.1 – Prepare Request for Proposal.*

The time and effort needed to assign a Consultant may be significant because:

- The Request for Proposal is a major document that must include an accurate scope.

- The Project Team must have the opportunity for input and review before the Request for Proposal can be issued.
- Once the Request for Proposal is issued, Consultants must have adequate time to prepare proposals and respond.
- The proposals must be reviewed in detail and scored by the Evaluation Committee.
- Consultant interviews may take time for coordination and execution.
- After the Evaluation Committee has completed its rating, more time may be needed for internal recommendation reporting, review, and approval.

If there are any other special requirements they must be factored into the timeframe and cost. For example, if a two-stage proposal is used, a much longer time will be needed to assign a Consultant.

5.6.2.2 Contractor Selection

For the Design-Bid-Build method of delivery, the design, drawings, and specifications are prepared by the Consultant (or by the City for in-house projects) and packaged into a Bid Opportunity for solicitation of competitive bids.

Construction Contracts are the largest component of the Capital Budget, and it is important to consider the contracting strategy when planning the work. Availability of Contractors, size of the contract packages, sequencing of the work, and even time of year are potential considerations for packaging and issuing Bid Opportunities.

5.6.2.3 Third-Party Contracts

The need for third-parties to participate in the work must be considered as part of the procurement planning process.

Examples of potential third-party contracts are:

- Laboratory testing
- Specialist inspectors and testing agencies (concrete, roofing, welding, and air movement)
- Geotechnical Consultants
- Commissioning Contractors

The procurement plan must identify whether these services are to be contracted directly by the City, included within the consulting contract, or included within a construction contract.

Once all the procurement details are known and the procurement plan is developed, the details must be added to the work plan, with an appropriate work description, schedule, and cost estimate.

5.6.3 How to Plan Procurement

A procurement decision process map based on the FI-003 Materials Management Policy and FM-002 Materials Management Administrative Standard is shown in Figure 5-8: *Procurement: Decision Process for Procurement Planning*. The process applies to all procurements, including Consultant services and construction contracts.

The decisions are based on budget amounts, whether the procurement is for a Consultant, and whether the solicitation will be competitive or single source. If it is to be single source, the next decision is whether it requires Executive Policy Committee (EPC) approval.

Consultant assignments below the FM-002 Materials Management Administrative Standard limits do not require EPC approval; limits are different depending on whether the supply is for a capital project. In most cases, higher-value capital projects require competitive proposals for both Consultant services and construction contracts.

Figure 5-8. Procurement: Decision Process for Procurement Planning
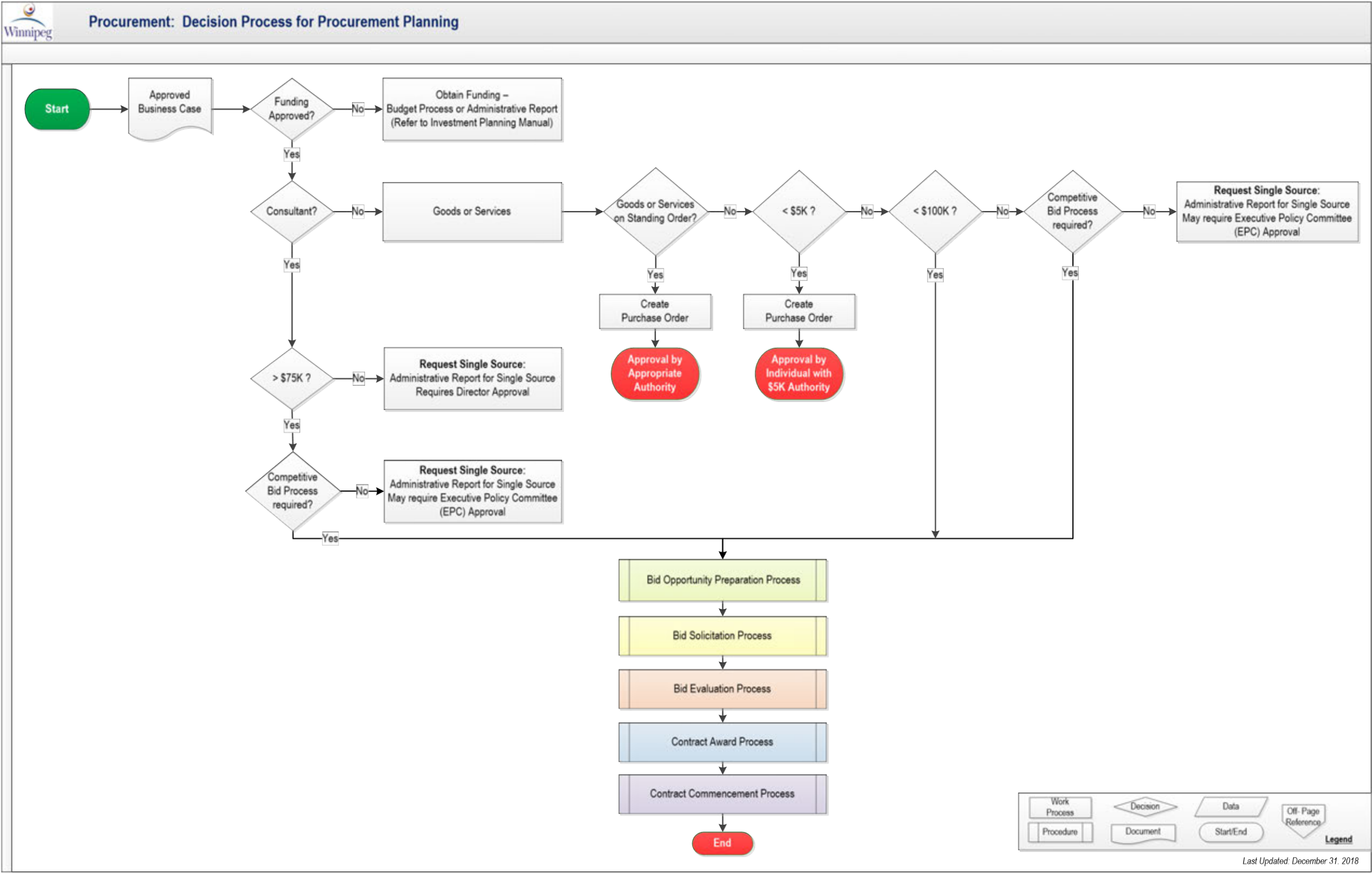
5.7 Plan Resource Management

Resource Management planning includes the processes of estimating, acquiring, managing and utilizing resource types, such as labor, equipment and materials, and providing a schedule for the consumption of each resource respectively. It also includes the processes of identifying the organizational structure for the project and identifying and defining the roles, responsibilities, and authority for project delivery in order for successful completion of the project.

A comprehensive resource plan should list the required resources (labour, equipment, materials) quantify the required resource (labor: skills and experiences, equipment: specifications of each item, materials: type of each item required) and construct a feasible resource schedule (quantity, timeframes for consumption, assumptions and constraints identified).

5.7.1 Develop an Project Delivery Organizational Structure

By definition, projects are temporary endeavours; the team structure lasts only as long as the project. However, some organizational structure positions are used repetitively with the same individuals filling the senior roles for most projects.

A Project Sponsor, Project Manager, and Project Team are always required regardless of project size, with the team members, committees, and support staff depending on size and nature of the project.

The generic organizational structure for a Consultant-delivered project is shown in Figure 5-9: *Project Delivery Organization Chart* (a Consultant is one type of vendor). The Project Sponsor, Major Capital Project Advisory Committee, Project Advisory Committee and City Project Manager are all City employees. The only expectation is that outside experts are sometimes added to the Major Capital Project Advisory Committee and/or Project Advisory Committee.

Additional project staff from the City and from the Consultant are added depending on the project requirements, and the project-specific organizational structure is defined in the Project Delivery Plan (PDP).

The organizational structure requirements for Public-Private-Partnership (P3) and Alternative Project Delivery (APD) method may be quite different than for a Design-Bid-Build (DBB) delivered project, and may be specific to the project.

In many cases for P3 and APD, the project delivery and its planning, execution, monitoring, and control are solely the vendors' responsibility, so the City does not require the traditional organizational structure. It is the Project Manager's responsibility to define and populate the project organizational structure with the key roles in the Project Delivery Plan regardless of the project delivery approach.

Figure 5-9. Project Delivery Generic Organization Chart

Refer to Table 5.8 for Project Roles, Responsibilities, and Authority

City resource responsible to administer contracts for the Consultant and Contractor has 2 distinct role names in a Design-Bid-Build contract relationship;
i) for the Consultant contract – Contract PM,
Ii) for the Contractor contract – City Representative

* Major Capital Project threshold defined in the 2018 Capital Budget Detail Sheet Appendix?????
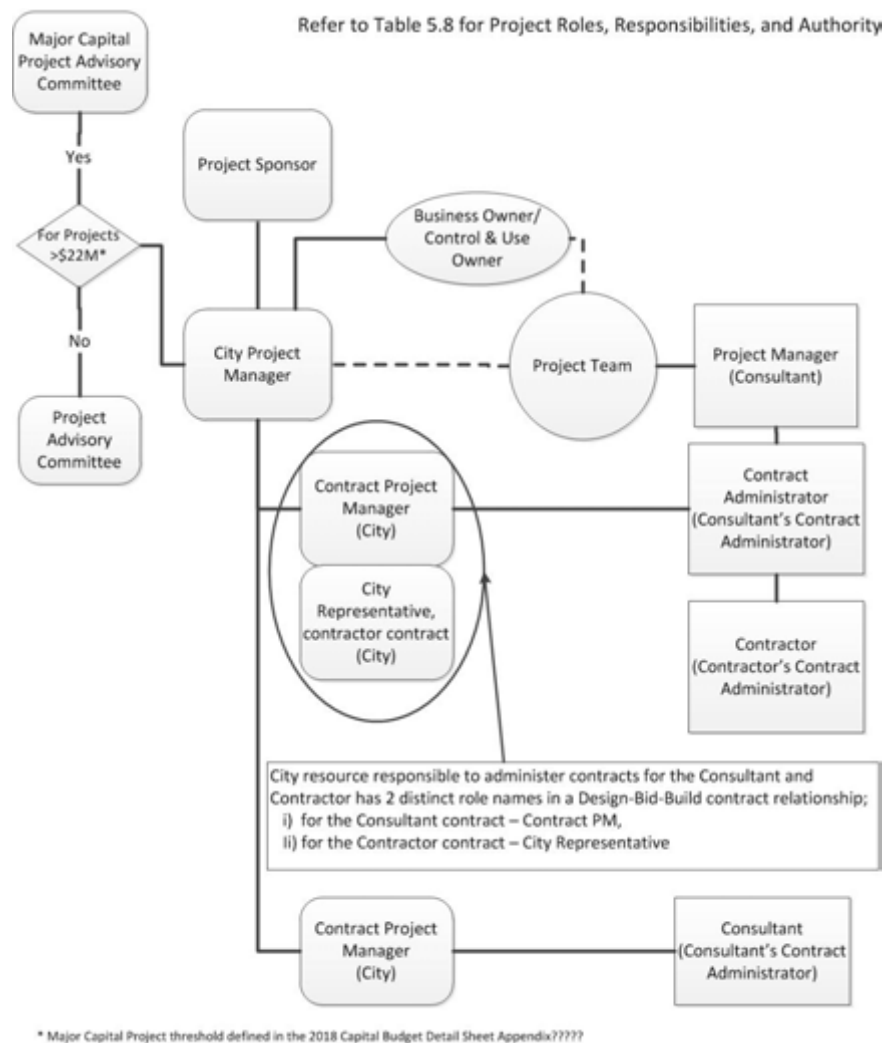
5.7.2 Identify Resource Requirements

Resource requirements are identified during the development of the work plan. The resources required on the project depend on factors such as:

- Skill-set for specific tasks: require a design engineer for a specific discipline
- Time constraints: need more resources to complete in a specific time
- Resource availability: when resources are available based on current workloads

These factors are assessed in the development of the project work plan and the documented in the Resource Plan of the Project Delivery Plan.

5.7.3 Roles, Responsibilities, and Authority

Many individuals and groups of people may be involved in a project. Table 5-7 provides an overview of the participant's roles and their responsibilities and authority. Details on specific responsibilities and authority for each role are provided in the process and procedures in this Project Management Manual and built into the process charts in *PMM Appendix A: Design-Bid-Build (DBB) Process Charts.*

The roles, responsibilities, authority, and any updates or revisions are a refinement of the roles, responsibilities and authorities in the most current City policies, standards and directives, which are identified in *PMM Section 2.0 – Project Management Governance.*

Table 5-7. Project Roles, Responsibilities, and Authority

Project Role	Responsibility and/or Description	Authority
The City of Winnipeg (City)	Legal entity named on all City contracts.	Authority is delegated to members of the City's administration via the City of Winnipeg Charter
Chief Administrative Officer (CAO)	The CAO is the most senior bureaucrat in the civic service, responsible for management and operation of the corporation.	Under the FI-003 Materials Management Policy, City Council has delegated senior levels of authority to the CAO, including materials management authority
Chief Asset and Project Management Officer (CAPMO)	The CAPMO is responsible to ensure that a formal project management system exists and it is utilized to effectively manage projects. The CAPMO is responsible for Major Capital Project Oversight which monitors the administration of the City's major capital projects in conjunction with departments.	The CAPMO is the ultimate decision-maker on establishing and maintaining the project management process. CAPMO has the authority to validate and intervene in Major Capital Project to ensure project success.
Chief Financial Officer (CFO)	The CFO is responsible for how the City is going to pay for the project, the project budget and funding sources, as well as the procurement approach (DBB, DB, P3).	The CFO is the ultimate decision-maker on the project budget and funding source, and the procurement approach.
Project Sponsor	The individual within in the business unit that is responsible to deliver the project who has the authority to assign resources and ensure the project is successful. The Project Sponsor must be at a level in the organization that can provide the support that the project needs to be successful. • **Promotion**: Acts as a project champion, supporting the project's goals and objectives; keeps updated on major project activities; and is a decision-maker for the project. • **Authorization**: Takes part in selection of the Project Manager, project initiation, and authorize the Project Charter. • **Scoping**: Generally responsible for determining the initial project scope, although the Project Manager is ultimately responsible for the official project scope within the Project Delivery Plan. • **Funding**: They are often responsible for ensuring funding is in place and approving changes to the project budget. • **Approving**: Is involved in the project planning process and reviews and approves the Project Delivery Plan and its updates. • **Informing**: They receive regular project status updates from the Project Manager and disseminate project	Authorizes use of resources for the project, approves major deliverables for delivery to the Business Owner, and signs off on each project phase.

Project Role	Responsibility and/or Description	Authority
	information to relevant Senior Leaders. • **Supportive:** Supports the Project Manager; assists with major issues, problems, and policy conflicts; and removes obstacles.	
Business Owner	The entity in the project organizational structure that accepts receipt (ownership) of the final product, service, or result (deliverables). • Is a generic role name used for both asset and non-asset based projects. • Have the responsibility or authority in the organization for the investment. The Control & Use Owner and the Business Owner can be the same individual on a project.	Sign-off of the initial requirements and the final deliverables.
Control & Use Owner	• Responsible for ownership of the asset on the City's behalf. • Responsible to define the Service Level Targets based on consultation with the customer. • Defines the Strategic Service need which includes the service the asset provides. • Manages the risk of existing assets to ensure service target are meet at the lowest lifecycle costs. • Ensure that the Investments and resulting benefits meet the needs of the customer. The Control & Use Owner and the Business Owner can be the same individual on a project.	Provide the service that the customer needs and is willing to pay for.
Major Capital Project Advisory Committee	Project-specific and is formed for any project that meets the major capital project dollar value threshold.[7] Responsible for monitoring and managing project risks. Project Sponsor is the committee chairperson.	Provides direction to the Project Manager on managing project risk and has decision-making authority.
Project Advisory Committee	The committee is advisory in nature and provides advice/not direction to the Project Manager. The members act individually and collectively as vocal and visible project champions in their representative organizations. Committee is to provide a support function to the Project Manager, drawing on experience and expertise from a variety of backgrounds to improve the overall quality of the project delivery. Committee may also facilitate better coordination of project activities between different areas of the City. The Project Sponsor is the committee chairperson.	Provides guidance to the project and advice on project deliverables, issue resolutions, policy decisions, and scope changes, however does not have decision-making authority.

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[7] The Major Capital Project dollar value threshold is set every year in the *Adopted Budget Capital Project Detail Volume 3 in Appendix Major Capital Projects*. This limit is subject to change each budget cycle.

Project Role	Responsibility and/or Description	Authority
Project Manager (PM)	Develops the Project Delivery Plan. Delivers the project with support from the Project Team. Manages the Project Team's performance. Secures acceptance and approval of deliverables from the Project Sponsor. Responsible for communications, risk management, escalation of issues that cannot be resolved in the team, and making sure a quality project is delivered on budget, on schedule, and within scope.	Responsible for project delivery, and acts within the boundaries of the approved Project Delivery Plan.
Project Team	Under the direction of the Project Manager, executes the project. Consists of a variable number of members who are brought in to perform tasks according to the project work plan and defined schedule. Produce outputs or deliverables as outlined in the plan, at the level of effort defined for them. On larger projects, some Project Team members may serve as task leads, managing staff on tasks and providing technical leadership.	Performs administrative and technical functions in accordance with industry practices, as defined by the Project Delivery Plan and under the direction of the Project Manager or delegate.
Manager, Major Capital Projects Oversight	Ensures Major Capital Projects adherence to the Project Management Manual, processes, procedures, tools and templates. Conducts quality assurance on major capital projects and Major Capital Projects Quarterly Project Status Report.	Oversees and guides Major Capital Projects. Recommends changes to the Project Management Manual.
Manager, Corporate Asset Management Office	Manages the Project Management Manual and the associated processes, procedures, tools and templates.	Owner of the Project Management Manual and authorized to incorporate changes and updates based on industry best practices.
Change Manager (ChM)	Resource to the Project Manager and Project Team. Responsible for organization change management deliverables, such as stakeholder and change assessments, communications, organizational change management planning and implementation.	Authority is defined by the CAO and by Department Directors who select departmental Change Managers for training and certification.
Contract Administrator (CA)	City's representative for the administration of contracts. Role filled by the Consultant or by a City representative for in-house delivered projects.	Authority is defined in the General Conditions for the Contract.
Evaluation Committee	Evaluating proposals or bids with multiple weighted criteria requires an Evaluation Committee with appropriate expertise. Consists of a technical and financial representative and have access to Legal Services and Materials Management.	Reviews and rates proposals, provides evaluations.
Corporate Subject Matter Experts	The Project Delivery Team includes multiple parties at various steps with various roles. Corporate Subject Matter Experts participants include Materials Management, Legal Services and Insurance Branch, which each have a defined and sometimes ad-hoc role in Project Delivery.	Provides support and advice for effective project delivery related to City processes and procedures.
Customers	End-user of the service that the product or service provides. The customer can be external or internal entities.	Provides input and opinions into the City's service level targets.

Project Role	Responsibility and/or Description	Authority
Vendors	Vendors are contracted to provide additional products or services the project will require. Consultants are one type of vendor, as are Construction Contractors and those providing third-party paid services.	Provides products or services in accordance with contracts.
Stakeholders	Stakeholders are all those groups, units, individuals, or organizations, internal or external to the organization that have an interest in, are impacted by, or can impact, the outcomes of the project. This includes the Project Team, Project Sponsors, Major Capital Project Advisory Committee, Project Advisory Committee, customers, customer co-workers, public, special interest groups, and regulators.	Authority depends on the type of stakeholder.

5.7.4 Define Duties and Obligations

Successful projects are planned, designed, and built by a Project Team consisting of a Project Manager, Project Delivery Team, Consultant, and Contractor. Quality can only be achieved when each team member competently and in a timely fashion fulfills their responsibilities in cooperation with the other team members.

The duties and obligations inherent in these responsibilities and required for the success of the project are listed in Table 5-8 for a Project Team.

Table 5-8. Duties and Obligations of the Project Team

Duty/Obligation	Details/Examples
Fully disclose facts.	Provide access to all pertinent project data. Identify all known constraints. Define project objectives and expectations and communicate them accurately. Provide other agencies and public authorities with required information.
Be truthful.	Establish and maintain trust. Recognize the need for professional respect and collaboration. Keep commitments.
Maintain integrity. (perform on a highly ethical plane)	Be truthful; don't simply tell Project Team members and stakeholders what they want to hear. Fully disclose related external interests. Avoid conflicts of interest. Only accept work you are qualified for (or add appropriate expertise to the Project Team).
Demonstrate leadership.	When crises occur, carefully define the problem, not just the symptoms, and take positive authoritative action to solve it.
Enhance communications.	Facilitate and encourage communication. Inform the Consultant of how and why the City/system works. Avoid the 'we/they' mindset. Be articulate; explain clearly and succinctly the merit and the benefit of proposed schemes in a balanced and objective, yet authoritative, manner. Create a process that allows Control & Use Owners and key stakeholders to contribute.

Duty/Obligation	Details/Examples
Establish reasonable and attainable objectives.	Reach early agreement on a reasonable program of requirements and attainable performance requirements. Carefully consider relationships between cost performance, function, and aesthetics. Provide detail on objectives and refer to specific aspects of a project, such as function, operation, schedule, technical matters, quality, aesthetics, and administrative, fiscal, or management requirements.
Be responsive to the established Scope, Budget and Schedule.	Be vigilant and committed, showing forethought and anticipation in protecting the City's interests (and hence, those of the public) in the conduct of assigned projects.
Be prepared.	Maintain project files in order. Be prepared for meetings. Respond to team members and stakeholder requests in a timely fashion. Keep the Control & Use Owner informed.
Allow adequate time for performance.	Mutually develop a realistic schedule. Recognize that an unrealistic work schedule may discourage sound professional judgment.
Delegate or assign decision-making authority appropriately and support that authority.	Establish at the outset, and maintain the necessary and appropriate channels of responsibility and authority. Empower the Project Manager with appropriate authority.
Be realistic in the assumption of risks and liability.	Cleary identify conditions that are not easily understood or determined in advance.
Encourage quality.	Develop the plans and follow the plan. Focus on the process and continuous improvement. Encourage innovation and creativity in the Project Team.
Accept authority and responsibility.	Be accountable for satisfactory overall project execution and control of budget. Be responsible for all project staff, including vendors. Carefully consider and define fee arrangements without resorting to subsequent requests for additional fees on the basis of alleged misunderstandings on the scope of services to be provided. Ensure that work is accurate and precise so the City need not duplicate the design process to correct drawings and specifications.
Fund project adequately.	Recognize that design is critical to the overall project success; saving money at the expense of a competent design is a poor economic decision.
Strive for efficiency and economy.	Effectively coordinate all administrative and cost expenditures on the project.
Make timely decisions.	Provide strong leadership to make and encourage sound and timely decisions, including project reviews and approvals.
Allow freedom for innovation.	Be open to new ideas. Allow open discussion on problems and situation to promote new thinking and concepts.
Be responsive to Public	Be receptive of and responsive to Public input to serve the Public well on the City's behalf.
Comply with codes, regulations, and laws	Be familiar with and current on a broad range of legislation and regulations to best assist the City in securing the most acceptable project and in obtaining the most advantageous cost sharing.

Duty/Obligation	Details/Examples
Be familiar with City procedures.	Ensure that assigned resources are familiar with City procedures and requirements; do not expect City resources to train the Consultant's resources.

5.7.5 Create a Project Team Organization Structure

A resources plan is recommended for each project to define the specific organizational features and identify physical resources required and human resources assigned.

Human Resources are grouped into two subsets:

1. **Project Management Team** – Responsible for leadership and for carrying out the initiating, planning, executing, monitoring, controlling, and closing project management processes throughout the project phases.

2. **The Product Team** – Technical in nature, and is responsible for delivering the product, including studies, designs, and construction, or for providing other types of products, services, or results.

For in-house projects, the resources plan includes resources with the required skills and qualifications to complete the product work. This may include engineering resources, technical support, site supervisors, construction workers, and site inspectors if the project is for construction, or many other combinations of human resources and skills, depending on the product.

For Consultant projects, the Consultant assigns resources to the product work, and the City's role is focused on project management and administration of the associated contracts.

The resources plan includes the following components:

- An organization chart
- A list of roles and responsibilities for the project positions
- A resource matrix detailing the time allocations for each individual on a task-by-task basis

5.7.6 How to Develop a Project Delivery Organization Chart

Project Delivery Organization Chart template

Download from the City's Infrastructure Planning Office website

The Project Delivery Organization Chart is prepared by selecting the positions and reporting relationships for the project. The chart can draw from the project delivery generic organizational structure, however, only those relevant and needed for the project should be included.

The resources plan must assign resources to each position. The commitment of the Project Team proposed for a project, must be approved by the Project Sponsor, or in some situations, the appropriate Departmental Manager.

The roles, responsibilities, and levels of authority for each position must also be identified for the Project Delivery Organization Chart. Any variation to the standard role, responsibility, or level of authority definitions must be specifically identified in the resources plan.

5.7.7 How to Develop a Resource Matrix

The resource matrix consists of a table of labour input for each position identified for each task, as shown in Table 5-9.

The resource matrix includes the following:

- The Work Breakdown Structure and task names are identified in the left-most columns.
- All positions are included as column headings, whether they are part of the Project Team or support services.
- The matrix cells include the labour for each position, usually reported in hours.

A standalone resource matrix template has not been developed since Microsoft Project includes a resource matrix template and features to assist a Project Manager in managing resources.

Table 5-9. Example Resource Matrix

WBS	Task Name	Project Sponsor	Member 1	Member 2	Member 3	Member 4	Project Manager	Administrative Assistant	Total Hours
				Advisory Committee					
0	**Deliver Capital Project**								
1.0	Initiation Phase								
1.1.1	Project Charter								
1.1.1.1	Develop Project Charter	5	10	10	10	10	25	15	85
1.1.1.2	Endorse Project Charter	5	2	2	2	2	8	5	26
1.1.2	Project Delivery Plan								
1.1.2.1	Define Scope						20	5	25
1.1.2.2	Create WBS						20		20
1.1.2.3	Determine budget						20		20
1.1.2.4	Prepare schedule						10		10
1.1.2.5	Plan procurements						10		10
1.1.2.6	Plan communications						5	5	10
1.1.2.7	Approve PDP						30	25	55
1.1.2.8	Initiation Phase Closure	5					5	2	12
1.1.3	Updated Business Case								
1.1.3.1	Updated business case						40	5	45
1.1.3.2	Acquire phase approval						80		80
2	Execution Phase								
3	Close-Out Phase								

5.8 Plan Communication Management

Communications planning is the process of determining the project information needs and defining the approaches to be used. The communications plan documents the project approach, with the information in a specific format, provided at the right time, and limited to only what is needed. The Project Manager is responsible for the project communications plan.

5.8.1 Develop a Stakeholder Assessment

Stakeholder Assessment & Communication Plan template

Download from the City's Infrastructure Planning Office website

The stakeholder assessment is first developed in the initiation phase and continues to be updated and refined in the subsequent project phases. For more information, refer to *PMM Section 4.4 – Stakeholder Assessment.*

Assessment of the project stakeholders is critical to the Project Manager and the Project Team in understanding who is impacted, what their impact is, their importance and influence, and how the stakeholders will be managed.

Some of the questions to ask about the overall project and various decisions being made within the project include:

- How interested will the community be?

- What information do we need from the community?

- What issues or historical factors should be considered?

- What are the risks of engaging the community?

  What opportunity exists to adjust the scope of the project to respond to newly identified community perspectives?

- Who are the obvious and not-so obvious stakeholders?

Assessing stakeholder interests in the project requires consideration of the project objectives, as well as an exploration of unintended issues that the project might impact.

Once the stakeholder assessment is completed, a number of strategies can be developed to address stakeholder interests or needs. Refer to the Stakeholder Assessment and Communication Plan template, *Stakeholder Assessment* tab.

The communications plan identifies how each stakeholder will be communicated with in order to address their interest or needs. Table 5-11: *Example Communications Plan* in *PMM Section 5.8.2.1* provides a format for documenting communication and engagement activities designed to address issues and interests identified in the stakeholder assessment.

The assessing of stakeholders and communicating to those stakeholders evolves as the project lifecycle processes. This is an iterative process where the Project Manager continually has to manage the plan based on feedback. Communication is two way.

Table 5-10. Example Stakeholder Assessment

Stakeholder	Interest and Expectations	Importance and Influence	Assessment of Impact	Strategies for Gaining Support or Reducing Obstacles

5.8.2 Develop a Communications Plan

The information needs and the distribution methods for project communications vary widely for different types of projects, and must be developed for each project. The core of the communications plan defines who will communicate with whom (stakeholder assessment) and who will receive what information when (communications plan). An essential output from the communication planning process will be defining a balance between too much or too little communication.

5.8.2.1 How to Develop a Communications Plan

Table 5-11 provides an example of a communications plan. This information is captured in the Stakeholder Assessment and Communication Plan template on the *Communication Plan* tab.

The following principles guide the development of a communications plan:

Stakeholder
Assessment &
Communication Plan
template

Download from the
City's Infrastructure
Planning Office
website

- **Stakeholder** – lists persons and groups to be included in the communications plan and receive information.
- **Objective (Need/Why)** – The underlying reason for any communication should be clearly understood. Purposes include complying with reporting requirements, asking for special permission, and conveying new information.
- **Messages (What)** – Messages must be consistent with their purpose and compatible with their audience.
- **Timing/Frequency (When)** – The timeframe and frequency of communications should be identified.
- **Delivery Methods/Media Types (How)** – The delivery methods to be used should be specified. Delivery methods include in-person meetings, conference calls, video conferencing, online meetings, emails, and hard-copy reports.
- **By Who** – The person responsible for communicating each type of information should be identified. For sensitive information, the person who can authorize release must also be identified.
- **Feedback Mechanism** – The need for feedback and any requirements for the feedback such as what is expected and the timeframes should be identified.

Table 5-11. Example Communications Plan

Stakeholder	Objective (Need/Why)	Messages (What)	Timing/Frequency (When)	Delivery Method/ Media Type (How)	By Who	Feedback Mechanism
Project Sponsor						
Major Capital Projects Advisory Committee						
Project Advisory Committee						
Business Owner						
Control & Use Owner						
Mayor and Council Members						
Special Interest Groups						
Regulators						
General Public						

5.8.3 Official Openings or Ground-Breaking Ceremonies

A common part of a project communications plan relates to the ground-breaking or official opening ceremonies for completed major capital projects. These events recognize the City's efforts and public contributions for the benefit of the Public.

The CAO supports official ceremonies for designated projects involving Central Council or community facilities. The Project Manager is responsible for including these ceremonies in the communications plan.

Guidelines include:

- The time and date for the opening ceremony for a Central Council facility will be determined by the appropriate director in consultation with the Mayor's Office.
- The Mayor's Office will prepare invitation lists in consultation with the department.
- The Mayor's Office will print invitations, and the department will address and mail them.
- Where the federal government has been involved in funding a facility, federal representatives must be invited to the official opening.
- If the provincial government has been involved in funding a facility, provincial representatives must be invited to the official opening.
- The Mayor's Office, in consultation with the department, will determine program format.
- A bronze plaque dedicating the facility to the residents will form part of the ceremony when the capital cost of the facility exceeds $500,000.
- The project budget is to include all costs associated with the opening.

For official openings the Project Manager along with the assistance of the Department/Corporate Communications Officer is responsible for coordinating all arrangements and overseeing the conduct of the ceremony.

Some possible activities include:

- Preparing text for the brochure, plaque, media release, and project sign.
- Determining a suitable site for the ceremony.
- Providing for parking at the site, or for alternate transportation (transit).
- Designing the site setting, monument, and plaque.

- Constructing the site, monument, and plaque.

- Developing information brochures and invitations.

- Developing guest list
  (Consultants, Contractors, City Representatives, Politicians, members of the Public, and so forth).

- Developing ceremony program
  (format, speakers, ribbon cutting, music).

- Arranging for photography.

- Preparing alternate arrangements in case of inclement/unseasonal weather.

- Arranging for site facilities/services
  (lectern, public address system, flags, cleaning crews, traffic control).

- Making post-ceremony reception arrangements
  (location, food, refreshments, entertainment).

- Arranging for site clean-up and full opening of the facility.

5.8.4 Public Engagement

References exist throughout the *OurWinnipeg* Plan and its direction, strategies and related policy documents, which highlight the importance of and interest in working with community stakeholders to identify and address community needs and issues in the work undertaken by the City of Winnipeg. Public Engagement encompasses the range of activities that support this relationship between the City and residents.

As we heard through *SpeakUp Winnipeg* (the Public Engagement Program associated with the development of *OurWinnipeg*), Winnipeggers expect to be involved in the decisions that affect them and their city, including determining what is important to them and how their community grows and develops.

The Spectrum of Public Engagement

Table 5–12: *Spectrum of Public Participation* demonstrates the range of possible types of engagement with stakeholders and communities. It ranges from sharing feedback and perspectives to empowering the community to make decisions. The role and input of residents becomes stronger further right across the spectrum.

Table 5-12 identifies the goals associated with each level of engagement. It also identifies the level of commitment that each level represents in order for to provide a meaningful engagement process.

Table 5-12. Spectrum of Public Participation

	Inform *	Level 1: Consult	Level 2: Involve	Level 3: Collaborate	Level 4: Empower
Public Participation Goal	To inform the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solution	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of preferred solutions.	To place final decision-making in the hands of the public.
Promise to the Public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision	We will look to you for advice and innovation in formulating solutions and incorporating your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
Example Techniques	Fact sheets Web sites Open houses	Public comment Focus groups Surveys Public meetings	Workshops Deliberative polling	Resident advisory committees Consensus-building Participatory decision-making	Resident juries Ballots Delegated decisions

* Informing the public is required for all levels of engagement to ensure participants are aware of and knowledgeable about the project and can provide informed input. Informing the public is a critical component of any engagement process and must be included following decision making to ensure stakeholders and the public remain informed during and after the public engagement process has concluded.

A public engagement process may move through different levels of engagement as the project progresses. Every public engagement process requires balanced and objective information to assist participants in understanding the issue(s) at hand, the alternatives to choose from and the opportunities the decision presents.

Determining the appropriate level of engagement requires thoughtful consideration of the degree of decision-making influence that can be legitimately allocated to members of the public.

The statements in Table 5-13 can help identify the appropriate level of engagement.

Table 5-13. Public Engagement Framework

Level of Engagement	'Which' statement that applies to the decision being made
All levels: Inform*	I need to share information with individuals or groups about a decision that has been made or about a decision that needs to be made.
Level 1: Consult	I need to ask stakeholders and the public about their views on the options that have been developed (pre-determining options). Their feedback will be considered when the recommendations/ decision is being made.
Level 2: Involve	I need to ask stakeholders and the public to ensure concerns are understood and reflected. Feedback will be collected to define options that are not yet well defined.
Level 3: Collaborate	We need to develop and build solutions to identify the preferred solution(s) through working with the community. Generating options and solutions comes through working with stakeholders and the public.
Level 4: Empower	I need to work with a community member or group in a process in which they have the final decision-making power. The City of Winnipeg Charter requires that decisions can only be made by Council or Council committees and employees who have been delegated.

* Informing the public is required for all levels of engagement to ensure participants are aware of and knowledgeable about the project and can provide informed input. Informing the public is a critical component of any engagement process and must be included following decision making to ensure stakeholders and the public remain informed during and after the public engagement process has concluded.

It is important to consider the statements in Table 5-13 for each phase or deliverable within the project management plan and to acknowledge that each step in the process may have more than one public participation objective. For example, communication (informing) should occur at each decision-point, at minimum, to ensure the public is kept informed.

Guiding Principles

Meaningful public engagement is dependent on the following principles, and although each plays a critical role all principles are interconnected and should be applied together to ensure meaningful public engagement and achievement of the public engagement vision.

Public engagement should strive to be reflective of the following principles:

Accountability – Provides insight on how input was considered and incorporated. If input was not incorporated, rationale is provided as to why.

Collaboration – Recognizes community-based knowledge and experience as a valuable component in decision-making and seeks dialogue with those who hold that knowledge and experience. Seek opportunities to partner with community and stakeholder groups when possible to further reach the potential for meaningful involvement.

Communication – Provide information so stakeholders and the public can engage meaningfully, and relate to key decisions. Effective communication is often an integral part of public participation, however, it is not engagement in itself.

Evaluation – Assesses performance in meeting engagement principles to strive towards advancement, improvement, and innovation.

Inclusivity – Seeks involvement from all those affected. Stakeholders may be engaged for more detailed, focused discussions, and a broader public is involved to ensure the process is open to all. Where barriers to inclusive engagement exist, barriers are reduced to the greatest degree possible.

Representation – Those affected by decisions should be included in the process. Particular attention should be paid to ensuring involvement of those who experience barriers to participation.

Timeliness – Involves the public as early as possible to provide the greatest opportunity for feedback to influence the project direction and final outcomes.

Transparency – Participants are provided with the information needed to meaningfully engage and understand the project. Participants are provided with regular updates.

Trust – Seeks to build relationships through consistent application and reflection of all other principles of engagement.

5.8.4.1   Supplementary Considerations

Consideration of the guiding principles is important at every stage of planning, implementing and evaluating public engagement activities. The following provides more specific considerations that support these guiding principles, and should also be considered throughout the process of planning, implementing and evaluating public engagement activity.

5.8.4.2   City of Winnipeg Universal Design Policy

According to the City of Winnipeg Universal Design Policy, all communications and public engagement activities of the City of Winnipeg shall take place in accordance with Universal Design Principles.

If preparing printed materials for engagement activities, or for guidance on how to make engagement activities accessible, contact the Universal Design Coordinator or refer to the City`s Universal Design website: https://winnipeg.ca/ppd/Universal_Design.stm

5.8.4.3   Plain Language

Like good communication of any kind, plain language is clear, concise, and uses simply constructed sentences. Plain language tells the audience exactly what the audience needs to know without using unnecessary words or expressions. It is not baby talk or overly simplistic, however, it lets the audience understand the message easily.

Plain language is more than just short words and short sentences — although those are often two very important guidelines for plain language. When you write in plain language, you also organize it logically to make it easy for the audience to follow. You consider how well the layout of your pages or screens works for your audience. You also ensure that the information you provide is relevant to the audience. What is plain language for one audience may not be plain language for another audience.

Communication that is clear and to the point helps improve all communication because it takes less time to read and understand. It also improves audience response to messages. Using plain language avoids creating barriers that set us apart from our audience.

5.8.4.4   Manitoba Freedom of Information and Protection of Privacy Act

When obtaining personal information from community members, it is important to remember that the Manitoba Freedom of Information and Protection of Privacy Act (MB FIPPA) imposes obligations on the City as to how information, particularly personal information is collected, used, disclosed and disposed of (destroyed). The Act controls the manner in which public bodies like the City of Winnipeg collect personal information, and protects individuals against unauthorized use or disclosure of personal information.

The Act, which can be found at gov.mb.ca/chc/fippa/understanding_fippa.html#20 identifies an extensive list of what constitutes "personal information". Any time you consider collecting information that is personal in nature, a good rule of thumb is to collect only the minimum amount of information necessary to accomplish the purpose for which it is being collected.

It is also important to note that a record of personal information can take various forms. It can be information that is written, photographed, recorded or stored in any manner, on any storage medium or by any means including by graphic, electronic, or mechanical means.

If consideration is being given to creating records of any personal information through your public engagement activities, consult with your departmental FIPPA contact before any information is collected.

5.8.4.5 Public Engagement Framework

A Public Engagement Framework, including a procedure, is under development following the approval of the Engage Winnipeg Policy.

5.8.5 Define Standard Project Performance Reports

Standard Project Performance Reports templates

Download from the City's Infrastructure Planning Office website

Once the communications plan has been established, the Project Delivery Plan must identify the reports and the reporting format for the project.

Table 5-14 identifies the specific performance reporting that will be used in the City of Winnipeg. The intent is to ensure that the stakeholder, both horizontally and vertically, in the organization become familiar with information that is needed to communicate the project performance status accurately. The intent is to move away from ad-hoc reporting where individuals develop a stand-alone reporting template.

Note: A number of the reports/tools outlined in Table 5-15 are being reviewed and are not fully developed.

Table 5-14. Standard Project Performance Reports

Report/Tool	Purpose
Project Management Checklist	Provides a record of completion of Project Management Manual required actions.
Status Report – Project Management	Summarizes data, tracks progress, and compares progress with baselines defined in the Project Delivery Plan, risk, schedule, financial forecasts, and may include earned value management.
Status Report – Consultant	
Status Report – Contract	
Open Capital Projects Dashboard projectexplorer.winnipeg.ca/projects	Summarizes data, tracks progress, and compares progress with baselines defined in the Project Delivery Plan, risk, schedule, financial forecasts, and may include Earned Value management.

Report/Tool	Purpose
Project Issue-Decision Log	Tabulates and tracks all project issues and resulting decisions on the project communications.
Project Change Tracking Log	Track changes and potential changes.
Change Control Report	Provides an integrated view of the project, Consultant, and construction changes; enabling forecasting.
Risk Register and Report	Identifies exposure to risk events for the Consultant and Construction Contractor, identifies actions taken and required, and provides information for integrated change control.
Major Capital Projects Quarterly Project Status Report	Documents all projects that meet the threshold to be considered a major capital project, and reports to Standing Policy Committee on Finance.
Consultant Performance Review	Documents Consultants' performance and provides feedback to Consultants.
Final Close-out Report	Prompts for final documentation and closure of all tasks and budgets.
Lessons Learned	Documents what went well and what did not for future reference and application to the continual improvement process.

A key concept that is being implemented into the report design is a hierarchal reporting structure. Construction reports will roll-up to Consultant reports, which will roll-up to project management reports, which will roll-up to Asset Management Office (AMO) reports, and ultimately to Major Capital Dashboard reporting.

The standard project performance reports will have guidelines for distribution to specific roles in the project organizational structure and frequency of distribution. These guidelines are embedded in the help notes.

The Project Delivery Plan is to identify any ad-hoc or non-standard reports required, distribution and the frequency of distribution.

5.8.6 Major Capital Projects Quarterly Project Status Report

Major Capital Projects Quarterly Project Status Report template
Download from the City's Infrastructure Planning Office website

FM-004 requires the administration to report to the Standing Policy Committee on Finance quarterly on all projects that meet the threshold to be considered a major capital project.

The threshold to be considered a major capital project is revised annually for construction inflation and is published in the Major Capital Projects Appendix in the Adopted Capital Budget Volume 3.

The Project Manager must ensure the accuracy of reports as they pertain specifically to major capital projects.

5.8.7 Plan Records Management

Projects must be managed in accordance with a comprehensive records management system managed by the owning business unit.

The primary objectives for a system of this type are to:

- Provide an efficient and intuitive document identification system.
- Store all related documents efficiently so they can be readily retrieved.
- Record the history of each document including versions, approvals, and certifications.
- Minimize the cost and time of records management.
- Facilitate provision of records to stakeholders for all aspects of the project.

For the City, the *Freedom of Information and Protection of Privacy Act* (FIPPA) and the Records Management By-law No. 86/2010 define a record as "any kind of recorded information that is created or received by, or in the custody or control of, the City regardless of its physical form or its characteristics."

5.8.7.1 Identify Record Types

Table 5-15 identifies the type of records possibly generated on a project.

Table 5-15. Record Types

Record Category	Description
Drawings	This includes all formal drawings produced as a stand-alone document or design packages. These are typically defined as "Design or Construction drawings" however the intent is any drawing produced and formally used on the Program will fall under this category.
Project Deliverables	Are specific formal document that is a product of a Project, however the life of the document continues on past the end of the Project. These can include as an example; Concept Design reports, Preliminary Design Reports, Operations & Maintenance, Contracts and Standard Operating Procedures. Other documents include land purchase and environmental impact reports.
Project Records	These are documents produced to support the management of a project. These documents have no active use once the project has been closed. These can include as an example: Progress Estimates, Change Orders, Schedules, and Meeting Minutes. Project records include administration records such as: • Financial (Project costing, invoices and other accounting records) • General correspondence • Reporting • Human Resource Management • Planning • Project-specific procedures
Uncontrolled documents	All hardcopy documentation, if not controlled by an authorised person shall be deemed uncontrolled by the person who prints the document

5.8.7.2   Record Changes in the Project Record Index

The Project Delivery Plan must consider the use of a Project Record Index (PRI) and define the rules for its use if one is to be used.

The PRI is used to track and monitor changes in the work. As soon as an issue is identified which has the potential to cause amendment to the original contract, it is entered in the PRI.

A unique number is assigned to the issue for recording in the PRI that associates all subsequent and associated change management documentation, including the reason for the potential change. All subsequent correspondence related to the change is then referenced in the PRI through the numbering system.

For more information, refer to *PMM Appendix E: Records Management*.

5.9   Plan Risk Management

Plan risk management is the process of defining how to conduct risk management activities for a project.

Risk is inherent in delivery of all projects, and risk management must be applied to all major projects. The objective of risk management is to reduce the chance that the project will not meet its goals and objectives.

The five processes in risk management are:

Process	Process Description
1. Identify risks	This process identifies risks and documents their characteristics.
	Each risk must relate to at least one of the project objectives (cost, scope, schedule, and quality). Risks are recorded in a Risk Analysis and Evaluation Risk template that will be further developed as part of subsequent processes and maintained and managed throughout the project.
2. Perform qualitative risk analysis	For this process, the identified risks are evaluated by assigning probability of occurrence and consequence scores to each risk and prioritizing the results. The qualitative risk analysis provides a rational basis for quantification of a risk contingency reserve.
3. Perform quantitative risk analysis	This is the process of numerically analyzing specific risks to the project objectives. This level of risk analysis can be very detailed and complex and is therefore only applied to specific risks under specific conditions.
4. Plan risk responses	Once risks have been identified and analyzed, the threats they pose to the project can be dealt with through risk responses.
5. Monitor and control risks	This is the process for implementing the risk response plans and monitoring, evaluating, and updating the process throughout the project.
	The Risk Analysis and Evaluation Register template is used for this purpose.

The Project Management Manual takes a progressive approach to risk management through the project phases, providing a continuum from the initiation phase to close-out phase, as outlined below.

- **Business Case Risks** – Risk analysis is considered in project pre-planning and an identified risk contingency reserve may have been established in the project budget. Risks are typically defined in the initial Business Case at a high level because specific deliverables may not have been defined and many of the details are not known. Similar projects that have been completed can often provide an initial sense of project delivery risks.

- **Project Delivery Plan** – The Risk Management Plan (RMP) is a document summarizing how the risk-related activates are structured and performed on a project. The RMP is defined and

documented in the Project Delivery Plan. As with the other plans in the Project Delivery Plan, the RMP is continually updated with each project phase. As projects progress, many of the risks are eliminated and retired as part of the risk management process.

5.9.1 Develop a Risk Management Plan

The Project Manager develops a Risk Management Plan (RMP) and manages it throughout the project. The RMP is regularly updated and reported to the Project Team, Project Sponsor, Project Advisory Committee and/or Major Capital Project Advisory Committee.

The type of risk assessment, as identified below, depends on the complexity of the project.

Risk Assessment – small, routine low-risk projects require only a Risk Analysis and Evaluation Register, which is used exclusively to identify potential risk events and responses. The risks are identified by the Project Manager or Project Delivery Team, or extracted from other sources requiring only a low level of effort. Refer to Table 5–16: *Examples of Systemic and Project-Specific Risks.*

- **Qualitative Risk Assessment** – used for projects that are not small or routine, and are not of significant concern. A short-form numerical approach and risk identification method may be used. The risks are identified by the Project Manager or Project Delivery Team, or extracted from other sources requiring only a low level of effort.

- **Comprehensive Qualitative Risk Assessment** – must be completed for projects that have medium to high risks. Detailed scoring and a risk ranking for each risk event are required. A more formal process with participation of a broad range of stakeholders is used, typically in a workshop setting.

- **Quantitative Risk Assessment** – high-risk projects, or those identified by having a Major Capital Project Advisory Committee, require quantitative risk assessments.

The Risk Management Plan must address project delivery risks as well as product risks.

- **Project Delivery Risk** – addresses threats to project delivery in terms of scope, cost, schedule, and quality. Examples include inadequate budgeting, inadequate resources, or excessive demands from stakeholders.

- **Product Risk** – addresses the product implementation and the product's function. Examples include uncertainty of soil conditions, a shortage of skilled Contractors, and use of unproven technology.

Just as risk to project delivery may cause costly overruns or start-up delays, risk to the product may cause a poorly functioning product or costly re-work that may far exceed the consequences of project delivery risk. Separating project delivery risk and product risk allows focus and discipline to be maintained for both.

Product risks are more likely to be identified by technical staff or others experienced with the product. A separate risk analysis process such as a workshop convened later in the project may be used. Product risks are updated with a different frequency than are project delivery risks.

Risk responses must be identified as part of the risk management process, either during or after the risk assessments. The Risk Management Plan also identifies the frequency of or triggers for risk reassessments.

The Project Manager is responsible for tracking all risks with summary risk reports submitted to the Major Capital Project Advisory Committee and Manager, Major Capital Projects Oversight. The Major Capital Project Advisory Committee is directly involved in reviewing risks, as indicated in FM-002 Materials Management Administrative Standard. Risk Management Plan updates are included in quarterly reporting on Major Capital Projects and are required for project phase gate and/or control point approvals.

The Risk Management Plan should also consider opportunities, which are simply risks with positive impacts. Although not described in detail in this Project Management Manual, the

processes and procedures for considering opportunities are similar to those for considering threats.

5.9.1.1 How to Prepare a Risk Management Plan

The Risk Management Plan accompanies the Project Delivery Plan and documents the results of risk planning. It defines how to conduct risk management so that the process is commensurate the risks and importance of the project, and that the information is available to project stakeholders. It will depend on the complexity of the project and, as a minimum, is to include:

- Project description
- Risk management scope and reference to WBS deliverable
- Organization, roles and responsibilities
- Risk management methodology: Evaluation approach and tools to be used
- Reporting
- Risk Analysis and Evaluation Register (template)

5.9.2 Identify Risks

Every project is exposed to multiple risks of different types. The risks may relate to either or both of the project or product, and affect any of the four project objectives: scope, cost, schedule and quality.

It is useful to categorize risks prior to attempting to quantify them or develop risk response strategies.

A recommended practice provided in AACE No. 42R-08 defines risk into two category types:

Systemic – risks that have systematically predictable relationships to overall project cost growth.

Project-specific – risks that don't have a predictable relationship to overall project cost growth.

Table 5–16 provides examples of the risk types for the two risk categories.

Table 5-16. Examples of Systemic and Project-Specific Risks

Risk Type:	Systemic Risks	Project-Specific Risks
Category of Risk:	**Design Complexity** • Technology • Process Complexity • Material Impurities **Project Definition (how defined)** • Site/Soils Requirements • Engineering and Design • Health, Safety, Security, Environmental • Planning and Schedule Development **Project Management and Estimating Process** • Estimate Completeness (due to scope definition) • Team Experience/Competency • Cost Information Available • Estimate Bias	• Weather • Site Subsurface Conditions • Delivery Delays • Constructability • Resource Availability • Project Team Issues • Quality Issues (i.e.: rework)

5.9.2.1   Systemic Risks

The term 'systemic' implies that the risk is a product of the project 'system', culture, business strategy, process system complexity, technology, etc.

Measures of these risks are generally known even at the earliest stages of project definition, and furthermore, the impacts of these risks tend to be highly dominant for early estimates. However, the ability to directly estimate these events is difficult. (For example, the cost of a complex design cannot be clearly quantified, however, identification that there is a risk is possible).

Finally, systemic risks tend to be owner risks – the owner is responsible for early definition, planning, technology, and decisions so these risks cannot be readily transferred.

5.9.2.2   Project Specific Risks

The impacts of these risks are not highly predictable between projects within a system or within an industry as a whole. For example, rain may have much more impact on one project than another depending on the project characteristics and circumstances.

Measures of these risks are generally not known at the earliest stages of project definition. The link between *project-specific* risks and cost impacts is more deterministic in nature; that is, they are related to individual understanding and to estimating the impact of these risks on particular items or activities (for example, the risks of excess rain on something like site preparation or concrete foundations can be estimated).

These risks are more negotiable during project contracting strategy as to who will carry them.

5.9.3   Risk Statements

Properly structured risk statements aid in developing and tracking the responses.

Fundamental concepts used in risk statements are:

- A **Cause** is the condition that exists in the project and gives rise to the threat (or opportunity); one cause may generate multiple threats (or opportunities).
- The **Risk** is the event that may or may not occur.
- The **Effect** is the unplanned impact on at least one of the project objectives.

The risk statement construct has been embedded into the Risk Analysis and Evaluation Register template.

Individual risk may be identified by the Project Manager or for larger projects a team of experts should be used. After the risk identification process, the details of the individual risks are then listed on a Risk Analysis and Evaluation Register for managing and tracking.

5.9.4   How to Create a Risk Analysis and Evaluation Register

Risk Analysis and Evaluation Register template

Download from the City's Infrastructure Planning Office website

A Risk Analysis and Evaluation Register is required for all projects, and include:

- **Risk Event Outcome** – All project objectives (scope, cost, schedule, quality) are considered in the risk assessment. The *Risk Event Outcome* columns indicate the risk statement.
- **Threat or Opportunity** – Risks can be either unfavourable to the outcome, in which case they are threats; or favourable to the outcome, in which case they are opportunities. In the *Threat or Opportunity* column, indicate which type the risk is expected to be.
- **Meta language Risk Descriptions** – The risks should be described with a three-part meta language description in the form of:
  - *As a result of [Risk CAUSE]* – identify the cause of the risk event.

- o *This event may occur [Uncertain EVENT]* – identify what specific event will occur.
- o *Which leads to [EFFECT on objectives]* – Identify the end result of the risk event.

  This approach promotes separation of the cause and effect from the risk.
- • **Risk Severity** – select the severity of the risk: critical, serious, important, or acceptable.
- • **Risk Response** – identify how the risk will be addressed based on a specific category of risk. A risk response must be identified for each risk.

Table 5-17 illustrates the outline for Risk Event Identification in a Risk Analysis and Evaluation Register template.

Table 5-17. Example Risk Event Identification for Risk Analysis and Evaluation Register

Risk Event Identification				
Risk Event Outcome	**Threat or Opportunity?**	**As a result of (Risk Cause)**	**This event may occur (Uncertain Event)**	**Which leads to (Effect on objectives)**

Risk Analysis and Evaluation Registers for more detailed risk assessments include additional columns such as a formal referencing system, and likelihood and consequence scores.

5.9.5 How to Perform a Qualitative Risk Assessment

A qualitative risk analysis is carried out by estimating the likelihood (probability) of each risk to occur and the consequences (impact) if it does. The two scores are then combined, and the risk is prioritized.

An example of a risk probability scale is provided in Table 5-18, and an example of a risk consequences (or impact) scale is provided in Table 5–19.

Table 5-18. Risk Probability Scale

Score	Likelihood/Probability	Description
5	Almost Certain	Is expected to occur unless circumstances change
4	Likely	Will probably occur in most circumstances
3	Possible	Might occur under current circumstances
2	Unlikely	Could occur if circumstances change
1	Rare	May occur only in exceptional circumstances

Table 5-19. Risk Consequences (or Impact) Scale

Score	Consequence/Impact	Description
5	Extreme	Heavy damages
4	Major	Significant damages
3	Moderate	Serious damage
2	Minor	Minor damage
1	Insignificant	Insignificant damage

Risks may be identified and scored by the Project Team, stakeholders, or others with related experience. The Major Capital Project Advisory Committee may also identify risk as its members can draw on experiences from other large City projects.

A typical method of capturing the information is through team brainstorming sessions. A process for conducting this analysis should be developed and agreed on by the team for each project, commensurate with the project needs.

Probability and consequence scores can be plotted in a matrix, as illustrated in Figure 5-10, and indicates the level of risk and basis for risk prioritization.

Figure 5-10. Example of a Qualitative Risk Matrix (Illustrating a Planned Risk Response)
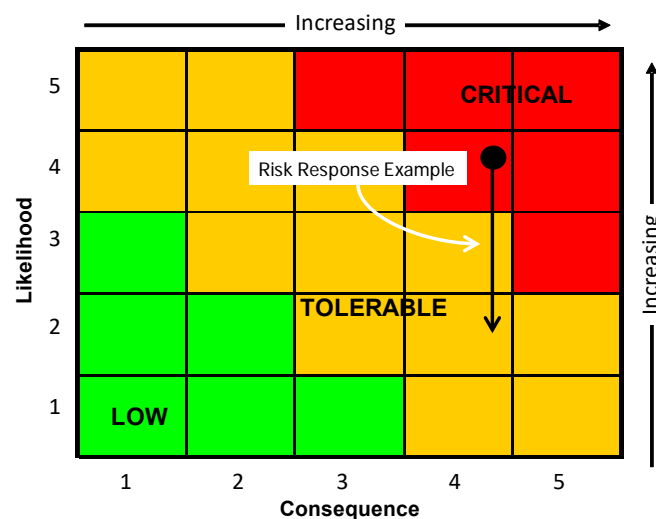
Risks with a combination of high likelihood and high consequences will be of the most concern. A risk response will be required to manage critical risks.

In many cases, the risk response will only address either the likelihood or the consequence. Figure 5-10 shows risk response decreasing as Likelihood decreases.

Table 5–20 illustrates the integration of qualitative risk severity information in the Risk Analysis and Evaluation Register template.

**Table 5-20. Risk Severity Information integrated into the Risk Analysis
and Evaluation Register**

Risk Event Identification					Risk Severity
Risk Event Outcome	Threat or Opportunity?	As a result of (Risk Cause)	This event may occur (Uncertain Event)	Which leads to (Effect on objectives)	

5.9.6 How to Perform a Quantitative Risk Assessment

Quantitative risk assessments are prepared after the risks have been identified, and rated through the qualitative process.

A quantitative assessment is used for cases where the risk will be accepted, or it has been determined that a contingency allowance should be applied. The individual risk contingencies are then compiled and itemized into the risk reserve contingency. Refer to *PMM Section 5.4.1.10.3 – Risk Reserve Contingency* for application of the risk reserve contingency to project estimates.

The factors that affect the quantification of the risk reserve are complex and, by necessity or for convenience, a lot of assumptions are usually made.

It is important to note:

- The risk reserve is to be added to the phase estimate with the estimating contingency included, however, do not double count any risks already considered.

- It would be incorrect and a budgeting error to set the contingency amount as the total of all of the potential risks since it is unlikely all risks would occur on any one project at the same time, and the potential for realization of opportunities would be overlooked.

- The contingency must reflect the stakeholder's risk tolerance level.

The method of risk quantification will depend on the category of risk and the project needs.

Three alternative methods are identified, as follows, for quantification of the risk reserve:

5.9.6.1 Single-Point Estimate

In single-point estimating method, the estimator assigns a fixed contingency or percentage risk reserve value to a single-point estimate.

For **systemic risks**, the value may be determined through intuition, experience, or from historical data.

For **project-specific** risks, the Expected Monetary Value (EMV) approach is used:

- EMV requires the probability of the event to be estimated as well as the monetary consequences. The amount of the contingency is then determined by the multiplication of the two values.

- The EMV estimates are improved by applying different contingency percentages to each major cost element. This recognizes that some parts of the project may have greater uncertainty than others. This method is considered more rational and reliable than the simple application of one overall percentage to the total cost because it encourages closer examination of each cost area.

The calculated amount is the risk reserve contingency to be added to the estimate, and is managed as a separate line item through the contingency management process.

This single-point estimate method is easy to apply, and is satisfactory for projects where there may be a substantial amount of experience with the type of project to justify the approach.

The drawback is that the single-figure prediction of estimated cost implies a degree of certainty that is not justified. The probability of achieving this cost is not fully evaluated and does not take into account the surrounding uncertainty.

The single-point estimate method may be used for smaller projects, and at the first phases of larger projects. It is not suitable for large and complex projects.

5.9.6.2 Three-Point Range Estimate

Range estimating provides a simple quantitative method of risk assessment. It is based on an assumed probabilistic distribution of the cost estimates, providing an improved prediction of the actual uncertainty and justification for the contingency values as compared to the single-point estimate method.

The three-point range estimate method can be used for any type of estimate, either at the project or component level. In its simplest form, it only requires that three estimates be prepared at the project level:

- **a** = **Best case estimate** is the value where there would only be a 5-10 percent chance of a lower value.
- **m** = **Expected value** is normally the estimated value, and the most likely case, prior to risk allowances being applied.
- **b** = **Worst case** is the value where there would only be a 5-10 percent chance of a higher value.

The method assumes that the resulting relationship is a normal distribution, which is represented by a bell curve as shown in Figure 5-11.

Figure 5-11. Probability Distribution based on the Three-Point Estimate Method.
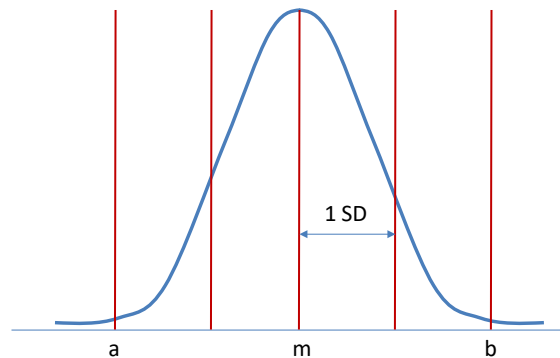
When a single three-point estimate method is used, the expected value is equal to point "m" and the standard deviation (SD) can be calculated as:

$$SD = (b-a)/6$$

Confidence levels can then be determined from the SD:

- there is a 68 percent probability the estimate will fall within one SD higher or lower than the estimate.
- there is an 84 percent probability that the project will cost less than the estimate plus one SD.

This method can be applied directly for systemic risks, with or without use of the risk register. The best and worst case estimates can be developed from prior experience, educated guesses, or more preferably, from the Risk Analysis and Evaluation Register results.

Accuracy of the estimate is improved by applying the technique to a number of component estimates for multiple deliverables, rather than at the project level. This is done by:

- Selecting deliverables with the highest risk and potential variation.
- Developing cost estimates for the selected deliverables and their SDs.
- Calculating the total project estimate by summating the component estimates.
- Calculating the total project SD by taking the square root of the summation of the squares of the SDs.

The project-specific risks from the Risk Analysis and Evaluation Register can be added to the systemic risk contingency. This is done by modifying the best and worst-case point values and recalculating the SD, as shown Figure 5-12.

Figure 5-12. Three-Point Range Estimate with Project-Specific Risks
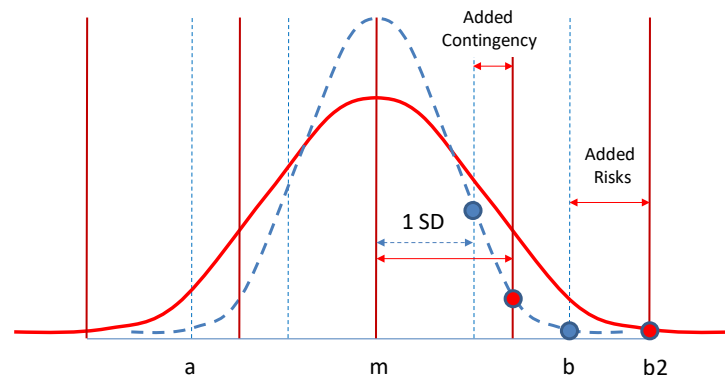
The risk consequences from the Risk Analysis and Evaluation Register are totalled and added to the worst-case estimate (new point "b2"). A similar adjustment should also be made for the best case (opportunities) and their potential cost reductions. The resulting distribution is assumed to remain to be "normal" and the contingency allowance can be calculated as described previously with the new values.

The accuracy of the estimate is improved if multiple component estimates are used rather than at the project level, with the individual risks applied to their respective deliverables.

The three-point range estimating method doesn't define the cumulative risk reserve value; however, it provides a rational basis for its selection based on the desired confidence limits. This would be determined from the organization's budgeting strategies and tolerance for cost overruns. The approach and contingency value selection are to be reported in the basis of estimate.

The calculated risk reserve contingency is added to the estimate, and is to be managed as a separate line item through the contingency management process.

5.9.6.3 Monte Carlo Simulation Estimate Method

The Monte Carlo Simulation estimate method is a more sophisticated quantitative technique for analyzing risk and quantifying the contingency value. As with the three-point range estimate method, the output of Monte Carlo Simulation is a probability distribution for total cost of the project.

The Monte Carlo Simulation estimate method requires a higher level of input definition and uses a series of calculations in computing the results. It is typically carried out by experienced estimators using commercially available software, and its specific application is not included in this manual.

The Monte Carlo Simulation estimate method should be considered for large complex projects.

Table 5-21 illustrates the integration of qualitative risk information in the Risk Analysis and Evaluation Register template.

Table 5-21. Qualitative Risk Information integrated in the Risk Analysis and Evaluation Register

Risk Event Identification					Risk Severity	Cost to Manage Risks
Risk Event Outcome	Threat or Opportunity?	As a result of (Risk Cause)	This event may occur (Uncertain Event)	Which leads to (Effect on objectives)		

5.9.7 Risk Response Plan

Risk responses are developed after the risk events have been identified and prioritized. Not all risks require formal risk response plans. The level of effort to identify response strategies and follow-up risk management depends on the level of risk.

5.9.7.1 How to Develop Risk Responses

Risk response strategies can be applied to the cause, the risk, or the effect, and are described below.

Accept – Some threats are too difficult to attempt to control and must be left to chance. In this case neither the likelihood nor the consequences can be reduced and the response is to deal with the effect if it happens. Providing a risk contingency reserve is the main response to this threat. Often, Plan B contingencies should be considered and developed as well.

Avoid – This is a good strategy for when a risk has a potentially large impact on the project. A threat can be avoided by removing the cause or breaking the cause-risk link. For example, if use of unproven technology causes a risk, the risk could be avoided by using a standard approach.

Transfer – Transfer does not change the true likelihood or consequence of a threat however relieves the City of responsibility for it. You transfer the impact and management of the risk of the risk to someone else. Insurance and contract security are examples of risk transfer.

Mitigate – A risk can be mitigated by addressing either the cause or the effect, and either the likelihood of the risk or the consequences of the risk can be reduced. One limits the impact of a risk, so that it does not happen and the problem it does create is smaller and easier to fix. This could include additional work to reduce the risk.

Exploit – The risk has a positive impact on the project. The risk would have benefit to the project if it happened. In those cases we want to maximize the chance that the risk happens, not stop it from happening or transfer the benefit to someone else.

Higher order Risk Management Plans must include detailed risk response plans that also identify the risk response owner, response triggers, managing contingencies and a schedule for actions, reviews, and reporting.

Table 5-22. High Level Risk Response Plans integrated in the Risk Analysis and Evaluation Register

Risk Event Identification					Risk Severity	Risk Response	Action(s) to be undertaken	Contingency Plan	Cost to Manage Risks	Risk Owner
Risk Event Outcome	Threat or Opportunity?	As a result of (Risk Cause)	This event may occur (Uncertain Event)	Which leads to (Effect on objectives)						

5.10 Plan Integrated Change Control Management

The majority of projects do not go exactly as initially planned from start to finish. There are events or issues that occur on a project that make change inevitable like when an unforeseen event happens or a risk is identified. These changes may occur at any phase of the project especially during project execution and monitoring and controlling phase. It is not necessary to execute all changes – only those that have been approved based on their evaluation and impact to the project.

A Change Control Plan is meant to guide a project during the process of change using the integrated change control process.

The objectives of the integrated change control process are to:

- Ensure that changes to the project have a strong business justification.
- Obtain the appropriate level for approval of changes.
- Ensure the changes to the project are understood and that Project Team members do not begin work on new or unplanned tasks prior to the approval of the change request.
- Monitor and control the cost and other implications of approved changes.
- Maintain a concise and accurate log of changes made during the duration of the project including financial costs.

The change control process for a project should include how a change request is initiated, analyzed, logged, tracked, approved and implemented. It clearly identifies roles, activities, and the sequence of activities, inputs, outputs, and how and where information is stored.

In order to control changes on a project, a Project Manager should:

- Identify all requirements at the beginning of the project.
- Comprehensively identify all risks related to the project.
- Establish and follow the change management process.
- Use the change control templates:
  - Change Work Order (CWO) for Construction/Services/Goods
  - Change in Scope of Services (CSS) for Consultant
  - Contract Change Log
  - Project Change Tracking Log
- Identify clear roles and responsibilities in regards to who can approve changes.
- Consider terminating a project if the number of changes is disproportionate.
- Ensure only approved changes are added to the baseline schedule for the project.

For more information, refer to *PMM Section 7.2 – Perform Integrated Change Control.*

5.11 Plan Health, Safety, Security, and Environmental Management

The purpose is to define and outline the Health, Safety, Security and Environmental (HSSE) standards that are to be complied with by all Contractors, Consultants, and employees working on the project.

The HSSE Plan or Plan(s) are living documents, developed before the project work begins, and based on the project's initial scope. As the project evolves, the plan is revised as the project scope changes.

Within each plan may be a checklist of information that needs to be considered (i.e.: eye wash station locations, whether asbestos or lead is present onsite, chemicals in the work site, etc.) It should consider various hazards depending on the type of work performed such as plumbing, electrical, or confined space hazards.

These elements define what must be achieved rather than how to achieve it, and describe requirements in the areas of HSSE with the following in mind:

- **Health:** Protect, promote, and improve the health and wellbeing of Project Team members, employees, Consultants and Contractors.
- **Safety:** Provide a work environment where people are able to work safely and understand their rights and obligations towards a safe workplace
- **Security:** Provide a safe and secure workplace for Project Team members, employees, Consultants, Contractors, and worksite visitors.
- **Environment:** Protect environmental and heritage values, promote the reduction and prevention of pollution, efficient use of resources and energy, and biodiversity protection and consider the environmental impact of project activities.

5.11.1 Workplace Safety and Health

The *Manitoba Workplace Safety and Health Act* (WHSA) require employers to develop workplace safety and health criteria to evaluate, select and monitor Contractors working at the workplace. Details can be found on the City's website at winnipeg.ca/matmgt/Safety/default.stm

An additional CityNet site for internal City Contract Administrators can be accessed through citynet/hrintra/workplacewellness/Safety/Safety-MainPage.stm

The City of Winnipeg process applies to Contractors who perform work for the City in the following circumstances:

- Construction Contracts with an estimated cost greater than $100,000 or considered to have high safety risk by the City; and
- Non-construction Contracts considered having high safety risk by the City.

5.11.2 Contractor Safety & Health Program Evaluations

The City's process requires bidders on affected Bid Opportunities to submit, within five business days as requested by the City, proof of an *acceptable* safety and health program. Bidders who do not provide proof will not be awarded the contract.

Acceptable means that the program meets or exceeds the elements required of a safety program as outlined in Section 7.4(5) of the Workplace Safety and Health Act.

Proof of an acceptable safety and health program is considered to be one of the following:

1. Written confirmation of a Manitoba COR™ or SECORTM program.

   Manitoba COR™ or SECORTM companies must submit a copy of their certificate along with their most recent letter of good standing to their assigned Contract Administrator.

If a Contract Administrator has not yet been assigned, this information is to be sent to the designated City contact person.

2. Written evaluation and verification by an independent workplace safety and health Consultant.

   - Bidders/Contractors can meet the requirement for independent verification without obtaining COR™ or SECORTM by providing written confirmation from an independent workplace safety and health Consultant satisfactory to the City.

   - The safety and health program review is conducted using the Contractor Safety & Health Program Evaluation Document, and is based on the requirements of Manitoba's Workplace Safety and Health Act.

   - Independent workplace safety and health Consultants satisfactory to the City include persons who:
     − have been approved to conduct COR™ or SECORTM audits; or
     − hold certification such as Canadian Registered Safety Professional (CRSP) or equivalent.

5.11.3 Safe Work Plans

Before work begins a Safe Work Plan is developed by the Contractor in consultation with the Contract Administrator.

To ensure the Safe Work Plan includes consistent safety and health information, the Contractor may be required to use the City's Safe Work Plan Document.

The Safe Work Plan demonstrates that a Contractor:

- Is aware of the hazards associated with the work; and
- Has identified appropriate control measures to manage the hazards.

The Contract Administrator reviews the Safe Work Plan with the Contractor, and requests clarification from the Contractor as required. The Contract Administrator can request assistance from their departmental safety resource as required.

The Safe Work Plan is to be provided to the Contract Administrator within the time frame mentioned in the contract. The time frame is usually at least five days before the work is scheduled to begin.

5.11.4 Security

Planning security standards would include items such as:

- workplace and/or site security
- gates
- fencing and/or physical barriers
- lighting
- vehicle access
- tools & equipment
- parking
- visitor control
- shipping, receiving material and equipment control

5.11.5 Environment

Planning for a project requires Project Managers to consider whether any parts of the proposed project or activities have any impacts on the environment.

The Project Environmental Impact Checklist outlines potential environmental impacts, including but not limited, to: property, historical/archaeological, endangered species, right-of-ways, land, rivers, floodplains, wetlands, noise, air, water quality, urban forest, climate action, etc. Completing the Checklist assists Project Managers in narrowing down the environmental impacts that must be accounted for when planning their specific projects.

If required, projects must first conduct an Environmental Assessment which is a planning process that must consider all environmental impacts, develop appropriate measures to manage the impacts before the project is implemented, and include consultation with stakeholders and/or the Public that could be potentially impacted.

5.12 Plan Commissioning

Planning for commissioning is included in the Project Management Manual due to its significance in the Asset Management System.

Commissioning requirements may be product-specific, and the Project Manager should communicate with the Business Owners and experts in its development. However, commissioning planning may not be applicable to all projects and, as with other processes, should only be applied as necessary.

Early consideration of commissioning is important so that assets can be transferred to operations where coordination of a number of parties is required including the Business Owner, Operator, Consultant, Contractors, trade persons, utilities employees, suppliers, permitting agencies, and potentially third-party testing and commissioning firms.

Coordination may also be needed for operating expertise, documentation, training, operating supplies, temporary services and testing, and budgets for the transition and for management of the transition services.

5.13 Plan Close-out

Close-out planning identifies which tasks, deliverables, and phases can be closed and when they can expect to be closed, and what are the resources required to ensure the tasks, deliverables, and phases can close.

The Project Manager is responsible for confirming all required work and deliverables are completed prior to the close-out, and that all documentation is in place.

The Project Delivery Plan needs to integrate the following into the project's phase or project close-out deliverable and tasks:

- A Business Case update for the Project Sponsor's consideration prior to beginning of the next phase.
- After each phase, with the completion of the appropriate cost estimate class, the Project Sponsor (and Business Owner) needs to assess whether the investment (project) should still proceed. This assessment includes multiple factors such as value for money, risk assessment and level of service – willingness to pay target (criteria). Refer to the closing process group for details.
- Confirmation that products, services, or results are being transferred to the next project phase or (upon completion of the project) to the Business Owner.
- After each phase, and at the end of the project, a lessons learned discussion, which will provide information to support the City's continual project improvement process.

- At the end of the project, through the Project Close-out Report, a benefits realization assessment is completed.

5.14 Update Project Delivery Plan

The Project Delivery Plan must be updated as one of the initial activities of each phase.

5.15 Plan Tangible Capital Asset Updates

Public accounting rules require capital assets to be identified and tracked. The City has developed Procedure #4 *Accounting Guidelines for Tangible Capital Assets* that integrate into the Project Delivery Framework.

Further information on Procedure #4 *Accounting Guidelines for Tangible Capital Assets* can be found on the City's website citynet/finance/documents_page.stm .

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Executing Process Group

Project Management Manual Sections

Section 1: Introduction

Section 2: Project Management Governance

Section 3: Project Delivery Framework

Section 4: Initiating Process Group

Section 5: Planning Process Group

Section 6: Executing Process Group

Section 7: Monitoring and Controlling Process Group

Section 8: Closing Process Group

Section 9: Contract Administration
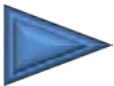
6 Executing Process Group

Executing is the third of the five project management process groups.

The purpose of this process group is to complete the work defined in the Project Delivery Plan to satisfy the project requirements. This involves coordinating resources, managing stakeholder engagement, and integrating and performing the activities of the project in accordance with the project delivery plan.

A large portion of the project budget, resources, and time is expended in performing the executing process group processes. The process may generate change requests. If approved, the change requests may trigger one or more planning processes that result in a modified project delivery plan, project documents, and possible new baselines.[8]

The executing process group includes processes for executing and updating plans developed in the initiating and planning process groups.

Figure 6-1. Executing Process Group
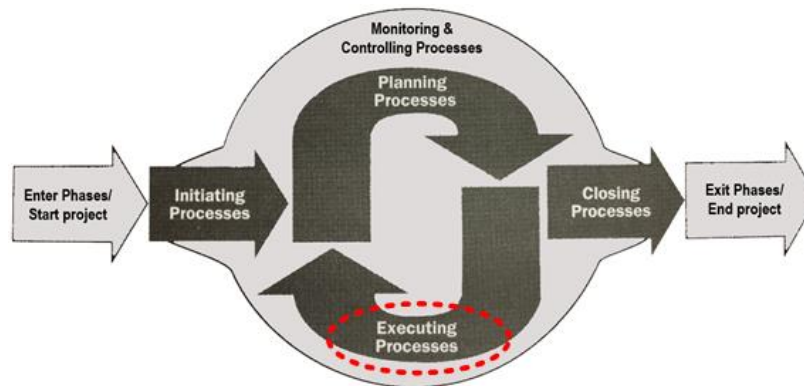
6.1 Acquire Project Team

The Project Manager, in consultation with the Project Sponsor, is responsible for identifying candidates to fill the roles identified on the project organization chart. For senior positions and most support functions, the roles are filled by human resources who already have organizational responsibility for a related function thus a candidate selection process is not required.

For the Major Capital Project Advisory Committee, a broad cross-section of the organization should be represented to provide objective advice, guidance, and recommendations for decision-making. A committee consisting of only end-users or customers may not be impartial about options and may cause the decisions to deviate from the Business Case.

For situations in which a selection process is required (such as for filling roles with human resources from the private sector), careful consideration must be given to matching the candidate's qualifications to the project needs. Many projects have positions, especially for the technical roles for which certification is required, and most projects benefit from selection of well-qualified human resources. The lack of qualified employees should be considered a project risk and should be addressed in the risk management process.

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[8] Project Management Institute (2017). *A Guide to the Project Management Body of Knowledge*, Sixth Edition. p. 595

6.2   Develop Team Charter

Project Team Charter template

To be developed.

A Team Charter is produced to define internal team roles, responsibilities, and expectations. Consultants may produce additional Team Charters for their services in which the City team may also participate.

The Project Team uses the process of team chartering to define itself. Team chartering takes place early in the project, and after the Project Delivery Plan has been developed and approved, and the Project Team members have been selected. The main goal of a team chartering is to increase the probability of project success.

A project may have multiple team charters with the initial team charter developed during the planning phase for City team members. The internal team charter does not involve Consultant team members, however, Consultants normally hold another team chartering session once retained, which involves internal and external team members.

A Team Charter informs the team of the project plans, and defines their roles and expected participation while increasing cohesion, alignment, and motivation.

The team chartering process benefits the project by:

- Defining the project objectives for the team
- Identifying and clarifying team member roles, responsibilities, and authority
- Defining expectations
- Building agreement on how the team will function
- Building a common vision and goals
- Empowering team members
- Motivating the team

The benefits of team chartering far outweigh the costs, and results in team behaviours that are stronger than individual behaviours, and make better use of resources. Team chartering makes it possible to achieve far more than if each team member were performing solely as an individual.

6.2.1 How to Develop a Team Charter

The Team Charter identifies how the team will work together to achieve the objectives of the project as outlined in the Project Delivery Plan.

The Project Manager leads the team chartering process, however, all team members provide their written endorsement and take ownership of the team charter.

Team charter topics include:

- Review of Project Charter
- Team purpose
- Project Organization Structure as outlined in the Project Delivery Plan
- Team membership from the team acquisition process
- Roles, responsibilities, and authority as outlined in the Project Delivery Plan
- Measures of team success
- Issue resolution process

6.2.2 How to Hold a Team Chartering Session

A team meeting is an important component of team chartering. The meeting brings team members together to focus on common project goals, and begins the team-building process. The team chartering session must be tailored to the size of the project.

A generic agenda for a team chartering session includes:

- Introductions
- Purpose of team chartering
- Project description
- Project Organizational Structure
- Project Delivery Plan
- Team roles, responsibilities, and authority
- Issue resolution process
- Critical success factors
- Non-team chartering topic
- Team Charter endorsement

6.2.3 Endorse the Team Charter

It is imperative that the Team Charter is endorsed and signed by all team members. Endorsing the Team Charter is part of the team-building exercise, and builds a sense of ownership and commitment.

6.2.4 Update the Team Charter

A Team Charter is required from the time of the team's development in the planning phase to the final project close-out.

The Team Charter must be updated at the beginning of all execution sub-phases and at the beginning of the close-out phase as new employees may become involved with the project at any time or if the project changes.

6.3 Manage Project Team

Managing the Project Team is the process of engaging and communicating with team members, developing the team, building relationships, fostering teamwork, motivating the team, coordinating input and feedback, resolving issues, and celebrating successes.

Managing the team is one of the Project Manager's greatest and, often, most challenging responsibilities. The Project Manager must have the confidence to lead a team that, in many cases, includes senior members with more authority, more knowledge of the operation, and greater product knowledge and technical skills than the Project Manager. In other situations, the Project Manager must have the diplomacy to deal with junior members with less experience and knowledge (even in their own area of responsibility) than the Project Manager.

The Project Manager must be prepared to deal with a variety of team structures and team dynamics, and dedicate the time and effort required to ensure the Project Team's success.

6.3.1 How to Manage the Project Team

The first, and most effective, element for team management is the selection of a Project Manager with well-balanced leadership, business, and interpersonal skills. Team members with similar characteristics also benefit the team; however, as with most groups, a wide variety of personality types is likely.

A well-structured Project Delivery Plan has the following features to promote team success:

- Team chartering intended to address team-building directly by aligning the team to common goals and providing clarity for each team member's role.
- Clear direction and effective and transparent decision-making, as identified in the Project Organizational Structure, to aid in team buy-in and ownership.
- An Issues Log so team members are clear on expectations.

The Project Delivery Plan should be supplemented by the following Project Manager and Project Team actions:

- The Project Sponsor should be a project champion, and provide visible support.
- The Project Manager must provide regular and frequent communications to keep the Project Team informed.
- The Project Manager should include Consultants in Project Team-building exercises, and encourage them to adopt the same team strategies.
- A conflict management approach should be developed for handling challenges.
- All Project Team members should strive for consistent positive thinking, and celebrate successes as a team.

6.4 Conduct Procurement

As discussed in *PMM Section 5.6 – Plan Procurement Management*, most procurement for large projects will be through solicitation of competitive offers. This section defines the processes for selecting a Consultant and a Contractor.

The City defines the term 'Bidder' to mean any person submitting a Bid for the Work, and 'Consultant or Contractor' to mean the person undertaking the performance of the Work.

Processes for other delivery methods, whether P3 or another form of an Alternative Project Delivery, may have special requirements not addressed in this Project Management Manual.

The City has a structured procurement decision process through the Materials Management Division for bid opportunity preparation, bid solicitation, bid evaluation, contract award and contract commencement, which is illustrated in Figure 6-2: *Procurement: Decision Process for Procurement Planning*.

6.4.1 Prepare Request for Proposal

A Request for Proposal (RFP) is an invitation for bidders to submit proposals to the City to perform specific work, while the vendor's proposal in response to the RFP is an offer of the services.

Two common approaches to the proposal process are single-stage and two-stage requests.

1. A single-stage request is the most common approach with the request for qualifications and the technical approach all included in one RFP.

2. A two-stage request process separates the qualifications from the technical submissions, and is typically only used in specific situations usually to reduce the number of RFP submissions on large and complex projects.

    - The first stage is a request for qualifications. After evaluation, the submissions are shortlisted based on pre-defined criteria. A general scope of work is required for the qualifications stage, and submissions are not expected to have a work plan or costs.

    - The second stage, for the technical and cost submission, is restricted only to proponents shortlisted in the first stage.

The Request for Proposal must define the City's expectations, including the detailed scope of work and terms and conditions under which the offer is to be made.

The City incorporates General Conditions (GCs) which are standard terms and conditions for use in RFPs. They are periodically updated, and are available on the City's website at winnipeg.ca/matmgt/gen_cond.stm

When the GCs are identified early in the process, the bidders are aware of the requirements and can accommodate them in their proposals.

The City uses a standard Request for Proposal template for that can be found on the City's website at: winnipeg.ca/matmgt/templates

The template incorporates the GCs and includes bidding procedures and forms to standardize and simplify the RFP's preparation. The RFP template requires proposals to be submitted prior to the submission deadline.

A fundamental feature of the RFP process is competition. The competitive nature allows equal access to public projects for all applicants and, at the same time, guarantees competitive pricing.

6.4.1.1   How to Prepare a Request for Proposals

Request for Proposals (RFP) template

Download from the Materials Management website

The first step in preparing an RFP is to access the City's website for up-to-date documents.

The Project Manager is responsible for RFP preparation, including identifying requirements, preparing the document, coordinating selection team input, issuing the request, and communicating with bidders.

The RFP template is structured into:

- proposal submission forms
- bidding procedures
- General Conditions (GCs)
- Supplemental Conditions (SCs)
- and specifications

The RFP template provides a basic format, and the user enters project-specific inputs.

Some key inputs are:

- **Scope of Work** – The major and most critical effort in preparing the RFP is developing the scope of work. A well-defined project scope is the cornerstone for a responsive proposal. The scope of work is developed from the statement of work in the Project Delivery Plan which reflects the intent of the Business Case.

  The structure of the scope of work depends on the nature and intent of the project:

  - A prescriptive approach can be used when the methods and deliverables are clear, and there is little advantage in pursuit of alternative and creative solutions.
  - A performance-type scope is appropriate for projects that would benefit from creativity, industry experience, initiative, and innovation.

- **Evaluation Criteria** – The RFP must identify the intended criteria for evaluation. Sample criteria from the template and their weights are shown in Table 6-1. The RFP template may list the minimum weights to give various components of the RFP.

Table 6-1. Example Evaluation Criteria and their Weights from the Request for Proposal Template

Evaluation Criterion	Weight (%)
Fees (minimum)	40
Experience of proponent and sub consultants	20
Experience of key resources assigned to the project	10
Project understanding and methodology	20
Project schedule	10

- **Indemnity** – The GCs include an indemnity clause to protect the City against negligent acts, defects, errors, or omissions of the Consultant during the performance of the Contract.
- **Insurance** – Consultants/Contractors are required to carry insurance policies, with the minimum requirements identified in the Bid Opportunity or RFP template. The Corporate Finance, Risk Management Division, must be provided a copy of the Bid Opportunity or RFP to review prior to posting on the Materials Management website. Discussion or copy of the Risk Analysis and Evaluation Register is often referred to as part of the process to ensure appropriate coverage of the exposures. Special considerations for wrap-up policies with errors and omission coverage are discussed in *PMM Section 6.4.7.4 – Wrap-Up Policies.*
- **General Conditions** (GCs) – The GCs cover a number of standard boilerplate requirements. If the RFP requires exceptions to the GCs, they are stipulated in the
- *Supplemental Conditions* (SCs) without altering the GCs, and the SCs then take precedence over the GCs.

The Project Manager is responsible for coordinating a submission deadline, advertising, and submission with the Materials Management Division. The procurement solicitation process is the same for all types of projects with some variation in the procedures depending on whether an RFP or Bid Opportunity is used. The process for soliciting and receiving bids is described in more detail in *PMM Section 6.4.12 – How to Solicit and Receive Bids.*

6.4.2 How to Make a Single Source Procurement

The justifications for single source procurement are detailed in FI-003 Materials Management Policy section B4. Single source negotiations and must be approved in accordance with FM-002 Materials Management Administrative Standard.

6.4.3 Evaluate Proposals and Award Contracts

Competitive proposals received from bidders must be treated equally and evaluated fairly in accordance with the evaluation criteria and methods stipulated in the Request for Proposal. The proposals are evaluated by an Evaluation Committee, which must commit to proposal review, scoring (individual and consensus) and attendance at interviews, if applicable.

Proposal scoring includes both financial and non-financial criteria that are combined into a single score. The City uses a standard scoring matrix that incorporates technical scores and fees into one combined value. The evaluation approach is available from the City's website at winnipeg.ca/matmgt/templates/Bid_Evaluation/Bid_Evaluation.stm   In some cases, interviews may be necessary. The interviews are for clarification and demonstration of aspects of proposals and must be used with caution. Interview protocols should be defined by the Evaluation Committee in advance and applied consistently throughout the process.

The final step of bidder selection is a debriefing to provide feedback to the bidders on only their submissions, if requested in writing. This must be tactfully managed as it typically involves negative feedback. A method that demonstrates objective scoring for defined criteria is the best way to approach the situation. Be aware that you can only share information about the evaluation of the bidder being debriefed. Do not provide the bidder with a copy of the evaluation matrix.

6.4.3.1 How to Evaluate Proposals and Make Awards

The Project Manager is responsible for coordinating the proposal reviews, scoring, and final evaluations, and for preparing the award recommendation.

The approach for evaluating proposals and recommending award is:

- Proposals are received in the Materials Management Division, where they are recorded, checked for obvious irregularities, and forwarded to the Project Manager.

- The Project Manager reviews the proposals for irregularities and responsiveness.

- The Evaluation Committee is assembled, and proposals are distributed.

- Evaluation Committee members independently review and score all proposals according to the evaluation criteria and scoring method in the evaluation matrix.

- The Project Manager contacts company references, if applicable, and documents findings.

- An Evaluation Committee consensus meeting is held to discuss merits and anomalies of each proposal, and identify potential points needing clarification. This consensus meeting may be repeated based on the results of any clarifications, interviews or demonstrations.

- Clarification letter must be vetted through Materials Management.

- All Evaluation Committee members must attend interviews, if applicable.

- At the consensus meeting, the Project Manager or designate, records the consensus non-financial scores, and justification for each score.

- The Project Manager or designate, combines financial and non-financial scores to determine proposal total scores.

- The proposal with the highest combined score is recommended for award. In some cases, negotiations may take place prior to award in consultation with Materials Management and Legal Services.

- If the recommended bidder is not the lowest priced bidder, a detailed explanation of the reasons for non-award to any lower priced bidders must be provided to Materials Management prior to the award report.

The Project Team includes Corporate Subject Matter Experts (from areas such as Materials Management and Legal Services) who provide advice and assistance with irregularities that arise during the process.

Once the proposals have been evaluated, the Award process is the same as for all Bid Submissions, as described in *PMM Section 6.4.16.1 – How to Award Contracts.*

6.4.4 Prepare Bid Opportunities

The City uses a formal bidding process to solicit offers for a wide variety of purchases in addition to offers of Consultant services. These offers include bids for construction contracts, services, and the supply of goods. All these purchases fall under the FI-003 Materials Management Policy and are subject to the additional conditions stipulated under Administrative Standards. Refer to Figure 6-2: *Procurement: Bid Preparation, Bid Solicitation, Receipt of Bids Processes* for a high level view of the bid opportunity preparation process.

Each department that is responsible for either preparing a Bid Opportunity in-house or retaining a Consultant to prepare a Bid Opportunity must ensure that the document has been prepared in accordance with the prescribed format, and that the approved forms have been used.

A further requirement is that each Project Manager thoroughly reviews the Bid Opportunity before it is submitted to the Materials Management Division to ensure that it is clear and unambiguous, that the information it contains is accurate and complete, and that prescribed formats and forms have been used.

Guidance on Bid Opportunity preparation and rules for advertising, handling enquiries, and issuing addenda are given in the following section.

6.4.4.1 Forms and Documents Used in the Bidding Process

Bidding process templates

Download from the Materials Management website

The City maintains standard documents, forms, and templates on a central website, including the items listed below.

- **Bidding Procedures**

  Bidding procedure templates applicable to all Bid Opportunities are available from the City website at winnipeg.ca/matmgt/templates

- **General Conditions (GCs)**

  GCs are requirements applicable to all Bid Opportunities. The GC area of the City website at winnipeg.ca/matmgt/gen_cond.stm must always be accessed to obtain the most current versions of the documents.

  The GCs include contract clauses of general application which can be modified as required in the Supplemental Conditions. The GCs also define the respective roles and responsibilities of the City, the Contract Administrator, and the Contractor.

- **Supplemental Conditions (SCs)**

  The SCs are the project-specific provisions in the Bid Opportunity. On projects with underground and surface works, the Supplemental Conditions section must incorporate the appropriate sections/specifications from the current *Standard Construction Specifications* available at winnipeg.ca/matmgt/Spec/Default.stm

- **Drawings**

  The drawings section consists of drawings that show the nature and scope of the work to be performed and that have been prepared or approved by the Project Manager and are referred to in the Bid Opportunity documents.

- **Specifications**

  The Specifications section consists of a written description of the physical or functional characteristics of the work that is to be undertaken by the Contractor, including (without limitation) any requirement for testing or inspection. The role of the specifications is to describe the type and quality of materials and workmanship to be incorporated in the work.

  While the drawings present the scope of work in terms of quantities, dimensions, form, and building details, the specifications provide the qualities of materials and workmanship for construction of the work.

- **Bid Opportunity**

  The resultant Bid Opportunity establishes the terms and conditions for the Contract. The documents have the following multiple clauses that reduce the City's risk on the Contracts:

  - **Qualifications** – Minimum qualifications can be stipulated so that only those with experience and capabilities to perform the work will be selected.
  - **Contract Security** – Performance Bonds or other forms of security provide protection against contractual defaults.
  - **Events of Default** – The GCs are structured to permit the work to continue if there is a legal dispute or terminate the work, if appropriate.
  - **Insurance** – Minimum insurance levels are stipulated to protect the City against losses.
  - **Indemnity** – The GCs include an indemnity clause to protect the City against loss from acts or omission as a result of the Contractor.
  - **Warranty** – A 1-year warranty is standard in the GCs, however may be extended in the supplemental conditions. The warranty provides a proving period for the Work.
  - **Liquidated Damages** – This clause allows the City to recover its additional costs if the contract is not completed on schedule.

    The purpose of the liquidated damages clause is to clearly warn all bidders when bidding for the job (and ultimately the successful Contractor), the quantum of loss or damage that the City will suffer and that the Contractor will have to pay the City in the event that the interim completion dates, if specified, are not met or if the dates specified for Substantial and/or Total Performance are not met.

6.4.4.2 How to Select the Type of Pricing for a Bid Opportunity

The City has traditionally used two types of pricing for Bid Opportunity work:

- lump sum (or fixed price) contract; or
- unit price contract.

6.4.4.2.1 Lump Sum Contracts

In a lump sum contracts, the bidders must submit a single price for the complete work on *Form B: Prices (Lump Sum).*

The onus is on the bidder, rather than on the City, to determine the quantities of materials that will be required to complete the work. The test to determine whether or not the City should use a lump sum contract for Bid Opportunity work is whether the work can be specified in precise-enough detail in the Bid Opportunity, drawings and specifications to ensure that there will be no possibility of or necessity for additional work.

Arguments for using a lump sum contract are:

- The City will know, upon receipt of the bids and following award of contract, exactly what the work will cost.
- It is easy to administer provided that no additional work becomes necessary.
- It requires less administration effort to process progress payments.

Arguments against using a lump sum contract are:

- Unless the work is defined in precise detail, and the drawings and specifications are complete, the City cannot be sure the Bid/Contract price will be the price it must ultimately pay for the work.
- It is difficult to accurately value work-in-progress and, as a result, there is a potential for under/overpaying the Contractor during the various stages of the construction.
- A lump sum contract requires more administration effort if additional/extra work is encountered.

When preparing a Bid Opportunity for a lump sum contract, the Contract Administrator or Project Manager (the in-house representative or a consultant) must ensure that:

- A payment clause is included in the supplemental conditions section and that the payment clause clearly specifies the basis upon which the City will pay the Contractor. For example, the payment clause should specify when the City will pay the Contractor.
- The bidder is not requested to break down the lump sum price on *Form B: Prices*
- *(Lump Sum)*. If the City requires a breakdown of the lump sum price, a clause should be included in the Supplemental Conditions section that requires the Contractor to provide the breakdown within a specified period of time after the award of contract.

6.4.4.2.2 Unit Price Contracts

For a unit price contract, the bidders are required to submit individual prices for specific items (material or segment) of the work. The individual prices may be based on either a unit price or a lump sum. A lump sum price for an individual item should be used only under the same conditions provided in the section above.

Arguments for using a unit price contract are:

- The City can estimate the cost of the work by multiplying the approximate number of units by the price bid for each unit.
- It is easy to administer, especially in terms of determining the cost of extra work.
- It requires a minimum number of individuals to administer it.

Arguments against using a unit price contract are:

- The work must be precisely broken down into individual items.
- The drawings and specifications must be complete, except for a final determination of the quantity of work to be performed.
- If the City has grossly underestimated or overestimated the quantities, the Contractor may have remedies available under the contract.
- The Contract Administrator must be able to measure the quantity of work performed.

When preparing the Bid Opportunity for a unit price contract, the Contract Administrator or Project Manager (i.e.: the in-house representative or the Consultant) must ensure that:

- Quantities, although expressed as approximations only, are as accurate as possible.
- Each type of work described in the specifications section is included as an individual item in *Form B: Prices (Unit Price)*.

The unit price contract has particular application to heavy construction for which exact quantities cannot be determined in advance (for example, excavation of subsurface material).

6.4.4.3   How to Prepare Bid Opportunities

For Design-Bid-Build (DBB) projects, the Consultant or in-house design staff develop designs, drawings, and specifications for products or components during the project planning phase and assembles the information and requirements into Bid Opportunities for advertising and receipt of bids.

The type of Bid Opportunity to be used depends on what is being procured and whether there are any unique procurement requirements. The City's website has a page that helps users navigate the decision-making process to find the specific application developed to help in preparation of a Bid Opportunity. Refer to winnipeg.ca/matmgt/templates/decisions/Contract_Type_decision.stm

The Bid Opportunities incorporate a set of the City's General Conditions (GCs). Like the GCs for Consultant services, other GCs are a set of standard terms and conditions for use in a specific area. They are periodically updated, and are available on the City's website at winnipeg.ca/matmgt/gen_cond.stm

The website lists multiple versions of the GCs and the user must select the current version. Multiple versions of the same GCs may be posted. This is because revisions to the GCs are not retroactive to Contracts that have already been awarded, and whichever version was included in the Contract remains in effect. New Bid Opportunities must use the most recent version.

The City uses standard templates for each of the bid types. The website offers templates for various types of infrastructure that are applicable to DBB projects. A template for general construction (referred to as *Construction Complex Projects Contract*) and the conditions under which it applies can be found at:

winnipeg.ca/matmgt/templates/Const_Gen_HighRisk_template.stm

The General Construction template and others are formatted with hidden instructions to guide the user through preparation. The document references the GCs and the specifications and drawings to be appended to the document to form the Bid Opportunity.

The Bid Opportunity documents include multiple terms and conditions and contractual requirements that impact the project management processes. The Bid Opportunity document is normally prepared by the Consultant or in-house, however, the Project Manager and Project Team must review it and provide input.

Construction Contracts are normally structured as lump sum or unit price contracts. Evaluation criteria may be used, however, this occurs infrequently because the work is usually specifically defined with little opportunity for other criteria impacting the bids.

The Project Manager coordinates a review of the Bid Opportunity prior to advertising. The review is to check conformance to the bidding process, bid documents, and procedures.

6.4.5 Cardinal Rules for Bid Opportunity Preparation

Five cardinal rules must be followed when preparing a Bid Opportunity, as described below.

1. Provide Accurate Information

The City is responsible for ensuring all information is included in the Bid Opportunity is accurate.

When the City prepares a Bid Opportunity in-house or retains a Consultant to prepare a Bid Opportunity on its behalf, the City or Consultant must ensure the document includes the best information in the City's/Consultant's possession (and all of it), and that the information is accurate.

In addition, if the City and/or its Consultant become aware of an error or omission in the Bid Opportunity during the bid opportunity process, the City/Consultant must bring that error or omission to the attention of the bidders, and correct it by issuing an addendum before the bidders submit their bids.

If the City and/or its Consultant fails to include accurate information and/or to advise the bidders of an error or omission that has come to their attention, the City may not be able to successfully defend a Contractor's claim for breach of Contract and/or negligent misrepresentation if the Contractor who has relied on the accuracy of the information presented suffers a loss or damage as a result of the error.

The accuracy of information typically becomes an issue when dealing with the nature of an installation, site conditions, and estimated quantities.

2. **Disclose all Pertinent Information**

    The City is responsible for including, or ensuring its Consultant includes, all information pertinent to the project or the Contractor's ability to carry out the work as disclosed, including the following types of information:

    - Original as-built construction drawings including original structure drawings
    - Rehabilitation and maintenance drawings
    - Recent condition surveys
      (i.e.: bridge deck surface delamination survey, pavement cores, sewer condition survey)
    - Recent inspection reports
    - Recent materials testing results (i.e.: concrete cores)
    - Geotechnical test results and/or reports such as soils reports
    - Structural evaluation reports
    - Infrastructure upgrading alternatives report
    - Previous on-going contracts awarded for the project that will overlap with the project in time
    - Proposed additional on-going contracts scheduled to be awarded on the project that could overlap with the project in time
    - Other on-going activities/work on the project managed by others
      (i.e.: Manitoba Hydro, MTS, legal surveys)
    - Restrictions on access to the site

    If the City and/or its Consultant fails to disclose all information in its possession that is pertinent to the project, the City may not be able to successfully defend a Contractor's claim for breach of contract and/or negligent misrepresentation if the Contractor has relied on the information that was presented and suffers a loss or damage as a result of pertinent information in the possession of the City or its Consultant however not disclosed.

    Pertinent information disclosure typically becomes an issue for site conditions, inspection/condition reports, and site accessibility.

3. **Provide Clear, Unambiguous, and Consistent Provisions**

    The City must ensure that the provisions in the Bid Opportunity are unambiguous and consistent. Special care should be taken to avoid the practices described below, which commonly result in an ambiguous Bid Opportunity.

    The "***Copy and Paste***" method of Bid Opportunity preparation involves copying provisions from an existing Bid Opportunity for a similar project and pasting them into the City's standard form. In theory, this method saves time; however in reality, the problems that may result requires more time to resolve than the time that might have been saved.

The risks include:

- Incorrect specifications/cross references.
  For example, references in the Supplemental Conditions section to BI:12 that should have been to BI:10.

- Inclusion of language that does not apply at all, is old, or is inappropriate for the current project.

- Inconsistent use of language between sections and use of language that conflicts either within a section or between sections.
  For example, the General Conditions may specify that dates for 'Substantial and Total Performance' will be specified in the Supplemental Conditions section of the Bid Opportunity, however, the Supplemental Conditions section refers instead to 'completion dates'.

In the **'impossible'** method of Bid Opportunity, preparation is when the Contract Administrator or Project Manager designs engineering or architectural rules without considering the realities of construction.

The result is that the Bid Opportunity specifies things that cannot or should not be done such as:

- Required equipment that won't fit through the door
- Equipment that cannot be accessed after installation for servicing
- Anchors that are to be installed in inaccessible areas

In the '**incomplete'** method of Bid Opportunity, preparation is where the Contract Administrator or Project Manager fails to specify the work in enough detail to allow the bidder to understand the City's expectations. This problem may appear anywhere in the Bid Opportunity. Examples are notations such as "see specs" rather than "see Part 3, Clause 3.1, Section 15800, Air Distribution" and "Refer to soils information" rather than "Refer to soils information contained in Appendix A to this Bid Opportunity."

The incomplete method may also result in the Contractor not performing all the work that the City expected. An assumption is that the information has been provided, so its inclusion is not verified and it is left out. The Incomplete method may also lead to disputes between the City and the Contractor because they have different expectations of the work that was to be included in the Contract.

While the general conditions specify how conflicts between the sections of the contract documents (such as bidding procedures, general conditions, and supplemental conditions) will be resolved, it is of no assistance if the provisions within a section conflict or the provisions between sections are ambiguous. It is therefore imperative that each section of the Bid Opportunity is carefully reviewed to ensure that the provisions are clear, consistent, and complete.

4. **Include All Bid Evaluation Criteria.**

The City must include all criteria it intends to use to evaluate bids in the Bid Opportunity, and must use only those criteria in its evaluation of the bids.

The evaluation criteria are in the bidding procedures section of the Bid Opportunity.

Where the work/project includes purchase of major pieces of equipment or machinery that the bidder may purchase from a number of manufacturers, evaluation criteria such as the following may be included:

- Length and extent of warranty
- Availability of spare parts
- Service and maintenance – quality and response time
- Cost of replacement parts

The consequence of not including criteria the City intends to use to evaluate bids or of using criteria that it has not disclosed to bidders is that the courts may find the City to be in breach of its duty to treat all bidders fairly.

5. **Request only Relevant Information in Bid Opportunity Submission**

The City must ensure that bidders are not required to be submitting information with their Bid Opportunity submissions that the City does not need to evaluate the bids. The Bid Opportunity template specifies that the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

The Bid Opportunity specifies that a bidder must complete and return the enclosed Bid Opportunity submission forms and documents with its Bid Opportunity submission and if the bidder either does not return the specified forms or does not supply the specified documents (or, alternatively, completes the forms in part or supplies some however not all of the specified information), then in consultation with Materials Management, a determination needs to be made if the bid is acceptable or should be determined to be non-responsive.

If an incorrect determination is made, the City may be liable for damages to the bidder, who would have been awarded the Contract had a correct determination been made.

6.4.6 How to Specify Insurance

Insurance Requirements Checklist template

Download from the City's Infrastructure Planning Office website

The Corporate Finance, Risk Management Division, Insurance Branch should be contacted to consult on and recommend the appropriate coverage and limits. The Risk Analysis and Evaluation Matrix will help to identify the risks which should be included as part of the discussion with the Insurance Branch. As much lead time and detail as possible should be provided in order to gather the correct requirements. Refer to the Insurance Requirements Checklist for assistance in determining the type of insurance required for the project, Projects with values over $10 million require[9] the City to provide the insurance.

The Insurance Branch will provide the insurance clauses to be included in the Bid Opportunity and will arrange for the respective policies.

To protect itself against liability and property damage claims, the City must insist on contractual indemnities from both its Contractor (addressed in the General Conditions) and its Consultant, as well as on insurance protection from both its Contractor (addressed in the General Conditions and the Supplemental Conditions) and its Consultant.

On certain types of major projects, the City may elect to provide contract wrap-up insurance, with the Contractor providing their own automobile and equipment insurance. However, on most projects, the Contractor is required to provide all insurance coverage in accordance with the contract requirements.

Claims arising out of a construction project generally fall into two broad categories – *liability and property* damage claims. Claims that arise or occur prior to the total performance of the work are called *course of construction occurrences*, and those that occur any time after total performance of the work are called *past construction occurrences.* Refer to *PMM Appendix F: Claims Management Process* for additional information on claim prevention, mitigation, identification and quantification, and resolution.

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[9] This dollar value is based on insurance requirements and is not meant to align with the threshold of Major Capital Project definition.

6.4.7 Liability Insurance Policies in Construction

Construction projects commonly require four types of liability insurance policies as described below:

6.4.7.1   Comprehensive or Commercial General Liability Policies ('CGL Policies')

The City requires its Contractors to provide and maintain a Comprehensive or Commercial General Liability (CGL) policy of at least $2 million listing the City as an additional insured and containing a cross-liability and contractual liability clause.

For all construction projects, the City will require its Contractor to include products and completed operations endorsement to the policy. Deductibles must be borne by the Contractor and set at amounts acceptable to the City.

In brief, a CGL policy protects the City from third-party claims of bodily injury or property damage that allegedly arise as a result of the Contractor's operations or work on the construction project from persons not associated with the project.

CGL policies do not protect the City from claims of professional negligence (such as errors and omissions) of its consultant/design professionals. In fact, professional negligence is expressly excluded from coverage in CGL policies.

6.4.7.2   Automobile Liability Policies

The City also requires its Contractor, especially on large bridge, sewer, and road renewal projects and on large building construction projects, to provide and maintain an Automobile Liability Policy for owned and non-owned automobiles of at least $2 million. For these policies, the City is not listed as an additional insured. Deductibles must be borne by the Contractor and set at amounts acceptable to the City.

An Automobile Liability Policy protects the Contractor, and therefore, the City against a claim from a third party who has been injured by one of the Contractor's cars or trucks while undertaking the construction work.

While the City is not an additional insured on the Contractor's policy, the Contractor's insurance can be called upon to back up the contractual indemnity it has given the City and to respond to claims for damage assessed against the City provided we can identify the Contractor and/or vehicle.

6.4.7.3   Professional Liability Insurance Policies (Errors and Omissions)

The City should always require its architectural and engineering Consultants to provide and maintain an Errors and Omissions (E & O) Policy in an amount that is satisfactory for the particular project.

The current Materials Management templates suggest coverage limits based on consulting fees. The Insurance Branch should be consulted when determining the appropriate insurance coverage limits for projects, including high risk projects and sewer and water treatment plant design.

E & O policies protect the City against claims of professional negligence of its Consultant (such as for defects or deficiencies in the drawings or specifications resulting in a failure). These policies should remain in effect either 12 or 24 months after total completion of the project to allow for discovery/recovery under this coverage.

6.4.7.4   Wrap-Up Policies

Depending on the capital cost and/or the complexity of the project the City may provide or can require its Contractor to provide the wrap-up liability policy and its Consultant to provide the E & O wrap-up policy.

The advantages of Wrap-up Liability Policy to a General Liability Policy are:

- Overlapping coverage and the problems associated with multiple insurers are eliminated. Overlapping coverage results when the City requires the Contractor to provide a single CGL Policy and the Contractor requires each of its subcontractors to provide a CGL Policy.
- Broader coverage can be provided and higher limits are available.
- Wrap-up coverage provides greater certainty of coverage as the insurance is for a specific project and the limit of liability has not been eroded by other claims.
- When purchased by the City, wrap-up coverage allows the City greater input into the settlement of a claim.

6.4.8 Property Insurance Policies in Construction

Construction projects commonly require three types of property insurance policies:

6.4.8.1 Course of Construction Insurance Policies (also known as Builders Risk Insurance Policies)

Depending on the value of the project or its complexity the City may purchase or require its Contractors to provide and maintain an All Risks Builders' Risk/Course of Construction Policy for all building construction projects in the amount of 100 percent of the contract price, listing the City as a named insured. Deductibles are borne by the Contractor and must be acceptable to the City.

While the need may sometimes be less apparent, it is just as important to require an all risks policy for engineering-type work such as water mains, sewers, tunnels, overpasses, bridges, roads, towers, and transmission lines (i.e., structures). In building projects, as well as land drainage projects, it is necessary to ensure that testing and commissioning is included in the policy for 10 days after testing is expected to be completed. This enhancement to the coverage will protect the structure/equipment in the case of failure that results in physical damage.

All risks policies protect an insured against all risks of direct physical loss or damage to an insured's building or structure and equipment unless a peril is expressly excluded by the policy. Risk of loss or damage due to a fire is typically included.

6.4.8.2 Installation Floater Insurance Policies

For smaller projects that do not require a Builder's Risk/Course of Construction Policy, and where no testing or commissioning of equipment is required, a Contractor will be requested to provide an Installation Floater Policy.

This coverage will provide the cost of the materials that a Contractor is planning to include in the project while they are en route to the site or while being stored at the work site. It will not pay for damage to a structure as a result of improper installation.

6.4.8.3 Contractor's Equipment Insurance Policies

The City may require its Contractor to provide and maintain a Contractor's equipment policy on large projects such as tunnelling, sewer renewals, or other projects involving extensive outlays. This insurance relates to construction equipment such as backhoes, excavators, graders, including tools, etc.

On some occasions due to the known history or condition of a site, the insurance branch may also recommend Contractor's Pollution Liability.

6.4.9 How to Specify Bid and Contract Security

The City may require the bidder to provide bid security initially in the form of a bid bond, or agreement to bond with their bid.

The City may also require the Contractor to provide a contract security in the form of a performance bond letter of credit, bank draft, or certified cheque after the award of contract. FM-002 Materials Management Administrative Standard provides guidelines for amounts of contract security.

Bid Bond, Agreement to Bond and Contract Security – The requirements for bid and contract security and the standard forms are set out in the Bid Opportunity templates.

6.4.10 How to Specify Liquidated Damages

When time-is-of-the essence in a construction contract, it is absolutely imperative that a clause be included in the supplemental conditions specifying the dates upon which the Contractor is to achieve both Substantial and Total Performance of the Work. Beyond that, if certain phases of the Work must be completed by particular dates, then those key dates must also be specified in the supplemental Conditions.

In the event that the Contractor does not complete those portions of the Work on the dates specified, then the Contractor will be in breach of the terms of its Contract. The consequence of a breach is that the Contractor will be liable to the City for losses or damages sustained by the City as a result of that breach.

The City has elected to specify in the Contract, a genuine pre-estimate of the losses or damages that it will suffer, by including a liquidated damages clause in the supplemental conditions of the Bid Opportunity template.

In the event of a delay breach by the Contractor, the Contractor will be liable to pay the City the sum stipulated in the Contract as liquidated damages for each and every day the Work is late, ending on the day immediately preceding the day that the Work has been achieved, and is so certified by the Contract Administrator, unless specified otherwise in the supplemental conditions.

As a result, it is a requirement that the supplemental conditions contain specific details on specified dates, whether the assessments will be based on calendar or working days, and liquidated damages amounts. It is imperative that the determination of "calendar" or a "working" day basis be made. There are certain types of major contracts where a "calendar day" basis may be more appropriate. For example, the Contract may impose an obligation on the Contractor to work Saturdays, Sundays, and holidays in order to facilitate an early opening or re-opening of a facility.

A properly drafted liquidated damages clause will:

1. Explicitly confer a power to extend time in general terms for any breach of contract or prevention by the City and in particular by reasons of Changes in the Work or delay in issuing instructions or information;

2. Define with precision any other circumstances for which an extension of time is to be granted;

3. Make it clear that the power to extend time is exercisable at any time;

4. Empower the City either to deduct liquidated damages from any payment or sum certified under the Contract or to recover them from the Contractor by way of action or arbitration; and

5. Define the per diem amount for liquidated damages.

6.4.10.1 Determination of Liquidated Damages Amount

Liquidated damages are intended to be a genuine pre-estimate of the City's loss in the case of default by the Contractor, and documentation of its value and the basis of estimate is to be retained in the Contract file.

Examples of costs which should be included when determining the amount of liquidated damages for any given contract would be:

- Additional engineering fees and disbursements
- Extra costs for engaging another Contractor to complete the Work in the event that neither the defaulting Contractor nor its Bonding Company is prepared to acknowledge the default.
- Utility costs.
- Cost of hiring a security firm to secure the site.
- Legal costs.

In the event that a default occurs and the recommended amount of liquidated damages is found to be inadequate, the City would not be able to recover the shortfall from the Contractor. That is, if the supplemental conditions specify liquidated damages of $2,000 per working day and it actually costs the City $3,000 per working day, the City will not be able to recover the extra $1,000 per working day from the Contractor. However, for a Consultant Delivered Project, the City may be in a position to recover the deficiency from the Consultant.

6.4.11 How to Specify Training

Training is an obvious prerequisite to long-term operation and maintenance of new works. Training often begins at the design phase, ideally carries through construction, and becomes a prominent activity during commissioning.

The specifications must give an indication as to duration and types of training required. In addition the knowledge and skill-level of the trainees and the expectations of the trainer should be considered in the development of the specification.

Often, several training sessions must be set up for one system. In a complex system, operators are trained in a separate session from mechanical maintenance employees. Electrical and control maintenance employees may be trained separately on the same components. Finally, programmers, users, and even managers may need training, all at different levels, about different aspects of a product or project.

The specifications must indicate what products are to be included in training. Often, training manuals, video training tapes, and other operations & maintenance manuals should be included in a training specification.

6.4.13 How to Solicit and Receive Bids

The City has a structured process through the Materials Management Division for soliciting and receiving bids, which is illustrated in Figure 6-2: *Procurement: Bid Preparation, Bid solicitation, Receipt of Bids Processes*.

The solicitation must not be advertised until all the preliminary requirements have been met. These include:

- All funds associated with the proposed construction work have been approved by Council for the project.

- Any additional funds required to offset a projected contract or project shortfall based on the Pre-bid Opportunity Estimate have been secured.

- All outside agency approvals associated with the contract or project have been secured.

- ** All arrangements concerning land associated with the contract or project have been completed.

- Documentation is on file verifying how the amount specified for liquidated damages was determined.

- The Bid Opportunity has been thoroughly reviewed by the department, and approved by the Project Manager who then authorizes advertising. Materials Management reviews prior to advertising.

Figure 6-2. Procurement: Bid Preparation, Bid Solicitation, Receipt of Bids Processes
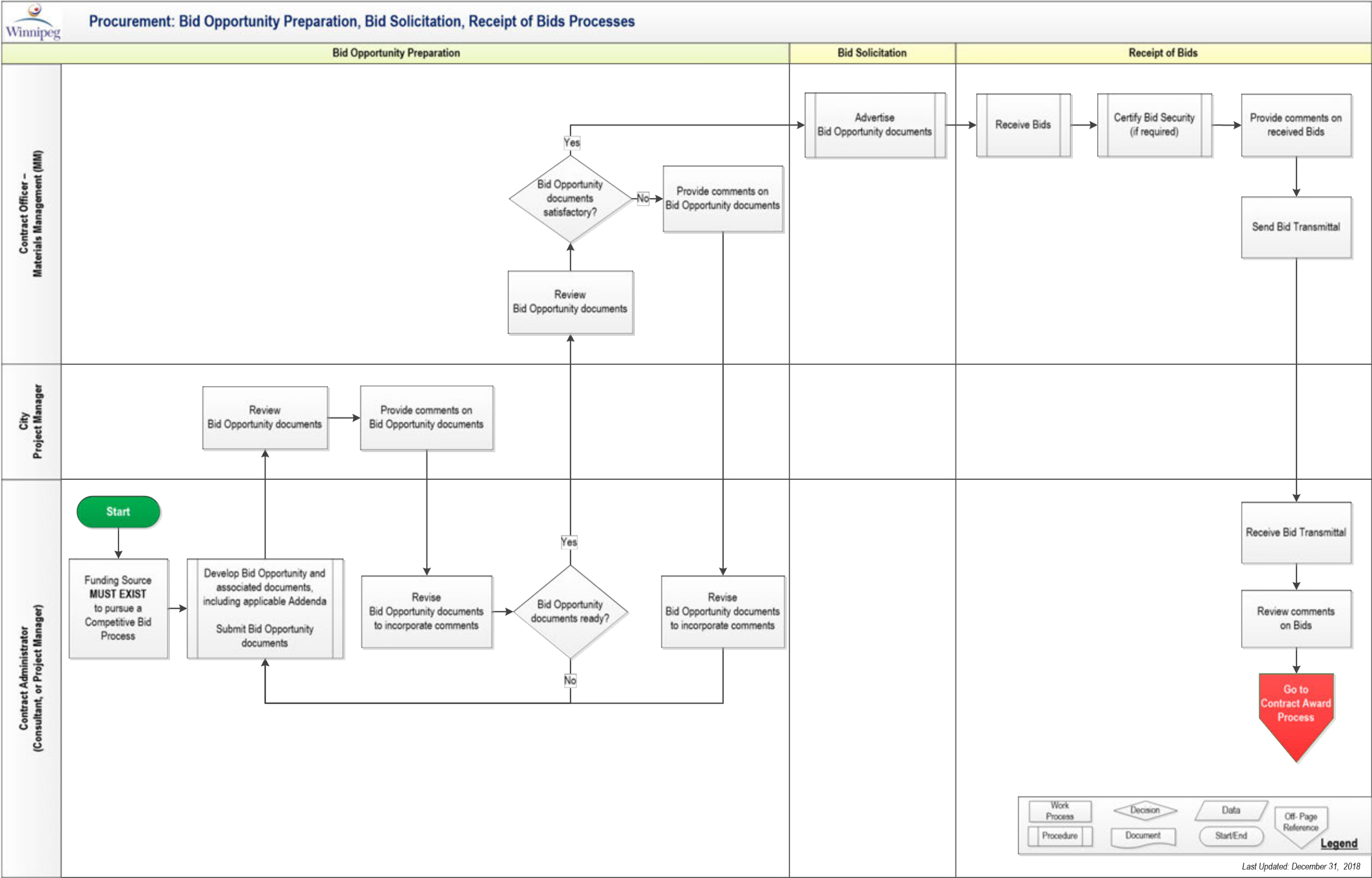
6.4.14 The Bid Solicitation Process

The solicitation process begins once all of the authority requirements have been fulfilled.

The bid solicitation process uses the online services of Materials Management Division. Materials Management provides the users with support and assistance during the process.

The Contract Administrator (CA) requests a Bid Opportunity number using the forms on the City's website at winnipeg.ca/matmgt/templates/bidoopp_num_request.stm

After receiving the completed Bid Opportunity document, Materials Management begins their review and processing, including checking the following for conformance with the template:

1. Check bid document for consistency with the advertisement on Materials Managements internal bid system:

   a. Time and date set for final receipt of bids

2. Check bid document for completeness:

   a. Bid Opportunity submission forms

   b. Bidding procedures

   c. General Conditions (GCs) (to be inserted or referenced)

   d. Supplemental Conditions (SCs)

   e. Specifications

   f. Drawings

3. Check forms in Bid Opportunity submission for errors:

   a. Validity period of bids

   b. Amounts of bid security/contract security where required.

   c. Duration of warranty period

The Contract Administrator contacts Materials Management to arrange a mutually acceptable date for final receipt of bids, considering:

- The worst case scenario for the processing of the Bid Opportunity evaluation and award period, especially if the recommendation for award has to go to Standing Committee or Council.

- The number of bid closings already scheduled in the same timeframe and on any particular day.

- The date for final receipt of bids, which must not be less than 15 calendar days following the advertisement date: (30 days where estimated value exceeds $340K (Goods and Services) or $8.5M (Construction))

- Any key event (for example: a site tour) that occurs before the time and date set for final receipt of bids must be made known at this time and must be included in the advertisement.

6.4.14.1   Bid Opportunity Enquiries

The Contract Administrator must fully document all enquiries received during the bidding period, and the resolution of each.

The resolution of each matter brought forward must be one of the following:

1. By satisfactory clarification in accordance with the Bid Opportunity in the case of simple misinterpretations.

2. By issuance of a specific addendum clause to provide the necessary clarification in the case of any inconsistency, omission, discrepancy, change, and/or approval of a substitute.

The Contract Administrator must not disclose any confidential information related to the project, such as the pre-bid opportunity estimate or the project budget.

6.4.14.2   Addendum Issuance

The Contract Administrator must ensure that each Addendum is developed accurately in accordance with the standard City format and practice. The addendum is delivered to Materials Management for issuance to the City's Materials Management website.

6.4.14.3   Bid Opportunity Opening

Materials Management will oversee the final receipt of bids and conduct the Bid Opportunity opening in the Materials Management office immediately following the expiration of the time and date set for final receipt of bids. Any bid received after the deadline for final receipt will not be accepted.

The bids received by Materials Management will be recorded on the bid receipt record form. Any bid not containing the required submissions may be rejected. Materials Management will notify the Contract Administrator of any informalities noted during the bid opening.

The Project Manager and Contract Administrator may attend the Bid Opportunity opening to observe the process.

6.4.14.4   Bid Opportunity Submission Document Disposition

Materials Management forwards a PDF of all bids to the Contract Administrator. The Contact Administrator ensures that all bid information provided by each bidder in the Bid Opportunity submission documents remains confidential.

After reviewing the bids, the Contract Administrator's recommendation for contract award is sent to the Project Manager for department record and contract preparation purposes. Four sets of the Bid Opportunity, complete with all addenda, must also be returned to the applicable department for contract preparation purposes.

6.4.14.5   How to Determine Whether a Bid is Responsive

A responsive bid is one that conforms to the invitation to bid opportunity in all material respects; that is, there is no non-conformity or irregularity in the bid that would materially affect the contractual relations of the parties or the Contractor's performance the waiver or correction of which would not reasonably be expected to cause prejudice against other bidders.

A non-responsive bid is one that fails to conform to the bid opportunity in a way that materially affects the contractual relations of the parties or the Contractor's performance, or for which the waiver or correction would reasonably be expected to cause prejudice against other bidders.

Details on determining whether a bid is responsive or non-responsive are:

1. The authority having jurisdiction to award must make the determination.

2. The determination depends on the unique characteristics (requirements, evaluation criteria, and so forth) of the particular bid opportunity.

3. A bid may be responsive even though it has one or more irregularities (items that do not conform exactly to the bid opportunity requirements).

4. The correction of clerical errors in bids and revisions made for clarification may be allowed if the irregularities do not render a bid non-responsive (that is, they do not offend the criteria) and the changes are related to technical requirements that the award authority to waive.

5. Examples of irregularities in a bid that would not automatically render the bid non-responsive are:

   a. The bidder fails to affix its corporate seal to its bid opportunity forms. This failure does not materially affect the contractual relations between the City and the bidder because the Corporations Act of Manitoba provides that an instrument executed on behalf of a corporation by a Director, an Officer, or an Agent of the corporation is not invalid merely because a corporate seal is not affixed. Lack of the seal does not affect the Contractor's performance, and waiver or correction would not reasonably be expected to cause prejudice against other bidders.

   b. On a unit price contract, the bidder makes an extension error by multiplying the approximate number of units by their bid/unit price improperly or totals the correctly extended unit prices improperly.

   c. The bidder makes corrections or erasures without initialling them.

   d. The bidder submits the wrong form of bid bond or agreement to bond.

   e. An incorrect warranty period is shown on the agreement to bond
   (i.e.: 1 instead of 2 years).

6. Examples of irregularities in a bid that may render the bid non-responsive are:

   a. The bidder fails to submit bid security with their bid opportunity submission.

   b. The bidder qualifies/conditions their bid; for example:

   - Proposing commencement or completion dates other than those required by the bid opportunity;

   - Failing to submit or complete forms required for evaluation of bids;

   - Making the bid conditional on being awarded the whole contract when the bid opportunity states that the City may award the sections of work separately; or

   - Proposing an alternative to the specified work (i.e.: an XYZ pump instead of the ABC pump specified in the Invitation to Bid Opportunity) without obtaining the Contract Administrator's prior written approval.

   The authority having jurisdiction to award the contract has no discretion to award a contract to a bidder submitting a non-responsive bid. The authority must reject the non-responsive bid.

6.4.14.6 How to Determine Whether a Bidder is Responsible

A responsible bidder is one who meets the following criteria:

- Adequate financial resources;

- Necessary experience, organization, and technical qualifications;

- Satisfactory record of performance on work similar in scope and value, and also has the present capability (employees, equipment) to comply with the specified performance schedule including the contract completion date, considering all existing commitments.

No contract can be awarded to any bidder who, in the judgment of the award authority, is not a responsible bidder or does not have all the necessary experience, capital, organization, and equipment to perform the work in strict accordance with the terms and provisions of the contract.

The authority having jurisdiction to award a contract must determine whether a bidder is responsible prior to the award of a contract. The authority having jurisdiction to award is prohibited from awarding a contract to other than a responsible bidder.

The Bid Opportunity document sets out the requirements for a responsible bidder.

6.4.15 Evaluate Bids and Award Contracts

Bids must be evaluated strictly in accordance with the criteria specified in the Bid Opportunity. If the City either does not evaluate the bids received strictly in accordance with the specified criteria or uses other than the specified criteria to evaluate the bids received, the unsuccessful bidder(s) may bring an action for damages against the City that the City cannot successfully defend.

6.4.15.1 How to Evaluate Bids and Recommend Award

The Materials Management Division sends an email with a link to the bid submissions (bid transmittal) to the Contract Administrator (CA), whether the CA is a City employee or a Consultant.

The procedure for the CA's detailed bid evaluation is:

- **Determination of the Responsiveness of the Bids** – Based on a thorough evaluation of the bid submissions received from each bidder, the CA independently assesses whether the informalities are material (so the bid is non-responsive) or technical (only the Award Authority has authority to waive informalities related to technical details).

  The CA must provide reasons for determining the bid to be responsive or non-responsive, (in consultation with Materials Management or Legal Services).

- **Evaluation of the Prices (*Form B: Prices-Unit Prices*)** – The CA must first extend all unit prices to verify the total price bid for each item of work and for the total bid price for each bidder. These results are summarized in a "tabulation of bids" in the standard City format, showing and describing all informalities.

  The final tabulation of bids shall be sent back to Materials Management for posting to the website.

- **Evaluation of the Prices (*Form B: Prices-Lump Sum*)** – The CA must confirm that each bidder has entered a total bid price on *Form B: Prices—Lump Sum*.

- **Evaluation of all Other Bid Submission Forms and Documents Required to Be Submitted by the Bidde**r – The CA must examine all other forms and documents submitted by each bidder, identify all informalities found in the forms and documents, and summarize the results in the Receipt of Bids document, showing and describing all informalities (i.e.: what areas are incomplete).

- **Unsolicited Information** – The CA must not review or consider any unsolicited information or documentation that may appear during the bid evaluation period. The CA also must not contact any bidder or otherwise request additional information or clarification from any bidder without the prior approval of the Materials Management or Legal Services.

6.4.15.2 Bid Mistakes

The law provides that the City cannot accept a bid submission from a bidder if a mistake is apparent on the face of the bid unless the bidder consents to waive the mistake.

Mistakes apparent on the face of a bid submission for a lump sum contract typically are in one of these two categories:

1. The bid price of the lowest bidder is substantially lower than the pre-bid estimate (which is located on the Bid Opportunity Number request form). This assumes the other bids received are close to the estimate; if all of the bid prices received are substantially higher or lower than the estimate, the estimate does not help in assessing a bidder's request to withdraw on the grounds that its submission contains a mistake.

2. The bid price of the lowest bidder is substantially lower than all the other of the bids received.

Mistakes apparent on the face of a bid submission for a unit price contract are generally easier to detect than on a lump sum contract. They include:

1. The bidder has failed to include a price for a work item on Form B: Prices—Unit Prices.

2. The bid prices of the lowest bidder for one or more items of work on Form B: Prices—Unit Prices or for the work as a whole are substantially lower than the pre-bid opportunity estimate(s).

3. The bid price of the lowest bidder for any one or more of the work items on Form B: Prices—Unit Prices or for the work as a whole is substantially lower than the bid prices received from all other bidders.

6.4.15.3 Procedure to Follow When Bidder Advises of Bid Mistake

A bidder seeking to withdraw a bid on the grounds that it contains a bid mistake usually does so within hours of the bid opportunity closing.

If the City receives an oral communication (i.e.: a telephone call) from a bidder advising of its bid mistake, the bidder is instructed to put the information in writing, including:

1. details of the mistake, and how it was made

2. make a request to withdraw bid

3. send it to the Manager of Materials

The Contract Administrator or other City employees should make no comments to the bidder. The entire Project Team should also be instructed to refer any similar oral communications, without comment, directly to the Manager of Materials.

The Manager of Materials, in consultation with Legal Services, determines whether the mistake is a bid mistake apparent on the face of the bid.

If the Manager of Materials and Legal Services concur that the bidder has made a mistake that is apparent on the face of its bid submission, the Manager of Materials prepares a letter to the bidder permitting the bidder to withdraw the bid without penalty.

If the Manager of Materials and Legal Services concur that there is no mistake apparent on the face of the bidder's bid submission, the Contract Administrator, on behalf of the department, should immediately write an award report recommending that the contract be awarded to the bidder, notwithstanding its request to withdraw, and should forward the recommendation to the Award Authority that the bidder has made a request to withdraw its bid due to an alleged mistake. It must provide the Award Authority with all details and reasons the bidder gave to the City for the mistake and it must detail why the Manager of Materials, in consultation with Legal Services, has concluded that there is no mistake apparent on the face of the bid submission and why it has recommended that the Award Authority reject the bidder's request to withdraw without forfeiting its bid security.

Immediately following a decision of the Award Authority not to allow the bidder to withdraw the bid without forfeiting the bid security and in no event later than the time period specified in the bid opportunity form, the Department Head must issue a Letter of Intent (LOI) to the bidder advising that the bidder has been awarded the contract. If the Letter of Intent is not issued within the specified time period, the bidder's bid, together with any entitlement the City may have to its bid security, will lapse.

On receipt of the Letter of Intent, Legal Services prepares the Contract documents and forwards them to the bidder for execution and return. The bidder advises the City upon receipt of either the Letter of Intent or the Contract documents that it will undertake the work for the price bid or that it will not undertake the work, notwithstanding the Award Authorities' decision. If the latter, the Department must notify Legal Services, which will make demand on the bidder's surety company if its bid security was a bid bond, or on the bidder's financial institution if its bid security was a letter of credit.

Following a demand on the bidder's Surety Company or financial Institution, and on the advice of Legal Services, the Department then instructs the authority with jurisdiction to award the contract to issue a letter of intent to the bidder submitting the second-lowest evaluated responsive bid.

6.4.15.4   Withdrawal of Bids prior to the Award of Contract

Bidders are only entitled to withdraw their bids without forfeiting their bid securities at any time prior to the time and date set for final receipt of bids specified in the bid opportunity.

Bidders are not entitled to withdraw their bids without forfeiting their bid securities after the time and date for final receipt of bids.

Bidders who withdraw their bid after the time and date set for final receipt of bids, and before an award of contract, forfeit their bid securities unless the Manager of Materials or Award Authority in consultation with Legal Services allows otherwise.

6.4.15.5   Contract Administrator's Recommendation of Award

After completing evaluation of bids, the Contract Administrator meets with the Project Manager to review the findings summarized in the *Summary of Bid*s and *Tabulation of Bids* forms to:

1. Discuss any informalities found in the bids.

2. Determine whether the Contract Administrator's assessment that a bid is either responsive or non-responsive can be supported by the reasons the Contract Administrator has given (the department may have to follow up and obtain the opinion of the Legal Services Department before confirming).

3. Discuss the qualifications of the lowest-evaluated responsive bidder and their subcontractors to perform the work, and (upon resolution of all uncertainties) tentatively schedule an early date for the pre-award meeting.

6.4.15.6   Pre-Award Meeting with Lowest Evaluated Responsive Bidder

The Pre-Award Meeting should generally involve only the three principal participants:

1. the lowest evaluated responsive bidder

2. the Contract Administrator

3. the Project Manager

The Contract Administrator may also request that certain or all of the designated subcontractors listed in the bid submission be available for discussions involving their capabilities and commitment to their aspects of the work.

The Contract Administrator should chair the Pre-Award Meeting, opening with the standard disclaimer:

> *"that it is not the intent of this meeting to award the contract or make any changes however only to confirm the intent and ability of the Contractor to undertake and perform the work in accordance with the Bid Opportunity documents and the Bid."*

The Contract Administrator should then review the scope and schedule of the work to ensure that the bidder has no misunderstanding about the extent of the work and to confirm that they have no reason to believe that they cannot perform the contract in accordance with the Bid Opportunity documents.

The Contract Administrator should advise the Contractor that they have an obligation to enter into contracts with the subcontractors that require them to perform their work in complete conformance with and subject to the terms and conditions of the Contractor's contract with the City.

Further, the Contract Administrator should discuss any site investigations carried out by the bidder to ensure that the bidder's findings were consistent with the site information disclosed in the bid opportunity.

The Contract Administrator keeps proper detailed minutes of the pre-award meeting, and promptly transmits a copy of them to all parties for confirmation of accuracy in the recording.

6.4.16 Contract Administrator's Final Recommendation of Award

The Contract Administrator prepares and transmits to the department an unequivocal recommendation for award, supported by reasons.

The letter of recommendation must be accompanied by the *Summary of Bids* and *Tabulation of Bids* forms, and the Bid Opportunity submissions of all bidders.

A recommendation to reject any bid(s) as non-responsive, and/or a recommendation to award to other than the lowest evaluated responsive bidder, must be fully explained to the satisfaction of the department.

6.4.16.1 How to Award Contracts

The department reviews the final recommendation of award from the Contract Administrator and promptly resolves any identified inconsistencies that could impede concurrence or implementation of the contract award.

If the department and Contract Administrator recommendations differ, the difference must be resolved in consultation with Materials Management and Legal Services prior to the department's Award Report.

The City has a structured process for approval of award and final award. The Contract Award Process is shown in Figure 6–3.

Figure 6-3. Procurement: Contract Award Process

6.4.16.2 Prepare the Award Report

The Project Manager must prepare an Award Report in accordance with the current standard format.

Award Reports must address bidding irregularities, construction alternatives, budget complications or overruns, or the exercise of an option to add/delete alternative or separate price items must be expanded to fully explain and justify the proposed course of action.

6.4.16.2.1 History/Discussion

An expanded history/discussion section is required related to the following award complexities:

1. If additional funding required

    a. Applies to either the contract or other parts of the project.

    b. If not available from surplus funding in the department, must be sought from other funding sources.

    c. Approvals of additional fundings varies.

2. Outside agency approvals

    a. All approvals required for the project to proceed must be secured.

    b. Explanation of each approval must be provided.

    c. Property acquisition or easement agreement for the project to proceed must be in place.

3. Construction alternatives

    a. Explanation of the alternative.

    b. Reason for recommending the one chosen.

4. Public (traffic) disruption

    a. Identify impact based on project schedule/alternatives.

5. Accelerated completion bonus

    a. Cost/benefit statement to justify recommendation.

6.4.16.2.2 Legal Services, Materials Management, and Controller Approvals

The Award Report must be approved by Legal Services, Materials Management, and the departmental Controller before being forwarded for approval and award at the designated level.

Legal Services

Legal Services reviews the Award Report, and may either approve it (with or without comments) or not approve it, stating the legal concerns and/or ramifications associated with proceeding with the Award.

Materials Management

Materials Management reviews the Award Report, and may either approve it (with or without comments) or not approve it, stating the reason(s) for withholding the approval.

Departmental Controller

The Controller reviews the Award Report, and may either approve or not approve it on the basis of verification of the availability of sufficient authorized funding for the designated project work.

Legal Services and Materials Management reviews the Award Report to ensure that:

1. The recommendation for award is to the bidder submitting the lowest evaluated responsive bid (or most advantageous offer in the case of an RFP).

2. The department has correctly determined that the bidder recommended for the contract award is indeed the bidder submitting the lowest evaluated responsive bid.

3. Known informalities or irregularities in the recommended bidder's Bid Opportunity submission have been identified and that a correct determination has been made about their materiality.

4. The department and its Consultant have determined that the recommended bidder is responsible (qualified to do the work).

5. The department has confirmed that there are sufficient monies available in the budget (or to be transferred in) to pay for the work once the contract is awarded.

Approval of the Award Report from Legal Services and Materials Management does not mean that the department has evaluated the bid submissions correctly unless the department has consulted with Legal Services or Materials Management during the evaluation process.

6.4.17 Award Process

The Award Report must be routed to the appropriate approvers and award authority. In some cases, however, not all approval and award are by the same authority. Council and its committees may approve of an award of contract to be made by the CAO. The CAO has delegated the issuance of all Letters of Intent awarding the contract to the Department Head.

The award authority for a contract depends on its type and value, and on availability of budget funds. A complete explanation of the process is provided in FM-002 Materials Management Administrative Standard.

6.4.17.1   How to Form a Contract

After all approvals have been obtained, a contract must be formed. There are three options for this identified in one or more of the RFP and Bid Opportunity templates and general conditions:

1. A Letter of Intent (LOI) is issued by the Award Authority with a requirement to execute a formal contract within a specified time period. The contract is prepared by Legal Services.

2. A Purchase Order (PO) is issued in lieu of the execution of a contract.

3. A Letter of Intent is issued by the Award Authority in lieu of the execution of a contract with the bid documents in their entirety deemed to be incorporated into, and form part of, the contract. There is a specialized form of Letter of Intent to engage Consultants located on the City website at:
   winnipeg.ca/matmgt/templates/contract_administration/Contract_Administration_Letters.stm

The Procurement – Contract Commencement Process is illustrated in Figure 6-4.

The contract must be signed by an approved signing authority. The Award Authority and Signing Authority are not the same.

Templates for the Letters of Intent and Letters of Regret for the unsuccessful bidders are available from the City's website at:

winnipeg.ca/matmgt/templates/contract_administration/Contract_Administration_Letters.stm

Standard consulting agreements are available on the City's website at winnipeg.ca/matmgt/templates/consultants/Consultant_Information_Page.stm

Figure 6-4. Procurement: Contract Commencement Process
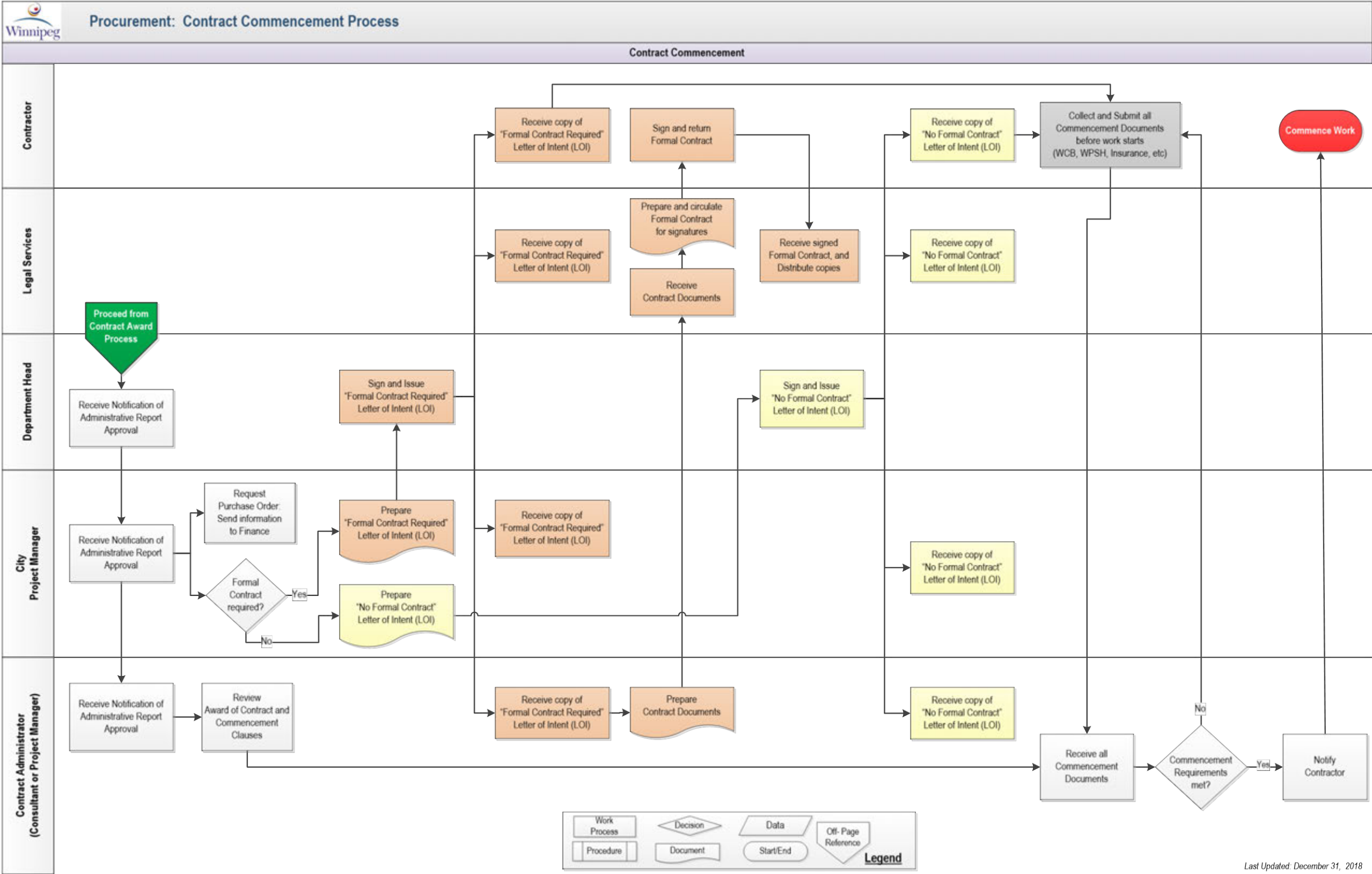
6.5   Direct and Manage Work

The work activities are directed and managed in order to achieve the project's objectives.

Directing and managing may include one or more of the following:

- Managing project activities
- Administering contracts, which may include those for Consultants, construction or third parties
- Directing and managing in-house delivery

Directing and managing work involves a variety of activities such as:

- managing the team
- directing project communications
- reviewing project deliverables
- making decisions
- generating and providing project data.

Contract administration for Consultants, construction Contractors, and third-party Contractors is similar. Each is a type of vendor that has a contract with the City, and contract administration for any of the three involves managing the work provided in accordance with the terms and conditions of the contract.

The contracts with the three types can be different, which creates differences in the City's role, relationship with the vendor, and administration activities, however, the applicable project management and contract administration processes are the same.

Directing and managing differs from monitoring and controlling, which involves managing changes and taking corrective action, as described in *PMM Section 7 Monitoring and Controlling Process Group*.

6.5.1   Manage the Project Delivery Plan

The project management work defined in the Project Delivery Plan (PDP) is based on an overarching plan for project management and delivery, encompassing the entire project delivery chain to be managed by the Project Manager.

The Project Manager is responsible for acquiring a Project Team and directing their work assignments, including scope of services, level of effort, and expectations. The Project Manager confirms that the services are being provided and delivered as required to meet the objectives of the Business Plan.

For projects involving in-use facilities, it can be particularly challenging to maintain normal operations during construction. The Project Manager must coordinate either directly, by communicating with operations staff, or indirectly, by facilitating and monitoring other set procedures.

The coordination requirements may include:

- Maintaining operation of the existing facility during construction
- Maintaining proper lines of communication
- Planning and preparing for operation of the new work well in advance of actual transfer

City representatives for site work may be assigned to assist or take a lead role to support the Project Manager. Under either working relationship, the Project Manager must retain responsibility for quality and project delivery. Communication and coordination responsibilities are vulnerable to breakdown under these situations, particularly when the Contractor's work

encroaches on the operating employees' daily responsibilities. Even though authority may be assigned to the Consultant to act on the City's behalf for these services, the Project Manager must monitor site communications for conformance with protocols and formal lines of communication as identified in the Project Delivery Plan and the Contracts.

Projects may have third-party commitments, such as utility coordination. The Project Manager must see that the required coordination is carried out, either directly, by communicating with others, or indirectly, by facilitating and monitoring other set procedures.

The Project Manager is responsible for the entire project budget throughout the full project delivery chain. This may include cost items in addition to the product itself, such as application fees, utility coordination, and engagement of third-party services. The Project Manager reviews progress and billings and coordinates with Accounts Payable for payment. The Project Manager is responsible for taking corrective action if the costs or projections do not conform to the Project Delivery Plan and project budgets, as described in *PMM Section 7 – Monitoring and Controlling Process Group*.

The Project Manager is responsible for coordinating events within the Project Delivery Plan schedule. The Project Delivery Plan schedule for the full project delivery chain is likely to commence earlier and extend well beyond those for Consultant or Contractor services. The Project Manager reviews schedules and confirms that critical dates and milestones are being met and are achievable.

Project-level communication is required as identified in the Project Delivery Plan. The Project Manager is responsible for arranging and undertaking the communications, which may include communications with the following individuals:

- Project Sponsor, to provide project updates or request advice or input
- Major Capital Project Advisory Committee, to address risks and major project issues
- Project Advisory Committee, for updates and decisions
- Business Owners and operations employees, to receive input or provide information on operating issues or impacts
- Other business units or departments, for coordination
- Manager, Major Capital Projects Oversight, for project updates and issues

6.5.2 Manage Design-Bid-Build Projects

For Consultant delivered Design-Bid-Build (DBB) delivered projects, the Contract Administrator (Note: per *PMM Section 5.6 – Plan Procurement*, the role is designated as 'Contract Project Manager') must administer the Consultant's Contract.

Maintaining focus on the unique product, service, or result is of paramount importance since the project is undertaken to achieve a benefit as defined in the Business Case.

The most effective way for the City and Consultant Project Team(s) to meet this goal is to work collaboratively. The Project Manager and Project Teams accomplish this through a teamwork approach by administering, by facilitating and supporting the Consultant in developing deliverables and providing timely reviews and approvals.

The Contract Administrator is responsible for administering services in accordance with the Consultant contract, which is drawn from the Request for Proposal (RFP), General Conditions, proposal and the Consultant Project Execution Plan (PXP). The Consultant will be required to prepare the Consultant Project Execution Plan consistent with the requirement of the City's Project Delivery Plan (PDP). The services include a variety of coordination, facilitation, and decision-making relating to scope, schedule, and deliverables and making payments for the services. The City Project Manager will have specific deliverables and task assignments based on the approved Project Delivery Plan and must manage and facilitate City interactions and participation.

The Consultant service contracts may vary with a wide range in the deliverables. For the DBB project the Consultant will normally be responsible for the means and methods of the assignment and the City Project Manager will be responsible for contract administration of the Consultant contract regardless of the details. The City Project Manager is responsible for approval and monitoring of the Consultant Project Execution Plan.

The Consultant will develop their Project Execution Plan based on the requirements in the contract, the Project Management Manual and their own internal project management and product delivery processes. If any conflicts exist in best practises, the City will provide the Consultant formal direction via the change control process. The goal is for Consultants to follow the Project Management Manual processes, procedures, tools and templates, and conform to the Project Delivery Plan in meeting the project goals, and to ensure consistency and best practise in how projects are managed and delivered. This will not interfere or limit the Consultant from implementing new concepts or designs in the product, service or result being delivered.

The Consultant Project Execution Plan will include a team chartering process. Project management best practices identify project team chartering as a key enabler for project success in developing a Project Team. The preferred approach is for the Consultant team chartering session to include the City's Project Manager, at a minimum; however, preferably the entire City Project Team, operations, and Senior Management employees, including the Project Sponsor.

The main work to manage and direct the project is defined in the Consultant Contract and as detailed in their Project Execution Plan. Contract administration is carried out by the Contract Administrator (the Contract Administrator is role based – the Project Manager may also fill the Contract Administrator role) for all types of projects.

The Contract Administrator's responsibilities generally include the following:

Deliverables	Deliverables to be provided. When and for how much money.
Information Transfer	Providing information is a City deliverable for the Consulting Contract, and it is a critical task that must be carried out in a timely manner since the Consultant's ability to perform work depends on it.
	The Project Manager and Project Team collect, or coordinate collection of, all internal data and information, and confirm that the information has been transferred.
Decisions	The City is responsible for timely review and a prompt response for decisions to Consultant submissions and requests.
	Response times for City review periods should conform to those identified in the Project Execution Plan or Contracts and are to be managed by the Project Manager.
Communications	Communications are carried out according to the Contract or as further agreed on.
	For larger projects, regularly scheduled meetings should be held between the Project Manager and Consultant representative along with regular or milestone project update meetings with the City's Project Management team and Project Advisory Committee.
Schedule	The Consultant's work schedule included in the Contract should be used for coordinating and scheduling work.
	The Consultant and Project Manager regularly update progress against the baseline. The original schedule must not be changed even if target dates will not be met, unless authorized through a change process as part of the project controls.
	The Project Manager is responsible for providing any City input to the schedule within the timeframes identified.

Deliverables	Deliverables to be provided. When and for how much money.
Quality Management	For major projects, Consultants should have an internal quality assurance/quality control process. While the process should be developed, owned, and administered by the Consultant, familiarity with the program and its use will give the Project Manager an additional quality assurance measure to use. An effective Consultant quality assurance/quality control program may warrant reduction of the level of risk assigned under the risk assessment.
Cost Estimating	Cost estimates for a product are required as part of most Consultant assignments. While there are well-defined techniques for developing estimates, the process can be challenging on certain types of projects. The Contract should identify the estimating technique to be used and the estimate classification system, which the Project Manager can then monitor under the quality assurance process.
Payments	Standard Consultant Contracts provide for monthly billing with the billing method and conditions defined in the Consultant Contract. The process for approving payments is: • The Consultant submits a monthly invoice based on the deliverables status and progress. • The Contract Administrator reviews the invoice and notifies the Consultant of any errors or omissions. • The Project Manager verifies the progress and authorizes payment for Consultant services.

The Contract Administrator is responsible for measurement and payment. Work progress is measured through the monitoring and control processes, and is usually straightforward as it is readily measured and confirmed through submission of deliverables. It may be more complex at interim levels of completion where level of progress must be estimated. Regular communications between the Contract Administrator and the Consultant should provide sufficient validation of progress and support for approval of payments.

6.5.2.1 How to Manage Consultants

Consultants are an important part of the City's project delivery chain. They typically have a close working relationship with the Project Manager and Project Team, and play a major role in shaping or influencing the project direction.

Consultants work under Contract with the City, and the Project Manager/Contract Administrator must, without exception, administer their services according to the terms and conditions of the Contract. This means that if the Consultant is expected to manage a project in a certain way, it must be stipulated in the RFP, incorporated in the Contract, and detailed in their Project Execution Plan.

In most cases, the Consultant has expertise in project management as well as in providing technical services. Prescribing Consultants' work methods and procedures should be balanced and consistent with the Contract considering both the extent of the need and the potential increase in costs and benefits.

6.5.3 Manage Design-Bid-Build Construction Contract

Design-Bid-Build (DBB) contracts are the most common method of delivery for construction projects, and are used for Consultant and in-house delivery. They also have unique contractual arrangements for the construction contract.

For Consultant-Delivered DBB contracts, the Consultant usually provides resident and non-resident contract administration services with authority for Contract Administrator granted to the Consultant by the City under the General Conditions (GCs) and Supplemental Conditions (SCs).

The GCs define the Contract Administrator as the City's representative throughout the duration of the Contract, and state that the Contract Administrator shall have authority to act on behalf of the City to the extent expressly provided for in the Contract. The person or firm filling the role is identified in the supplemental conditions of the Bid Opportunity.

This situation can cause confusion at the Project Team level between the City and individuals in consulting roles. The City representative role in the construction Contracts is City Representative (*PMM Section 5.7 – Plan Resource Management*). To effectively perform the Contract Administrator services, the project delivery team must understand their roles, responsibilities and authority and the Consultant must have the autonomy and support needed.

The Consultant Contract Administrator is responsible for:

- Administering the construction contract(s)
- Communicating with the Contractor
- Providing project direction
- Administering contract deliverables
- Quality assurance and quality control inspections
- Measuring (verifying) for payment for the construction contract

While carrying out these Contract Administrator services, the Consultant coordinates with the City (City Representative) on:

- Advice to the City
- Review of alternatives
- Status updates and reports
- Regular communication

For DBB, Consultant deliverables are in the form of both products and services. Since the Consultant is the Contract Administrator, the deliverables are construction information, including schedule, quality, and adherence to budgets, as well as information needed for transferring the completed project.

The Project Manager is responsible for administration of the consulting contract and, therefore indirectly, for the construction contract. Accordingly, the Project Manager must monitor the Consultant's services, referring to Consultant-provided information in construction status reports and forecasts.

Standard construction contracts provide information regarding monthly progress payments. As Contract Administrator, the Consultant is responsible for measuring or verifying that the amount billed matches the actual completed work. The Consultant then recommends that the City pay the Contractor. Monitoring and managing changes for construction projects is discussed in *PMM Section 7 – Monitoring and Controlling Process Group*.

The Consultant may be responsible for the actual commissioning or for coordination of commissioning, or a separate contract may be used for commissioning. The Project Manager must provide coordination and process oversight in either the case.

6.5.3.1   How to perform Contract Administration

Refer to *PMM Section 9 Contract Administration*. This section describes best practices for administration of construction contracts throughout their duration and during the warranty period.

Change control on contract is provided in *PMM Section 7 – Monitoring and Controlling Process Group*. Construction contracts are part of the delivery chain, they need to be monitored and controlled and must be included in the integrated change control process.

6.5.4 Manage In-House Projects

The project management processes for in-house delivery are the same as for consultant projects, using the planning processes and outputs described in *PMM Section 5 – Planning Process Group*. The main difference is that City employees takes on the technical role and produce product, services, or results deliverables such as conceptual designs, detailed designs, and drawings and specifications for construction projects. The organizational structure includes internal City employees for this method of delivery. As for Consultant projects, study managers, design managers, task leads, and discipline employees may be needed.

6.5.5 Design Management

Design management is the oversight of design efforts and encompasses the ongoing processes, business decisions, and strategies that enable innovation and create effectively-designed products, services, or results. Design management aims to link design, innovation, technology, management and stakeholders to provide competitive advantage across the triple bottom line: economic, social/cultural, and environmental factors. Design Management is about empowering design to enhance collaboration and synergy between 'design' and 'business' to improve design effectiveness.[10]

Design management encompasses design planning, design inputs, design development, design reviews, design outputs, design verification, design validation and control of design changes.

Design development is the progression of the design against the agreed upon scope, from the design outline produced in the Feasibility part of the Major Capital Project process through to Preliminary Design, Detailed Design and culminating into a final design which ultimately produces the information packages for tendering and construction. Design work is an iterative process; as the design matures the detail of the design increases, the number of assumptions decreases and the associated risks are reduced.

Design change is when the fundamental design aspects that have been agreed upon are subject to change or vary from the expected deliverables. For example, when there is a clear change in scope or aspects of the design are modified to suit new regulatory requirements.

At certain intervals in the design process, a complete package of information is assembled for approval. Once this approval has been given, the integrated change control process is employed to ensure that the approved information is not changed without express permission from the approving body for the project.

Any change to the design by reason of a change to the scope, detail, material or specification which occurs after the agreement of the outline design, and approval of the associated budget cost, should be implemented using the Integrated Change Control process. Refer to *PMM Section 7.2.2 – How to Perform Integrated Change Control* for additional information on the Integrated Change Control Process.

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[10] Design Management Institute. www.dmi.org. 6-37.

Design changes can be minimized by:

- Conducting effective integrated design meetings.
- Ensure legislative requirements are properly integrated into the project.
- Ensure risks are properly identified and assessed.
- Ensure undertaking of thorough site investigations and condition surveys.
- Ensure that designs are properly organized before tender.

Design reviews involve a formalized, structured approach to assure interdisciplinary coordination and compliance with design criteria and site, environmental, and operational constraints. Design reviews are conducted to assure quality of products in development and generally occur at 30%, 60%, 99% design deliverables complete points in the design process. City staff will work in collaboration with Consultants throughout the design process.

Design reviews ensure:

- adherence to design criteria, and environmental documents
- quality of the design
- identification of errors and omissions
- operational and functional objectives are met
- adherence of cost estimates to the project budget
- building codes compliance
- interdisciplinary feedback is obtained before progressing the design further
- the design is biddable, cost-effective and constructible

6.6 Manage Quality

6.6.1 Perform Quality Control

Quality Control (QC) involves preparing and following the plans identified in the Project Delivery Plan or Project Execution Plan, and carrying out the quality control methods and techniques defined in the Quality Management Plan.

Quality is a shared responsibility, and each team member must:

- Be aware of their shared responsibility for quality.
- Follow quality and design standards as defined.
- Carry out draft reports and interim reviews as scheduled.
- Complete calculation and design checks.
- Use checklists and validate information.

For quality related to the Project Delivery Plan, the Project Manager is assigned the role of Quality Manager. The Quality Manager is responsible for development of quality plans, dissemination of quality procedures to the team, and confirmation of compliance with the procedures. The Quality Manager is not necessarily responsible for carrying out all of the quality checks, as quality is a shared responsibility.

6.6.2 Perform Quality Assurance

Quality Assurance (QA) is performed in accordance with the Project Development Plan's (PDP) Quality Plan. Quality Assurance includes those tasks specifically listed in the Quality Management Plan (QMP), and the following:

- Assess the quality control result to determine what processes and procedures need to be revised to ensure the customer requirements are met.
- Review outputs and deliverables at defined phases.
- Timely reporting of results.
- Review and updating the processes, procedures and quality control standards.

Quality assurance is an inherent requirement of the Project Manager. The expectation is that the Project Manager develops the Project Delivery Plan according the Project Management Manual. The Project Manager will plan, arrange, monitor, and administer the project to the Project Delivery Plan that meets the project goals and objectives.

Quality Assurance, from this perspective, is carried out through review or auditing of Project Delivery Plan-related activities, including the review and monitoring of:

- progress for the entire project for completeness and ability to meet the defined goals and objectives.
- progress for the entire project for impact on operations and ability to meet the defined goals and objectives.
- project performance measures.

The Quality Plan identifies specific review and audit requirements. The Project Manager and Project Team provide formal quality assurance during the project phases through direct reviews of the reports and designs submitted by Consultants. This includes review of draft documents and staged and final design reviews.

The Project Manager must manage problems identified from the quality reviews. Remedies for deficiencies are addressed in the monitoring and control processes discussed in *PMM Section 7 – Monitoring and Controlling Process Group*.

6.7 Manage Communications

Managing communications is the process of:

- distributing information
- carrying out stakeholder communications
- managing stakeholder expectations

The execution of communications means to follow the detailed Communications Plan in the Project Delivery Plan.

6.7.1 Distribute Information

This process involves carrying out the communications defined in the Project Delivery Plan's Communications Plan. New data is produced continually during project execution, and any relevant data and information must be reported and distributed as identified in the Communication Plan.

6.7.2 How to Manage Consultant Communications

Consultants sell knowledge and confidence with their primary resource being human talent. 70 percent of a Consultant's operational cost is made up of salaries and benefits. The critical operational element in any project is, therefore, to ensure effective use of the Consultant's human resources. This is naturally a management role with the success of the service being a direct function of the Project Manager's involvement. The ability to effectively communicate with the Consultant is therefore a vital element of project success.

Effective communication is the key to project success, and it is also critical in avoiding unnecessary disagreement, and the potential for costly and protracted legal actions that frequently stem from misunderstanding, misinformation, or no information at all.

When dealing with the Consultant, whether 'speaking' or 'sending', it is important to be clear and concise about the message, and to know its purpose which may be to:

1. Give project-related information and objective data.

2. Reveal concerns, opinions, feelings, or subjective data.

3. Initiate action (for example, requests, requirements, commitments, or changes).

The Project Manager and the Consultant should understand that communication effectiveness decreases considerably as communication moves from face-to-face (direct communication), to telephone communication, and again from telephone to written communication. However, each communication mode has its place in continuing coordination, and each must be used appropriately.

Generally, these communication guidelines apply:

- Direct communication during meetings or consultations is useful to address issues, problems, or complex matters; gather ideas interactively; and initiate important actions or decisions.

- Telephone conversations (or conference calls) are useful to solicit information, provide sensitive information, or serve as an urgent substitute for direct communication.

- Written communications, such as memorandums, letters, or reports, are useful to transmit factual information, request formatted information, or provide updates or routine changes confirming discussions and interpretations.

While speaking directly to the Consultant is the most effective means of communication, in a court of law, unwritten evidence may be considered hearsay, and is always considered less reliable than written records. Therefore, maintaining clear and concise business records for every project must be standard operating procedure for every Project Manager. Moreover, these procedures must be designed to build chronological records of a service undertaking from its inception to its conclusion.

While most documentation is the Consultant's responsibility, it is advantageous for the Project Manager to maintain records that clearly identify all decisions, instructions, changes, progress check points, inspection results, and other activities affecting the outcome of the work effort.

The following written records should be maintained for all projects:

- Memoranda of all conferences (i.e.: minutes of meeting)

- Names and addresses of all parties concerned with the project

- List of all data provided to the Consultant

- Copies of all communications to and from the Consultant, to include memoranda of all telephone communication

- Memoranda listing all work products submitted from the Consultant, with date of submittal and date of acceptance and/or approval by the Project Manager

- Proposed and actual completion dates for each service activity or phase of service production
- Date of submission and approval of drawings and other data required by governmental review and regulatory agencies
- Final construction estimate
- Amounts of all bids and sub-bids
- Date of issuance and return of all documents by Contractors
- Date of approval or acceptance and copies of surety bonds, certificates of insurance, progress schedules, tests, and schedules of values
- Dates and results of shop drawing and sample review
- Copies of certificates for payment and change orders
- Reports from project inspectors and field representatives
- Dates of approval or rejection of work or materials
- Copies of Certificate of Completion, Certificate of Total Performance, and Certificate of Acceptance
- Final construction costs
- Summary of all project service expenses
- Photographs taken before, during, and after construction

Meetings can be productive methods to provide and receive continuing updates of project status; the Project Manager's and Consultant's time is valuable.

The following guidelines are used to help make meetings brief and effective:

- Call meetings only when they facilitate problem-solving, or when direct communication or resolution is required.
- Explain the purpose of the meeting, and have an agenda.
- Identify each item as meant to:
  (1) provide information,
  (2) promote discussion, or
  (3) initiate action.
- Set time estimates or targets for each item on the agenda, as well as for the entire meeting; keep presentations and discussions moving along.
- Agreements, conclusions, and responsibilities resulting from the meeting must be summarized usually after each point (if practical to do so), and also preferably in writing at the end of the meeting by means of minutes, memoranda to file, telephone memoranda, job memoranda, or field memoranda.

6.7.3 Manage Stakeholder Expectations

Managing stakeholder expectations involves planned and unplanned communications with stakeholders to minimize their concerns and influence their expectations. The objective is to increase the likelihood of project success; with communication goals to resolve issues, build trust, increase buy-in, and overcome resistance to change.

Sensitive unplanned communications may be needed. Undertaken directly by the Project Manager or coordinated through the Project Manager these include communication with:

- Regulatory or permitting authorities
- Stakeholders, for education, information, and input
- The public, for general communications
- The media
- Any special protocols as identified in the Project Delivery Plan's Communication Plan for the type of communication must be followed.

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Monitoring and Controlling Process Group

Project Management Manual Sections

Section 1: Introduction

Section 2: Project Management Governance

Section 3: Project Delivery Framework

Section 4: Initiating Process Group

Section 5: Planning Process Group

Section 6: Executing Process Group

Section 7: Monitoring and Controlling Process Group

Section 8: Closing Process Group

Section 9: Contract Administration

7 Monitoring and Controlling Process Group

Monitoring and Controlling is the fourth of the five project management process groups. The purpose of this process group is to track review and regulate the project through all phases, including project management and product delivery tasks for all four project objectives (scope, costs, schedule, and quality).

Monitoring includes collecting, measuring, reporting, and distributing project performance information.

Controlling includes comparing actual project performance with planned performance, analyzing variances, assessing trends to effect process improvements, evaluating possible alternatives, and recommending appropriate corrective action as needed[11], and determining whether the actions taken resolved the performance issue.

To be effective, monitoring and controlling must be carried out in relation to a baseline, which will have been produced within the planning processes and documented in the Project Delivery Plan.

Figure 7-1. Monitoring and Controlling Process Group

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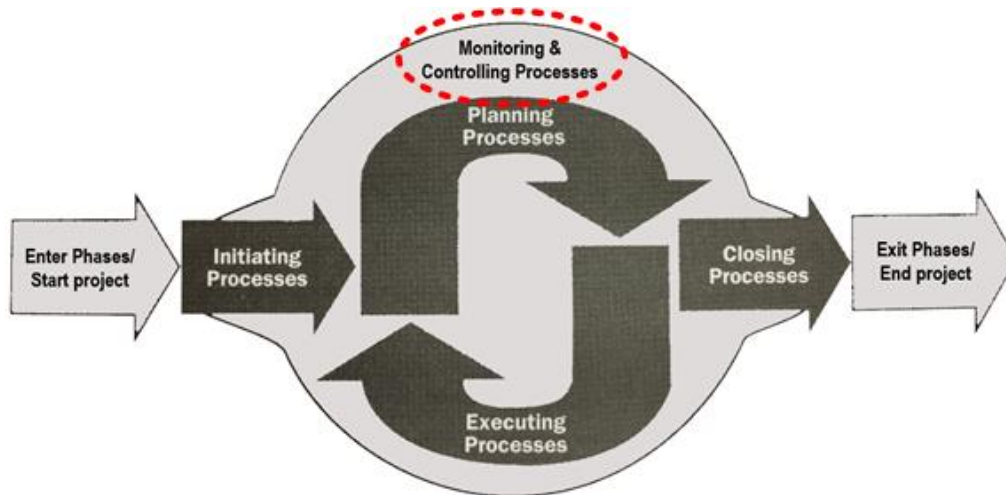
[11] Project Management Institute (2017). *A Guide to the Project Management Body of Knowledge,* Sixth Edition, p. 613.

7.1   Monitor and Control

Once the baseline has been developed and execution is underway, the Project Manager manages any variance to the baseline. Figure 7-2 notes the main components of the Monitoring and Controlling processes.

Figure 7-2. Change Control Process Main Components
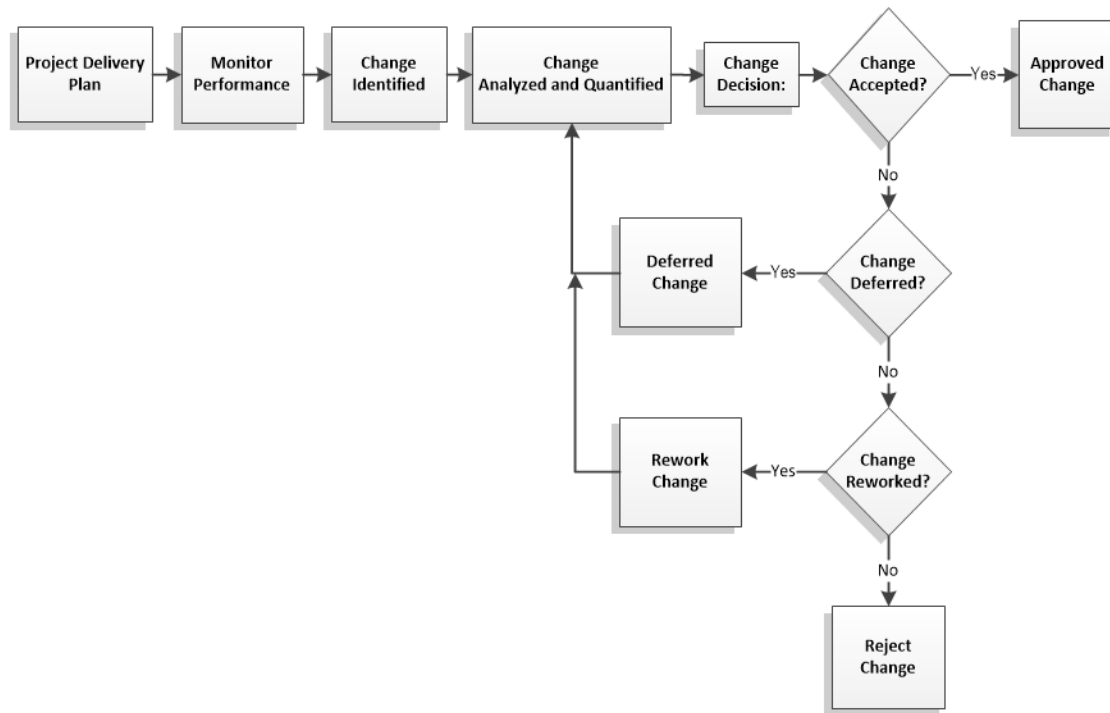
The main components of the Integrated Change Control Processes:

Change Control Process	Description
Project Delivery Plan (PDP)	Serves as the baseline from which to monitor, control, and report specific project activities. The objective is to have the appropriate performance measures to identify potential change events and take corrective actions.
Monitor Performance	The objective is to identify potential problems early to prevent unfavourable events or minimize their impact. Integrated change control provides a process for managing changes, once they are identified. Performance reporting provides insight into potential and realized issues. For more information, refer to *PMM Section 7.5 – Report Performance.*
Change Identified	Once a change event has been identified as potential, forecast, or real, the Project Manager takes specific actions identified in the change control process to manage the change.

Change Control Process	Description
Change Analyzed and Quantified	The Project Manager analyzes and quantifies changes from respective baselines. The baselines could be either the product/service requirements or project-based criteria such as scope, cost, or time.
	The Project Manager quantifies the change, and determines whether the change is warranted.
	With each change the corresponding Business Case benefits must be continually assessed and updated.
	The change is vetted with the appropriate approval authorities such as Project Sponsors, Operations employees, Business Owners, or others identified in the Project Delivery Plan as having authority to approve specific changes.
	The review will result in the change decision.
Change Decision	The change decision results in the change either being accepted, rejected, or deferred:
	▪ If the change is accepted, it must be approved and acted upon in a timely and efficient manner.
	▪ If the change is rejected, the affected party must be informed and any fall-out managed using either the project issue resolution process or the procedures in the Contract documents.
	▪ If the change is deferred, at a later time the change must be re-analyzed and re-quantified back through the change control process.

The industry generally recognizes that some change will occur, and changes should be accommodated within the applicable contract.

The Project Manager monitors the changes and determines whether they are reasonable or excessive (i.e.: indicative of errors or omissions).

7.1.1 Monitor and Control Scope

Controlling scope is the process of monitoring the status of the project scope and managing changes. The goal for project delivery is to achieve the benefits defined in the Business Case without any unwarranted changes to the scope. The assessment and quantification of changes in scope are always referenced to the approved baseline.

The following items provide the source of the baseline for scope control:

Scope Control Baseline Source	Description
Scope Statement	The Project Delivery Plan includes a scope statement describing the project in broad terms. The statement is important as it provides a common definition, which promotes understanding and buy-in among stakeholders.
	The Project Manager must track the project and check for alignment to the scope statement to maintain the confidence of the stakeholders who may not know the details of the contracts.
Project Delivery Plans	The Project Delivery Plan and Project Execution Plan identify detailed project management and product delivery tasks for each deliverable that must be monitored and controlled.
	Their work plans include the detailed task descriptions for studies and designs that state what is to be done, and what is to be delivered for each task.
	The Project Manager must monitor progress against these deliverables and identify deviations.

Scope Control Baseline Source	Description
Product Deliverable	Specific details of the products often evolve through the project lifecycle. The scope definition may change from the study to the preliminary engineering and design services. The changes must be monitored, and the project controlled accordingly.
Contracts	Contracts always provide some form of a scope in terms of either specific deliverables or performance.
Plans and Specifications	The scope for construction projects is packaged into much smaller components using drawings and specification clauses. The Contract usually requires each component to be included where the end result is the final product. Unless the project is performance-based, the scope of the project can be tracked and controlled through the specifications. The Work is expected to be completed in accordance with the Contract, and the deliverables are expected to be submitted as defined. If this is not the case, the Work is considered non-compliant if it is deficient or incorrect. If unspecified Work is completed, completion is out of scope. The Project Manager is responsible to proactively monitor and manage the Work, and when there are issues to manage the scope. The City's general conditions and relevant Contracts must be consulted for dealing with scope changes. The general conditions define how to manage scope changes, how to compensate for them, and how to manage disputes.

7.1.1.1   How to Verify Scope

Verifying scope is the process for formalizing acceptance of the completed project deliverables. It involves reviewing the project deliverables with the Project Sponsor and Business Owner, and formalizing the acceptance of the deliverables.

Verifying scope is the final step of the quality assurance review for each of the deliverables, and the final product, service, or result.

Scope verification can be achieved through the use of final acceptance certificates.

7.1.2 Monitor and Control Costs

Controlling costs is the process of monitoring the financial status of the project, and managing changes. All project delivery chain component costs must be monitored including the large Consultant and construction costs, and multiple other costs and fees, as described in *PMM Section 5.4 – Plan Cost Management*.

The Project Manager must proactively monitor and manage costs; reviewing the project routinely to confirm that costs and expenditures are as planned.

The process includes:

- Review and update costs and expenditures regularly.
- Account for any additional and unanticipated costs as soon as possible.
- Identify and track potential changes and additional expenditures.
- Account for inflation and other types of escalation throughout the project.
- Develop Estimate at Completion (EAC) forecasts on cost and performance trends.

All these costs, when added together and forecast to project close-out, must be within the approved budget. If they are not, the Project Manager must inform the Project Sponsor, and a recovery plan must be produced and added to the Project Delivery Plan.

The key to monitoring costs is to have a well-defined work breakdown structure (WBS) with work packages that can be readily measured and compared to their budgets.

Routine monitoring and reporting is completed using the Earned Value Management (EVM) method. The Earned Value Management Report integrates scope, schedule, and costs, providing complete information on progress and performance as shown in Figure 7-3.

Figure 7-3. Example Earned Value Management (EVM) Report
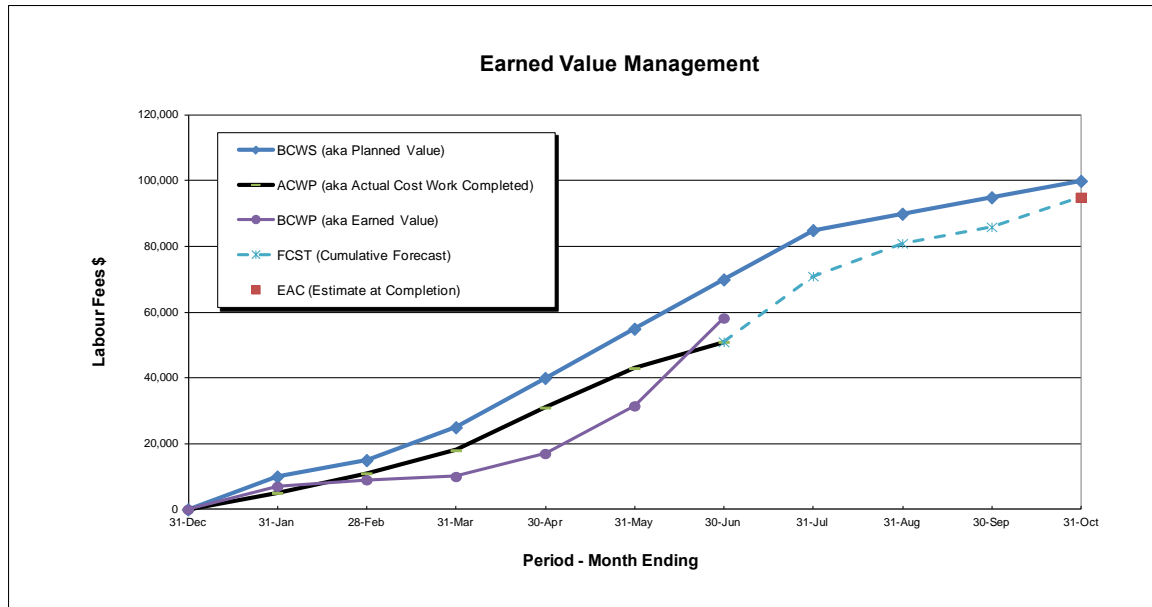
The Earned Value Management (EVM) Report provides a graphical representation of project performance. No EVM template is being developed as Microsoft Project has an EVM feature embedded within.

EVM also provides the basis for variance indicators:

- Schedule variance is a measure of schedule performance equal to the earned value minus the planned value.

- Cost variance is a measure of cost performance equal to the earned value minus the actual cost.

Progress payments must be billed in accordance with the contractual agreements. The only acceptable method for changing the amount to be billed is through a formal scope change (change in services).

Even with proper planning, execution, and safeguards contract amounts can change. The Project Manager must always be aware of circumstances, and prepared to deal with changes. The General Conditions allow for scope changes proposed by either the vendor or the City, and define how the fees are to be adjusted.

The City has the right to change the services at any time, and the Consultant may request changes through the change request process.

Conventional contracts are based on lump sum or unit price payments. There is a contractual obligation to perform the specified work for the approved price. While both Consultants and Contractors are vendors, and similar contract administration is carried out by the City, each type of contract is governed by a different set of General Conditions and must be administered accordingly.

Unit price contracts are amenable to most types of changes since the quantities are only estimated in the contract and final payment is made to the actual final measured quantity. For lump sum contracts, the quantities are thought to be known when the specifications are drafted, and payments for different quantities cannot be made without a formal scope change.

7.1.2.1 How to Perform EVM Calculations

The example in Table 7–1 illustrates how to perform EVM calculations.

Table 7-1. Example of an Earned Value Management (EVM) Calculation

WBS	Tasks	Labour Budget	31-Dec	31-Jan	28-Feb	31-Mar	30-Apr	31-May	30-Jun	31-Jul	31-Aug	30-Sep	31-Oct
BCWS (aka Planned Value)													
1.1.1	Deliverable 1												
1.1.1.1	Task 1	$10,000		$10,000									
1.1.1.2	Task 2	$20,000			$5,000	$10,000	$5,000						
1.1.1.3	Task 3	$25,000					$10,000	$15,000					
1.1.1.4	Task 4	$30,000							$15,000	$15,000			
1.1.1.5	Task 5	$15,000									$5,000	$5,000	$5,000
	Monthly Total	$100,000	$0	$10,000	$5,000	$10,000	$15,000	$15,000	$15,000	$15,000	$5,000	$5,000	$5,000
	Cumulative BCWS		$0	$10,000	$15,000	$25,000	$40,000	$55,000	$70,000	$85,000	$90,000	$95,000	$100,000
ACWP (aka Actual Cost Work Completed)													
1.1.1	Deliverable 1												
1.1.1.1	Task 1			$5,000	$1,000			$2,000					
1.1.1.2	Task 2				$5,000	$7,000	$3,000						
1.1.1.3	Task 3						$10,000	$10,000					
1.1.1.4	Task 4								$8,000				
1.1.1.5	Task 5												
	Monthly Invoices (Labour)		$0	$5,000	$6,000	$7,000	$13,000	$12,000	$8,000				
	Cumulative (ACWP)		$0	$5,000	$11,000	$18,000	$31,000	$43,000	$51,000				
BCWP (aka Earned Value)													
1.1.1	Deliverable 1												
1.1.1.1	Task 1			70%	80%	80%	80%	90%	90%				
1.1.1.2	Task 2				5%	10%	20%	50%	100%				
1.1.1.3	Task 3						20%	50%	90%				
1.1.1.4	Task 4								20%				
1.1.1.5	Task 5								5%				
	Total												
	Cumulative BCWP		$0	$7,000	$9,000	$10,000	$17,000	$31,500	$58,250	$0	$0	$0	$0
ETC Estimate to Complete													
1.1.1	Deliverable 1												
1.1.1.1	Task 1												$2,000
1.1.1.2	Task 2												$0
1.1.1.3	Task 3												$2,000
1.1.1.4	Task 4												$25,000
1.1.1.5	Task 5												$15,000
ETC (Estimate to Complete)													$44,000
EAC (Estimate at Completion)													$95,000

The above example is for a project valued at $100,000 to be completed between January 1st and October 31st.

The table is constructed according to the Work Breakdown Structure (WBS) with the work packages rolling up to deliverables, and the deliverables rolling up to project phases.

Note: Only selected items from the WBS are shown in the table for brevity.

The evaluation may be done for the entire project as a whole or viewed in portions if required. The EVM can include only the labour component if it is primarily a services project as is shown in the table or the total project costs if the other components are of interest.

The risk reserve contingency and management reserve are not included in the project EVM since they are managed and controlled as separate items. Once the contingencies have been converted to project costs through a formal scope change they then become included in the evaluation.

The Earned Value Management calculation is completed as follows:

- **Planned Value (PV)**: The Budgeted Cost of Work Scheduled (**BCWS**) is entered as planned for each task. This must include the work package level detail in the time increments to be monitored and controlled.

- **Actual Cost of Work Completed (ACWC)**: Actual Costs of Work Completed are based on the most current information available which, in many cases, may be Consultant or Contract billings.

- **Earned Value (EV)**: An Earned Value estimate is entered for each item, for each time increment, based on a bona fide estimate of the work completed. The example is structured in terms of percent completed.

- **Estimate to Complete (ETC)**: The Estimate to Complete is a bona fide estimate of the amount of work remaining to be needed to complete each work package for each time increment. The value is reported in terms of cost estimates to complete, however, the basis for estimating would normally be in terms of working time.

- **Estimate to Complete (EAC)**: The Estimate to Complete is calculated from the addition of the cumulative ACWC and ETC.

The EVM is normally presented in graphical format as shown in Figure 7-3 – *Example Earned Value Management Report*.

The trend lines for the example were plotted in Microsoft Excel based on the cumulative rows highlighted in the table. One additional trend is included in the table for the Cumulative Forecast (FCST), which can be included if additional detail is required beyond the EAC.

7.1.2.2   When to Prepare a Recovery Plan

Cost overruns create concern because of the risk of exceeding the project budget and having insufficient resources to fully fund the project.

The Project Manager must report on the reason for the discrepancy and identify a method of recovery:

- If recovery can be achieved through corrective actions within the current work plan and contractual requirements can be met without changes to baselines, a formal recovery plan is not required.

- If the variation from plan is more significant and greater action is required, a recovery plan must be developed and included in the Project Delivery Plan. The recovery plan may include changes such as redesigning products or reducing scope.

The Project Manager must be prepared to deal with over expenditure forecasts through the integrated change control process described in *PMM Section 7.2 – Perform Integrated Change Control Process*.

7.1.3 Monitor and Control Schedule

Controlling the schedule is the process of monitoring the project and product schedules and managing changes. The schedules are defined in the Project Delivery Plan and in the Consultant and Construction contracts.

It is the Project Manager's responsibility to proactively monitor and forecast the schedule.

A schedule with well-defined tasks facilitates easier management. Knowing the expected duration of each task allows estimation of the completion time for comparison with the schedule.

Contracts specify that work will be completed in accordance with the schedule. If it is not, the work is contractually non-compliant. Any changes to the schedule must be formally approved through the Consultant or Construction change process. As part of the integrated change control process (Refer to *PMM Section 7.2.2 – Perform Integrated Change Control Process*) the Project

Manager must update the baseline schedule for all approved schedule changes, and assesses how the changes might affect the entire project.

The Project Manager is responsible for initiating or taking corrective action if the progress or updated schedule does not conform to the currently approved schedule. Corrective actions may involve adding more resources, working longer hours, or changing how the work is performed.

7.1.4 Monitor and Control Quality

Quality Control (QC) is performed throughout the project, and is monitored and recorded to assess performance and recommend changes. Quality standards are used for the monitoring and controlling processes.

The Project Delivery Plan will include a Quality Management Plan (QMP) for internal project management services and for the overall project delivery.

Consultants should have an internal quality assurance/quality control plan, which provides an additional quality assurance measure for the Project Manager.

For construction projects, the Contract Administrator monitors quality directly. Product quality standards must be included in the specifications, and the Consultant, the Contractor, or a third party must take the identified site quality control measurements. The Contract Administrator must confirm through the quality assurance process that quality control is taking place.

As quality concerns arise throughout the project, the Project Manager must define and log the problem and take corrective action. Failure to meet quality is a serious issue.

7.2 Perform Integrated Change Control Process

Integrated change control is the process of managing all change requests to baseline project documents and deliverables. Changes are often much more complex than they appear, a change to any one of the four objectives (scope, costs, schedule, or quality) is likely to impact at least one of the others, creating the need for an integrated change control process.

Changes can be a useful tool to enhance a project, however, they should only be approved if they add value. If they do not add value, changes should be rejected. The disadvantages to changes are that they can unexpectedly add to the project budget and suggest that the project was originally poorly planned or designed, or is being poorly managed – a perception that may or may not be accurate.

The PMM identifies a comprehensive integrated change control process applicable to the entire project delivery. Routine changes originating from Consultant services, Construction contracts, or any other sources must be evaluated with respect to the project objectives and baselines.

Direct and indirect impacts of the change must be identified and considered before the change is approved or denied. The process integrates contingency management and administrative over-expenditure procedures.

Baselines are critical to the change control process as they provide the reference and measuring point from which changes are evaluated. A thorough and accurate Project Delivery Plan as described in *PMM Section 5*, and comprehensive contracts as described in *PMM Section 6*.4 are essential to the process.

The General Conditions for Consultant services and Construction contracts include processes to address changes. Scope changes may address any component of the project objectives – scope, cost, schedule, or quality – and may involve either additions or deletions.

The Project Manager is responsible for reviewing and managing all Consultant changes in a timely manner according to the Contract, while the Contract Administrator is responsible for processing of Construction contract changes (with Project Manager input).

The General Conditions for both Consultant and Construction contracts require change requests to be documented and to include:

- Reason (Change classification)
- Detailed description
- Financial impacts

The General Conditions should be reviewed for each specific type of contract (construction, services, goods, consultant services, etc.) to determine the appropriate method of pricing changes.

The integrated change control process requires indirect impacts of the change be identified. For example, scope may affect schedule, and a minor change may have a major impact. The information needed to assess the overall impacts must be requested and evaluated before the contract change is approved or denied. The only exception is for a mandatory change for which either there is no option or time is of the essence.

There are two types of change orders:

Change Work Order
template

Change in Scope
of Services
template

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website

- **Change Work Order (CWO)** which serves as the vehicle to issue a formal notice of a change to the Contract in accordance with the applicable General Conditions for Construction, Services, or Goods.
- **Change in Scope of Services (CSS)** which serves as the vehicle to issue a formal notice of a change to a Consultant Services Contract in accordance with the applicable General Conditions for Consultant Services.

After the merits and options for change orders have been reviewed and the change is approved, Change Work Orders must be signed by the Contract Administrator and Project Manager, and issued to the Contractor to formalize the change and update the contract.

For Consultant contracts, the Project Manager must review the change (Change in Scope of Services (CSS)), the budget impacts and the rules on over-expenditure before signing and issuing the change order.

For Construction contracts, the Contract Administrator, who has the authority to act on behalf of the City, must review the change (Change in Work (CWO)).

For most situations the Contract Administrator will consult with the Project Manager, prior to signing the change order, to assess the budget and other potential impacts. In urgent situations, the Contract Administrator may independently approve the change taking into consideration the City's delegated approval authority.

Contract Change Log
template

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Planning Office
website

A change control tracking process must be maintained for all project changes as outlined in the Project Delivery Plan. The Contract Change Log template contains separate logs that should be kept for City project management changes, Consultant changes, and contract changes. The logs should include the change number, the approval date, the change category, related documentation, value of change and effect on schedule.

Anticipated changes are also to be included in the Contract Change Log. Frequently, the Project Team is aware of a potential changes, and tracking it increases the accuracy of financial forecasting.

All changes must be formally approved, which in effect makes a change to the contract, and the baselines must be updated to reflect the revisions.

The sum of all the estimated project costs, including updated contingency allowances, is used to forecast the Estimate at Completion (EAC) as defined in *PMM Section 7.1.2*. The EAC should be updated and compared with the approved budget regularly and with every major change.

The EAC must not exceed the approved Project Budget otherwise a recovery plan is required. If the recovery plan involves increasing the Project Budget, a re-budgeting process may be required and must be submitted to the appropriate authority for approval. If changes to individual contracts

will result in the total amount paid out under the contract to exceed the contract award amount, a contract over-expenditure approval will be required to increase the authorized award amount.

Changes are a concern when there are too many or the cumulative cost is too high. A high value of accumulated changes may be perceived as indicating they are being used to compensate for inaccurate or deficient work, poor planning, or inadequate project management.

The Project Manager must manage a process for categorizing changes to track their origin and reason.

7.2.1 Change Classification Codes

Change Classification Codes

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The Change Classification Codes are used to identify the reason for a change to a project and are used in the Contract Change Log.

These Change Classification Codes are important. These codes will be used in project metrics to assess improvements to the Project Management Manual, process, procedures and templates, to find ways for projects to be managed more effectively and efficiently at the City.

Classification of changes will also be useful in identifying "lessons learned" at the conclusion of a project or contract and useful in completing the Standard Performance Review for Consultants reports.

For some changes, more than one classification will apply. Select a single classification that *best fits* the reason for project change.

The change classifications are construction error, cost saving, delay costs, design deficiency, design improvement, force majeure, owner change, regulatory change, site condition, and third party impacts. Refer to the Change Classification Codes for additional information and examples for each classification.

7.2.2 How to Perform Integrated Change Control

Integrated change control takes place at the program (or project) level and/or contract level.

7.2.2.1 Change Control Process – Program/Project Level

The Change Control Process – Program/Project Level process is shown in Figure 7-5.

7.2.2.1.1 Identification Stage

Changes can be triggered by a variety of sources, including contract changes, or from Stakeholder or Business Owner requests.

In this stage, the source and type of the change requested should be documented in the project files or as set out in the Project Delivery Plan.

On major projects, the Project Delivery Plan may identify that the Project Record Index (PRI) method is to be used for change tracking. A sequential number would be assigned to the issue at this point if it is used, and the issue would be tracked by the number for all subsequent references to the issue.

7.2.2.1.2 Evaluation Stage

The evaluation stage includes:

- **Baseline Control Documents Impact** – The Project Manager must identify the product or service impact per the documents used to define the product being delivered. A needed design enhancement or modification could result from constructability concerns or design errors and could impact the project or contract scope, cost, schedule or quality.

The Project Manager must assess and quantify the change according to guidelines in appropriate baseline documents such as studies, design documents.

- **Project Management Impact** – The Project Manager must quantify the impact of the potential change and its magnitude in terms of effects on the Project Delivery Plan (scope, cost, schedule (time), quality, risk) and the benefits identified in the Business Case, once the change has been identified.

- **Document Evaluation Process** – The outcome of the change evaluation process shall be documented. Where the change to the project or program originated from individual contract, the various contract change logs, proposed change notices, change work orders, and other correspondence regarding the change should be retained in the Contract Administrator and/or Project Managers project files. Where the change to a program or project was initiated internally (no contracts affected), the change evaluation process and decisions should be documented.

- **Process Change** – The Project Manager determines whether the change has been forecast, is imminent, or has occurred.

  For a forecast change, the impact may or may not occur, so the Project Manager logs the change and records the cost impact as "pending" so the cost is recorded in the Forecast Cost Report.

  If the change is to be formally considered for approval, the Project Manager typically discusses the change with the impacted groups such as vendors, team members, Project Sponsors, the Business Owner, and Operations staff.

  If the change is not approved, the impacted party is notified and forecast costs are updated.

  In a contract environment, the Change Control Process – Contract-Level process is followed which is discussed in the next section.

  If the change is not in a contract environment, the Project Manager notifies the impacted party (the internal stakeholder or delivery team member) by email or a method appropriate for the type of project.

7.2.2.1.3   Approval Stage

The approval hierarchy for each project may be different and should be defined in the Project Delivery Plan. The typical approval hierarchy is shown in Figure 7-4.

Figure 7-4. Change Approval Hierarchy
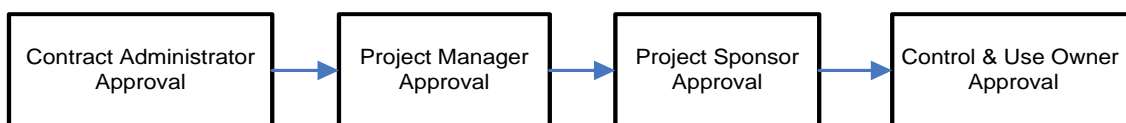
According to FM-002 Materials Management Administrative Standard, the change cannot be approved unless sufficient funds exist for the change. Therefore, the Project Manager must decide when to process the change considering funding availability and the need for the change to proceed. The Project Manager may process a change considering unspent funds in the project budget, with the understanding that additional funds will be required at a future time. In this case, an over-expenditure report or additional budget fund report will be submitted.

If the change is for new scope not identified in the Project Delivery Plan, the Project Manager obtains new funds rather than taking funds from the contingency allowance which is reserved for known-unknown or unknown-unknown events. If these events were to occur and the contingency had been depleted, the Project Manager would need to justify additional funds for needs that had already been identified. The Project Manager will need to determine when the over-expenditure report should be submitted relative to the project status.

To gain additional funds, one of the following four methods is used:

1. Access any available funding from the project's cost codes (other deliverables).

2. Access contingency funding that may be appropriate (such as a risk event that has passed or been mitigated).

3. Transfer of funds from other sources in accordance with approved administrative policies and procedures.

4. Seek approval from Council for amendment of the adopted project funding.

For individual contracts, if contract changes result in a need to increase the contract award amount, an over-expenditure report must be submitted to the appropriate authority. The City cannot pay invoices on contracts where the award amount (i.e.: Purchase Order amount) has been exceeded.

7.2.2.1.4   Implementation Stage

If funding has been obtained or is available, the change can be formally approved. If no contracts are impacted by the change, the change is implemented and all impacted parties are notified. If contracts are affected (for example, in cases where a contract change was identified), the Contract Administrator (for Contracts) or Project Manager (for Consultant Contracts) will issue a Change Work Order (CWO) or Change in Scope of Services (CSS). All impacted parties should be notified and all decisions documented.

7.2.2.2   Change Control Process—Contract Level

The Change Control Process – Contract Level process is shown in Figure 7-6. Recall that contracts for construction, services and goods are administered by a Contract Administrator (CA) who may be internal or external to the City, while consultant contract are typically administered by a City Project Manager, and has authority analogous to those of a Contract Administrator. The General Conditions for each appropriate type of Contract outline the authorities of the Contract Administrator (or Project Manager) and how to address changes to the contract.

7.2.2.2.1   Identification Stage

Proposed Change Notice (PCN) – Consultant

Proposed Change Notice (PCN) – Construction

Proposed Change Notice (PCN) Log

templates

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Changes may be initiated by the Contractor (or Consultant), Contract Administrator or City. Contractors (or Consultants) identifying a change should notify the Contract Administrator (or Project Manager) in writing by submitting a Request for Information (RFI), or alternatively a notice of a change in work, or a notice of a change in the scope of work, as per the General Conditions. Once submitted, the Contract Administrator (or Project Manager) should record the information, and proceed to evaluate if it is in fact a legitimate change to the Contract. If it is not, the Contract Administrator (or Project Manager) shall respond to the change notice with their determination, at which point the Contractor (or Consultant) shall proceed with the work.

The Contract Administrator (or Project Manager)) should conduct an initial review to determine if the change is contractually legitimate and warranted. If not, this determination is communicated to the Contractor (or Consultant). If it is legitimate and initially deemed to be warranted but there is no time to prepare a Proposed Change Notice (PCN) and negotiate a mutually acceptable price, the Contract Administrator (or Project Manager) may issue a Field Instruction (or, in the case of consulting contracts, a Change in Scope of Services (CSS)) directing the Contractor (or Consultant) to proceed with the work, and prescribing the valuation of the work.

If at any time a Contractor (or Consultant) disputes the Contract Administrator (or Project Manager's) determination or valuation of a contract change, they may take up the dispute resolution process as defined in the contract.

Prior to issue of the PCN to the Contractor, if the Contract Administrator is external to the City, they should review the contents of the PCN with the City Project Manager. If the City is in agreement, the PCN shall be forwarded to the Contractor for their action. Pertinent details of the PCN should be logged by the Contract Administrator.

When a Contractor (or Consultant) receives a PCN, they will review its contents, and will respond with a written quotation identifying the increase, decrease, or no change in amount on the contract price as well as any schedule impact the contemplated Change in the Work will have on contract time.

A reasonable period of time (typically 5-10 business days) for the Contractor to respond to the PCN (depending on the magnitude of the change), and should be stated on the PCN as well as the method for valuation of the contemplated change (refer to General Conditions). The Contract Administrator (or Project Manager) shall maintain a log of all PCNs and their status in the Proposed Change Notice Log.

When receipt of the Contractor's (or Consultant's) response is in hand, the Contract Administrator (or Project Manager) shall record the date of the response and the amount in the Proposed Change Notice Log.

Note that the PCN template provides a space for the Contractor (or Consultant) to provide a quotation for the requested change, however, the PCN itself need not be filled out by the Contractor (or Consultant). Any manner of quotation (preferably in writing) may be issued from the Contractor (or Consultant) to the Contract Administrator (or Project Manager) such as by letter, email, or taken as meeting records during site meeting discussions, and deemed to be a legitimate quotation for consideration.

7.2.2.2.2 Evaluation Stage

The Contract Administrator (or Project Manager) shall promptly review the cost proposed by the Contractor (or Consultant), and if not acceptable, shall request them to provide further substantiation of the costs, or cost revisions.

If either the Project Manager or Contract Administrator becomes aware that the Contractor is performing the work prior to approval, the Contract Administrator shall immediately issue a stop work order to the Contractor. Under the legal concept of unjust enrichment, if the City is aware the Contractor is performing the work and does not stop it, the City may be responsible for the expense. This also is contrary overriding principle of the integrated change control process in that the cost is known in advance of the work.

The Contract Administrator (or Project Manager) logs all identified requests or queries that could affect the project on the appropriate project documentation, which helps track and manage all identified issues and their disposition.

Upon receipt of acceptable pricing, the proposed change should be vetted through the Program Project Change Control process (refer to Figure 7-5: *Integrated Change Control – Project Change Control Process Chart*). A similar process is followed to ensure the proposed change is necessary, warranted, and compatible with the business case, project objectives, and scope, cost, schedule, quality and risk considerations. Review may include consultation by the Project Manager with affected parties including the Business Owner.

If mutually agreeable pricing cannot be arrived at or it is taking too long and time is of the essence, the Contract Administrator (or Project Manager) may at any time issue a Field Instruction (or Change in Scope of Services) directing the Contractor (or Consultant) to proceed with the work immediately. The Contract Administrator (or Project Manager) may also set out the valuation for how the work is to proceed. The Contractor (or Consultant) must comply with the directive, and if they further dispute the determination of the Contract Administrator (or Project Manager), they may proceed to the dispute resolution process as defined by the contract. Dispute resolution can be costly and tedious, and every reasonable effort should be made to resolve disputes before they are advance to the formal dispute resolution process.

7.2.2.2.3   Approval and Implementation Stage

If the outcome of the evaluation stage is *negative* ('*No*' to change*)*, the project manager would notify all impacted parties and update the appropriate cost forecasts. If the change affects an active contract (for example, if the change originated as part of work being carried out under a contract), the Project Manager would circle back to the contract level change control process to close off the change item, inform affected parties, and update contract documentation.

If the outcome of the evaluation stage is *positive* ('*Yes*' to change) and the decision is made to proceed with the change, the Project Manager shall then advance to the change approval stage.

If the change is a material alteration to a Council approved scope of work, or will result in the requirement to amend a project budget, a report to Council (or appropriate committee thereof) may be required. Project Manager's should consult with their Project Sponsor if this is the case.

If no contracts are affected by the change, and sufficient funding is available (either within the project itself, contingency management, in a Program, or available to be transferred from other projects by the appropriate authority, then the change may be implemented. Because no contracts are impacted by the change, the issuance of CWO's or CSS's are not necessary, and the Project Manager can proceed to update their project delivery plans, project documents, and notify impacted parties of the decision.

If an open contract is affected by the change, but no additional funds are required, the change may be implemented by issuance of a CWO (or CSS). If additional funds are required, and are not available within the project or program, an over-expenditure approval may be required to increase the contract award amount. The over-expenditure approval process can take time, and similar to issuance of a Field Instruction, if time is of the essence, the Project Manager should seek agreement from the Project Sponsor and/or Business Owner to proceed with the change without formal over-expenditure approval. In this case, over-expenditure approval will occur after the work of the change has been executed.

In the case when contract administration services are being provided by an external party such as a Consultant, the Contract Administrator will obtain approval from the City Project Manager to authorize a Change Work Order.

Figure 7-5. Integrated Change Control - Program/Project Level Change Control Process Chart
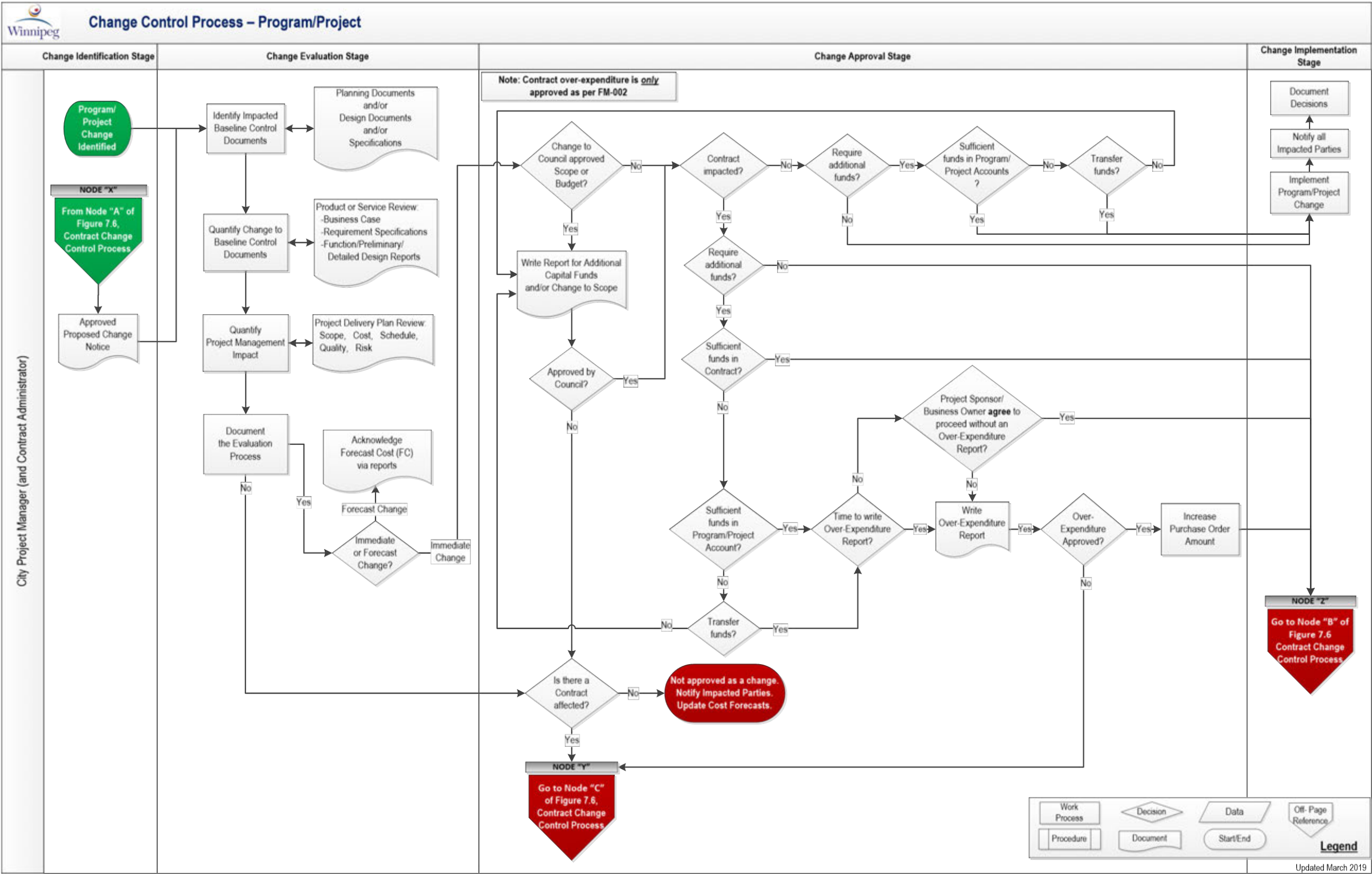
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Figure 7-6. Integrated Change Control - Contract Level Change Control Process
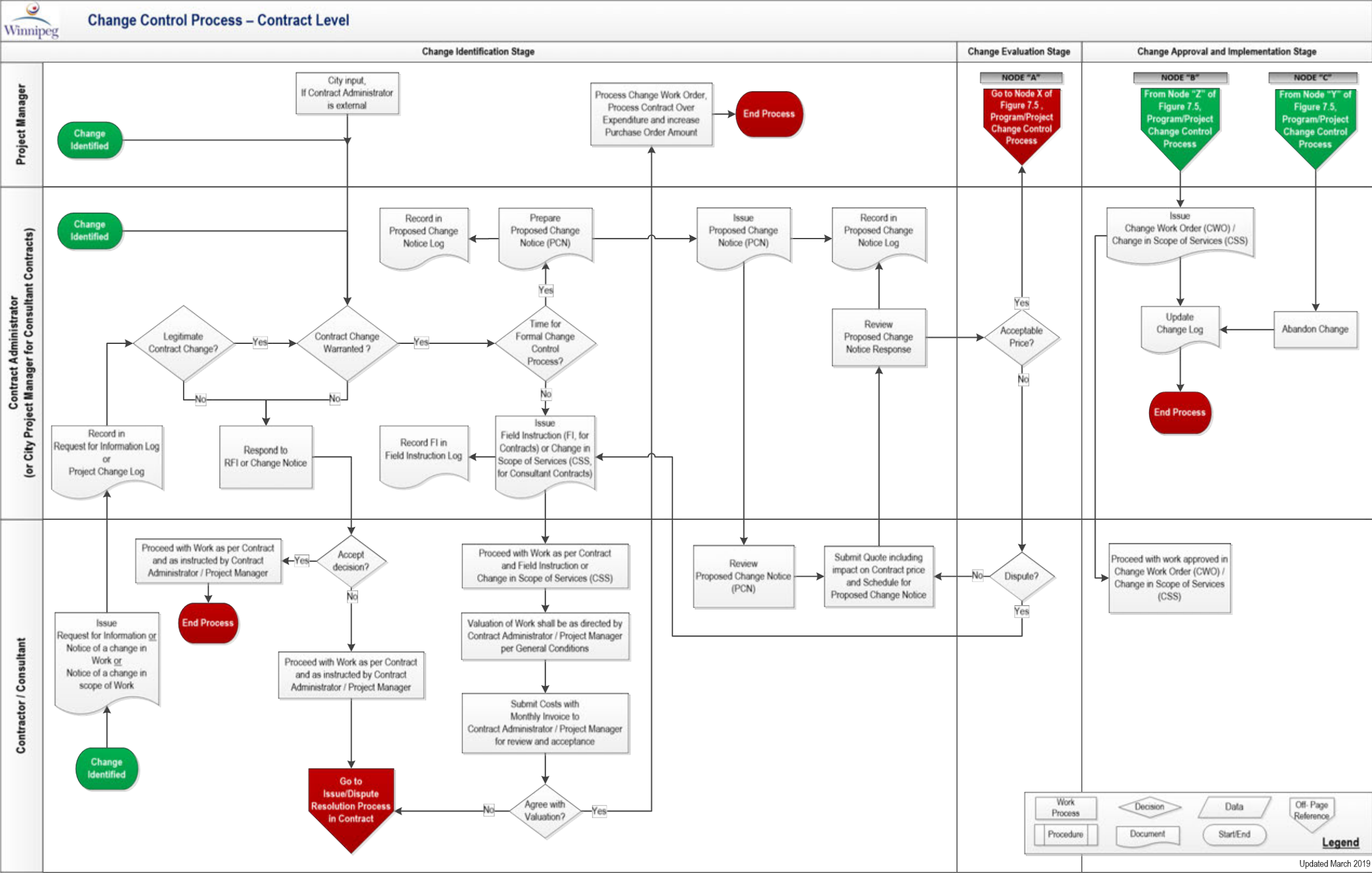
7.2.3   Contract and Program/Project Level Change Examples

7.2.3.1   Example 1: Change to project initiated by City, no Contracts affected.

Project involves the construction of a new library. The project has a Council approved Business Case and funding, however at this stage, no contracts (for external Consultants or Contractors) have been awarded.

During early project planning, City Operations informs the Project Manager that an outdoor classroom area would be beneficial to the site, to accommodate outdoor engagement with visiting school groups and other youth activities and programs.

At this point in time, the Project Manager would evaluate the proposed change as per Figure 7-5 Integrated Change Control - Program/Project Level Change Control Process.

Assume the change is deemed warranted given the project objectives. The Project Manager would update the forecast cost projections, and finds that no amendment to the project budget is required. The Project Sponsor and Business Owner agree that this is not a material change to the scope of the project as approved by Council. Since no contracts are affected, the decision to proceed with the change to the project would be documented, and all impacted parties would be informed. Project planning documents would be updated (Basis of Estimate (BoE), Project Delivery Plan (PDP), Risk Register, etc.) to reflect the added scope of the project.

7.2.3.2   Example 2: Change to project initiated during performance of a Contract

Assume the library example discussed above has advanced to design and construction. A Contractor is currently constructing the main library building. It is noticed by the Contractor, via a Request For Information (RFI), that window security bars were not specified by the designer for basement windows on a portion of the building facing a dark alley.

The Contractor is asking if bars should be added. Upon initial review, the Contract Administrator and Project Manager decide that the bars may add value to the project, but this is not schedule critical, so they request pricing for via issuance of a Proposed Change Notice (PCN) to the Contractor. After some negotiation, a reasonable quotation from the Contractor is received.

Up until this point in time, Figure 7-6 Integrated Change Control - Contract Level Change Control Process is being followed. At this point, the Project Manager then reviews the change to the project (in light of received pricing, value added to the project objectives, etc.) as per Figure 7-5 Integrated Change Control - Program/Project Level Change Control Process. The Project Manager may determine that the change does indeed contribute to the project objectives, is of good value, and is warranted. If that is the case, they would proceed to the change approval stage.

Assume the change is considered to be within the Council approved scope, and within the approved project budget. However, assume the Contract for the library is a lump sum contract, thus the addition of the bars would effectively increase the cost of the Contract. The Project Manager would therefore need to write a contract over-expenditure report at some point in order to increase the contract award amount (i.e.: purchase order).

With the Project Sponsor's agreement, with the change being relatively small in value and warranted, the over-expenditure report may be deferred to a later date. At this time, the Project Manager would circle back to Figure 7-6 Integrated Change Control - Contract Level Change Control Process and (with the Contract Administrator) issue an authorized Change Work Order to the contractor for addition of the window security bars. The contract administration documentation (i.e.: logs) would be updated appropriately and the Contractor would proceed with the work for the agreed price.

7.2.3.3   Example 3: Cost saving credit on deleted Contract work

Continuing with the library scenario from Example 1 above, assume that the outdoor classroom has been designed and is included in the construction contract. Due to some unrelated contract issues and unforeseen site conditions, the construction project is tracking over budget, and the Project Manager and Project Sponsor have determined that deletion of some work needs to occur to keep the budget on track.

The Project Manager (through consultation with other City staff and the Business Owner) determines that the outdoor classroom is not a necessary part of the project scope, and should be considered for deletion from the project.

At this point, that starting point for the process is Figure 7-6 Integrated Change Control - Contract Level Change Control Process. The Project Manager and Contract Administrator determine that the change is warranted, but construction of the classroom is still a couple months away, so there is time to prepare and issue a Proposed Change Notice. This is done, and the Contractor provides a credit quotation in the amount of $90,000. The tendered cost of the classroom item was $100,000, however, through negotiations with the Contractor, some costs related to equipment mobilization and site preparation have already been made. With acceptable pricing (credit) in hand, the Project Manager would advance to Figure 7-5 Integrated Change Control - Program/Project Level Change Control Process Chart. At this point, the Project Manager would formally evaluate the proposed change as per the evaluation stage and conclude that deletion of the classroom would put the project back on budget, and be an acceptable modification to the project scope, as the project is still achieving the project objectives originally intended, at an acceptable level of service.

As before, this is not a material change to the Council-approved project scope. However, a contract is impacted by this change. No additional funds are required as this is a credit, and no contact over-expenditure needs to be processed as there is no need to increase the contract award amount.

Following Figure 7-5 Integrated Change Control - Program/Project Level Change Control Process Chart Change Approval Stage, the Project Manager would then proceed to circle back to the Figure 7-6 Integrated Change Control - Contract Level Change Control Process, and issue the authorize Change Work Order for the credit. The Contract Administrator would update the relevant contract documentation, and the Project Manager would update the project forecasts. Impacted parties would be informed of the approved change. The Project Manager may wish to examine if the change leads to changes to other contracts. For example, contract administration services are being performed by an external consultant, and the Project Manager may wish to seek a reduction to their contract as their coordination and inspection fees related to construction of the outdoor classroom may also be reduced.

7.3   Manage Contingencies

Changes are recognized as a reality in project delivery, and the change control process is an industry accepted practice. Most projects are set up with contingency budgets to accommodate moderate changes, as defined in *PMM Section 5.4*, and described for risk in *PMM Section 5.9*.

The Project Management Manual identifies the following contingency types which are managed specifically according to its purpose and defined expectations:

Contingency Type	Description
Cost-estimating	Cost-estimating contingency is mentioned here for completeness, however, it is not part of the formal scope change, project or product monitor and control processes.
	The cost-estimating contingency for the product is replaced at the contract award stage with the capital cost allowance.
Capital Cost Allowance	Capital Cost Allowance contingency is established for changes to construction and occasionally consulting contracts, based on normal industry practice.
	The amounts are monitored and controlled through the scope change process. To avoid unexpected overruns, it is important that the actual amounts be tracked and compared with the allowance value remaining.
Risk Reserve	Risk Reserve contingency is a separate budget amount added to the project budget for any risks warranting a contingency risk response.
	Continual risk review is required.
	As risks are realized, the risk reserve contingency is released by change order to compensate for the consequences of the risk as required. This in effect, draws down from the risk reserve contingency and increases the project cost.
	Outstanding risk allowances are tracked and compared to the budget.
	If the potential risk event passes without being realized, the contingency value reserved for that potential risk must be retired. The retired funds then become surplus to the budget and are allocated according to the Project Delivery Plan or the Project Sponsor's discretion.
Management Reserve	Management Reserve contingency is controlled by the Project Sponsor and is managed through the change control process, if the change directly impacts the project or product delivery.

7.3.1   How to Manage Contingencies

The Capital Cost Allowance, Risk Reserve and Management Reserve contingencies, as identified in the Project Delivery Plan are included in Project Budgets for specific reasons and must be tracked and managed to fulfil those needs.

These contingency types will have separate Work Breakdown Structure (WBS) codes and can be tracked much like the project budget and cost values using the Earned Value Management (EVM) approach. Figure 7–7 shows an example of tracking a Capital Cost Allowance.

Figure 7-7. Example of an Earned Value Management (EVM) Report for a Project Contingency Account
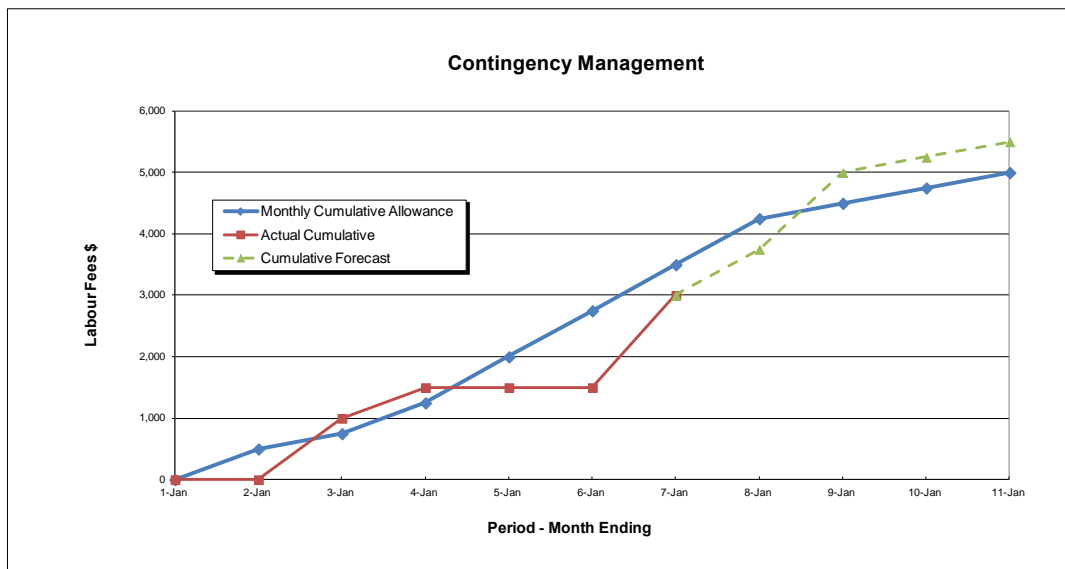
The rate of expenditure can be estimated considering the expected rate of progress and knowledge of when contingencies are most likely to be drawn (risk event is expected to occur). New information can be applied to the forecast as the project proceeds to estimate the contingency expenditure at completion. This tracking method and forecast provides a useful tool for anticipating problems.

Contingency is released by change order to deal with the consequences of the specific risk event when it is realized.

- For the Capital Cost Allowance contingency, the risks are unknown-known, which means a variety of risk events are expected to occur however the extent of expenditures is somewhat predictable. An example in practice may be the release of funds for scope changes on a construction contract for situations such as encountering an unmarked utility during an excavation.

- Risk Reserve contingency provides a way to deal with two types of risks:

  (1) systemic risk which are unknown-known, and

  (2) project-specific risk, which are known-unknown.

  The risk quantification process of *PMM Section 5.9– Plan Risk Management* can be used to quantify both of these risks. The systemic risk is managed much like the Capital Cost Allowance, while the project-specific risks are managed based on the discrete risks.

The use of contingency is expected to be variable because by its very nature, it deals with uncertainty. If the budgets have been established at a high confidence level, then in most cases, the projects will close with a surplus contingency amount.

A strategy needs to be established for how to deal with surplus contingencies.

- For the Capital Cost Allowance contingency, the expenditures could potentially arise at any time and unless there is a large disparity between the forecast and actual cumulative expenditures, the surplus should not be retired or re-allocated until completion of the project it was intended for.

- The Risk Reserve contingency allocated for systemic risks is much like the Capital Cost Allowance contingency, and unless there is a large disparity between the forecast and actual cumulative expenditures, the surplus should not be retired or re-allocated until completion of the project it was intended for.

- The Risk Reserve contingency will have discrete amounts identified for project-specific risk events. Once the chance of the risk has passed or been eliminated the contingency is theoretically not required.

  The options for managing the surplus in these cases are as follows:

  - Retire the risk and reallocate the budget: After the potential for a risk has passed, the risk quantification described in *PMM Section 5.9 – Plan Risk Management* can be recomputed with the risk removed, and a revised contingency value determined. The difference in the calculation between the original and reduced risk will be the amount that can be retired or reallocated.

  - Retain the risk amount in the risk reserve contingency: The risk reserve allocations for project-specific risks will only partially cover the consequences if the risks are realized. As the project proceeds and the number of remaining risks reduces there will be a reduced amount of shared risk contingency available if the contingencies are progressively retired. It is therefore prudent to retain some of the contingency in case of a risk occurring late in the project.

  - Release all outstanding risk contingency at the end of the project: Projects structured with the contingency values set at high confidence levels are likely to at least periodically result in significant amounts of risk contingency remaining at the end of the project. This surplus is then available to be reassigned based on established budgeting procedures.

7.3.2 Contract Over-Expenditure Procedures

Procedures for over-expenditures and the delegated authority to approve them are set out in Appendix 7 Contract Over-expenditures in FM-002 Materials Management Administrative Standard. The following is a summarization of those procedures. In case of disagreement, the FM-002 Administrative Standard shall take precedence.

Accumulated change orders that do not cause the Contract to exceed the amount of the award can be approved by the Contract Administrator.

Accumulated change orders that will cause the Contract to exceed the amount of award cannot be approved by the Contract Administrator, and requires additional approval by way of an Over-expenditure Report. The level of approval required depends on the delegated approval authority as set out in FM-002 Materials Management Administrative Standard.

Under FM-002, the CAO delegates their authority to the CFO to approve over-expenditures where the accumulated over-expenditure does not exceed $5 million dollars and there is available capital or operating budget as approved by Council. For clarity, the accumulated over-expenditure means the accumulated amount of the over-expenditure only, and is not the total contract amount, including over-expenditures.

Under FM-002, the CFO further delegates the following:

- All Department Heads can approve over expenditures within budget, as long as, the total

- contract value including over-expenditure, does not exceed $5 thousand dollars.

- The Department Heads of Planning, Property & Development (PPD), Public Works (PW), Transit and Water and Waste (WW) can approve over-expenditures within budget as long as the total contract value, including over-expenditures, does not exceed $100 thousand dollars.

- The Department Heads of Planning, Property & Development, Public Works, and Transit can also approve over-expenditures within budget for total contract values beyond $100 thousand dollars, as long as, the amount of the over-expenditures does not exceed 20 percent of the original contract value, to a maximum of $250 thousand dollars.

- The Department Heads of Water and Waste can also approve over-expenditures within budget for total contract values beyond $100 thousand dollars, as long as, the accumulated amount of the over-expenditures does not exceed 20 percent of the original contract value, to a maximum of $500 thousand dollars.

- In instances where the amount of the over-expenditure exceeds $5 million dollars but is within the budget approved by Council, the over-expenditure may be approved by the relevant Standing Policy Committee.
- In instances where additional budget is required to cover the over-expenditure, the over-expenditure must be approved by Council.

The above information is summarized below in Table 7-2.

Table 7-2. Summary of Over-Expenditure Approval Levels

Over-Expenditure Approval Levels			
Change Order(s)	Project Budget	Required Approval	Comments
Accumulated change orders do not cause total contract to exceed the amount of award	Within Budget	Contract Administrator	Contract has been awarded and approval of change order will not increase the contract value beyond the amount of award
Accumulated change orders increase contract beyond award amount however within Department Head Authority	Within Budget	Department Head	Department Heads of PPD, PW & Transit – $100 thousand dollars or 20 percent of original contract value to maximum of $250 thousand dollars
			Department Head of WW – $100 thousand dollars or 20 percent of original contract value to max of $500 thousand dollars
			All other Department Heads can approve over expenditures as long as the total contract value does not exceed $5 thousand dollars
Accumulated change orders increase contract beyond award amount however within CFO Authority	Within Budget	CFO	CFO has authority to approve accumulated over-expenditures up to $5 million dollars
Accumulated change orders increase contract beyond award amount and over CFO Authority	Within Budget	Relevant Standing Policy Committee	Standing Policy Committee can approve Over-expenditure Reports over the CFO's delegated authority as long as it does not exceed the approved budget
Accumulated change orders increase contract amount over Council approved Budget	Additional Budget Required	Council	Any project that requires additional funding requires Council approval. Alternative funding sources are identified and recommended in the over expenditure report

In some instances in construction projects, obtaining the approval in advance of the change order would cause construction to halt and result in delay claims adding additional cost to the City. Under these circumstances, and *where there is approved budget available in the project*, the Project Manager may use their professional judgment and obtain administrative approval after the fact. In these circumstances, it may be beneficial for the Project Manager to obtain approval by email with a formal report to follow. Approvers may prefer to accumulate changes and consolidate into a single Administrative Report towards the end of the project.

In instances where the over-expenditure will cause the project to exceed budget, Administration does not have the delegated authority to approve the over-expenditure. The additional budget can only be approved by either the relevant Standing Policy Committee or Council. As such, the Project Manager should not be approving changes beyond budget as it exceeds administrative authority and essentially commits the City to additional expenses without Council approval.

7.3.3 Funding Over-Expenditures

FM-002 authorizes departments to transfer funds from a non-specified Capital Account to cover over-expenditures. Reallocations are permitted to a maximum of $100,000 or 25 percent of the base budget.

In instances where the over-expenditure will cause the project to exceed budget, Administration does not have the delegated authority to approve. The additional budget can only be approved by either the relevant Standing Policy Committee or Council.

7.4 Manage Risks

Monitoring and controlling risks is the process of implementing risk response plans, tracking identified risks, and identifying new risks. Risk management must be carried out according to the Risk Management Plan's schedule, which at a minimum, includes reporting to the Project Sponsor, Major Capital Project Advisory Committee and/or Project Advisory Committee at the start of all new project phases or as defined in the Project Delivery Plan.

The risk register identifies the primary inputs for this process, including the risk owner, the risk response, and actions taken. The risk owner performs the identified actions, evaluates the situation as conditions change, and provides risk updates.

The risk assessment includes a review of the risk contingency reserve. If the amount in the reserve exceeds the amount of risk remaining, a recommendation should be made to reduce the contingency. Once a risk has been eliminated it must be closed on the risk register.

7.5 Report Performance

Report performance is the process of collecting and distributing performance information, including measurements, status reports, and forecasts.

Routine project management activities include collecting information such as reports and logs that can be used for tracking and evaluating performance.

The Project Delivery Plan defines standard reports generally required for every project and ad-hoc reports required for specific projects.

The reporting process provides information critical to assess project performance that the Project Manager must assess on an on-going basis to assess the performance of the project and make decisions.

Of particular interest for tracking the project are:

- Monthly Earned Value Management Reports for the project, as a whole, and Consultant and construction sub-projects.

- A monthly Estimate at Completion for the construction contract, consulting services, and the items comprising the total City project budget.

- Utilizing the Project Management Checklist template to indicate which of the Project Management Manual requirements that have been completed.

Closing Process Group

Project Management Manual Sections

Section 1: Introduction

Section 2: Project Management Governance

Section 3: Project Delivery Framework

Section 4: Initiating Process Group

Section 5: Planning Process Group

Section 6: Executing Process Group

Section 7: Monitoring and Controlling Process Group

Section 8: Closing Process Group

Section 9: Contract Administration
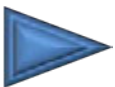
8   Closing Process Group

Closing is the last of the five project management process groups.

The purpose of this process group is to formally complete or close a project, phase or contract. This process group verifies that the defined processes are completed within all of the process groups to close the project or phase, as appropriate, and formally establishes that the project or project phase is complete.[12]

Figure 8-1. Closing Process Group
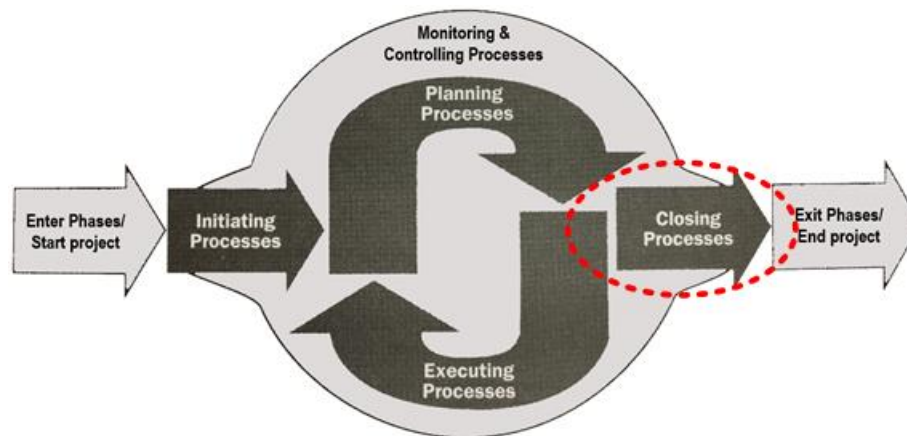
8.1   Update Business Case

The phase gate approval process adopted for the Project Management Manual, illustrated in Figure 5-2: *Task Components Integrated into the Project Management Approach*, requires the Business Case to be validated, updated or finalized at the early phases of the project, and then to confirm the Business Case benefits for the later phases of the project.

The progressive updating and confirming of Business Case benefits proceed through the entire project lifecycle in order to validate the initial investment. The project produces updated information that is used to update the assumptions used in the initial Business Case. If any of these assumptions change and have a negative impact to the benefits of making the investment, the project needs to be reassessed and consideration given to re-scoping or terminating the project. These decisions are typically made at the end of the planning phase gate where more detailed information has been produced to validate the assumptions made in the Business Case.

The Project Delivery Framework is designed such that the project produces information on the product in the early phases(or parts for a Major Capital Project) of the project, so that decisions can be made to cancel or delay the investment before spending the large dollars in the later phases (or parts of a Major Capital Project).

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[12] Project Management Institute (2017). *A Guide to the Project Management Body of Knowledge*, Sixth Edition, p. 633.

8.1.1 How to Update the Business Case

The Business Case contains initial specific information and benefit metrics that are unique to each project.

All information in the Business Case should be updated, including assumptions used in the need assessment, option analysis – cost evaluation, cost estimates and measurable benefit determination, as required when significant project changes occur that impact any of the above sections of the Business Case.

The Business Case is updated by incorporating the new information to the existing information, such as actual costs, and refined measurable benefit, including utilizing "*Approvals and Business Case Update Log*" tab to track significant content changes in the project's Business Case.

It is important that the updates are based on the same baseline metrics to enable meaningful and credible comparisons.

For further information on Business Cases, refer to the Investment Planning Manual on the Corporate Asset Management Office website.

8.2 Close Project Phase

Project Close-out Report template

Download from the City's Infrastructure Planning Office website

In the Close Project phase, all activities across the project management process groups are finalized to formally complete the project phase.

A Project Close-Out Report summarizing project delivery is prepared along with either the Business Case update or benefit validation.

8.2.1 How to Close Project Phase

The Project Manager must confirm that all project phase work is complete and the phase objectives have been met. The Project Delivery Plan and work plan are used to determine whether the work has been completed and is ready for closure. All deliverables and transfers must be complete before a phase can be closed.

The phase closure assessment depends on the original Business Case. At a minimum it includes:

- Business Case update or benefits validation
- Scope verification
- Report on scope changes
- Budget and cost updates with Earned Value Management and Estimate at Completion
- Schedule report
- Report on quality
- Risk Register and report
- Issues log
- Project Management Checklist template

8.2.2 How to Terminate a Project

At each phase gate (or control point for major capital projects) in the project, a "go or no-go" assessment is completed based on the forecast cost of the project verses the benefit of the investment.

As the scope, cost, risk and benefits of the project are refined during each phase (or part for major capital projects), the Business Case can be re-assessed with more realistic numbers to re-affirm the cost/benefit and residual risk of not making the investment.

Typically upon completion of the Class 3 Cost Estimate (post planning phase), this decision is made with the Project Sponsor, Business Owner and in consultation with the Major Capital Project Advisory Committee and/or Project Advisory Committee. This assessment includes multiple factors such as value for money, risk assessment, level of service targets verses willingness to pay and validating identified benefits.

8.3   Commission and Transfer

Many projects have special procedures that must be completed to provide the Business Owner with the information it needs to successfully take ownership of the operation and maintenance of the work. The Project Manager coordinates with the Business Owner, the planning and preparation for the information transfer, commissioning, and start-up of the projects' delivered product, service, or result. Operating budgets are established and employees are trained to operate and maintain the product, service or result.

Commissioning and transfer includes the following:

- **Product Data** – Vendor and product information must be collected from the Contractors for all the materials and equipment received. This includes product sheets, operations and maintenance manuals, and shop drawings.

- **Record Drawings** – As-built drawings or record drawings are required to document the as-constructed status of the projects for operations, maintenance, and future repair of the assets and infrastructure. Timely preparation of drawings and operating manuals is imperative for operating facilities and must be completed as soon as possible, turned over to the Project Manager for quality assurance, and submitted to operations for the start-up process.

- **Commissioning** – This is a process for confirming that the components and systems have been installed as specified and can be operated and maintained according to the design intent. The Contractor shall be responsible for completion of all commissioning, installation and performance verification activities, proving that the installed equipment and systems are correctly installed and operate according to project specifications.

- **Installation verification** includes all checks and balances required by the Contractor to ensure that all the equipment and systems are properly installed, and operate according to contract technical documentation. Prior to performance testing of each system, the Contractor shall ensure that all physical installation of components and systems being tested are installed in accordance to the Contract documents.

- **Performance verification** testing includes checks and tests to be carried out by the commissioning team. It may include, other Authorities Having Jurisdiction that may mandate third party verification. The result of the testing is expected to confirm the design intent as outlined in Contract documents. Prior to the performance verification of each system, the Contractor shall ensure that all Installation verification checks are complete.

- **Commissioning** is a process for validating product deliverable performance and also facilitates orderly transfer of the product from the constructor to the Business Owner.

- **Start-up** – For complex equipment, the Contractor, vendor, and manufacturer may be required to undertake a start-up process. This can involve the Contractor taking responsibility for operation of the equipment for a specified period of time to demonstrate its successful operation.

- **Training** – Product training is frequently required before the City can take ownership of the new equipment and its operation. Refer to the Contract specifications forming part of the Contract documents for training requirements.

- **Warranties** – All products and installation warranties need to be listed and identify if extended warranties are available. The duration of warranties needs to be noted. Warranties are to be issued to the Business Owner under the name of the product manufacturer, and shall warrant both product and installation.

- **Transfer to Operations** – The level of effort and work required in transferring the completed work to the owning and operating business unit (department) depends on the scope and nature of the work. The transfer includes all the project records and new information required for operation and maintenance. The Contractor shall submit to the Business Owner the required copies of the Operation and Maintenance Manuals, in the timeframe required as per the Contract documents.

- **Update Asset Registers** – The Asset Management System requires asset information to be captured in an asset register. If maintenance management systems are used, the asset information must also be recorded in the system and the operations and maintenance procedures must be documented. This function may be carried out by the Contractor, the Consultant, or the City, with the approach pre-established and identified in the Project Delivery Plan.

- **Tangible Capital Asset Updates** – The City maintains a register of its tangible capital assets consistent with public sector accounting requirements that must be updated with any additions or deletions that would typically occur during capital projects.

8.4 Review Consultant Performance

Standard Performance
Review for Consultants
template

Download from the
City's Material
Management
website

FM-002 Materials Management Administrative Standard states that Consultant performance reviews should occur at least annually and that the reviewer communicates the results to the Consultant and that the Consultant Standard Performance Review should be kept in the project file.

Poor performance should be documented. The Standard Performance Review for Consultants template can be found on the Materials Management website.

8.4.1 How to Complete a Consultant Standard Performance Review

The overall goal of Consultant Standard Performance Review is to ensure Consultants are more aware of, and responsive to, the City's needs and expectations.

Consultant Standard Performance Reviews should be carried out based on the following principles:

1. The reviewer remains objective.

2. The meeting remains positive and the reviewer provides constructive criticism.
   Areas of *above standard* or *superior performance* should be noted as well as areas that *need improvement*.

3. The review process identifies and quantifies the City's expectations of the Consultant's service. For example, the reviewer identifies what is expected in terms of meeting deadlines, communicating problems, accuracy in cost estimating, and accuracy in Contract documents.

4. The Consultant Standard Performance Review form is available on the Materials Management website at:
   winnipeg.ca/matmgt/templates/consultants/Consultant_Information_Page.stm

8.5 Close Project

The final process is to close the project. Final closure can be extended well beyond commissioning and start-up due to deficiencies, finalization of operations and maintenance manuals, finalization of as-built drawings, transfer of documents, and administration of the warranty period.

Close-out is required to:

- Complete the records management processes
- Finalize project deliverables and product turnover
- Document significant changes made from the original Business Case to the final product
- Compare budgeted cost to final cost and explain significant deviations
- Compare scheduled events with actual events and explain significant deviations
- Summarize major problems or innovations developed during project delivery and assess their overall impact on the budget and the quality of the deliverable
- Complete, document and conduct a Consultant Performance Review
- Complete the Project Close-Out Report that documents an overall summary of the work completed, a project performance assessment and captures lessons learned, and also documents the Administrative and Contract closures required for the project. The template is found on the Corporate Asset Management website.

8.5.1 How to Close the Project

The City's Project Manager is responsible for:

- receipt of formal documentation
- for completion of the contract
- final inspections
- and end of warranty

The Project Manager is responsible for:

- updates to final documentation
- closing the project files
- closing the project accounts
- and completes the project documentation archiving process

8.6   Conduct Lessons Learned

Identifying lessons learned is an important part of the continual improvement process for both the Consultant and the City.

The lessons learned process defines the activities required to successfully capture and use lessons learned.

The lessons learned process is to:

- Identify and collect project comments and recommendations that could prove to be valuable for future projects
- Document and share the lesson learned findings
- Analyze the results
- Store the lessons learned in a project repository
- Retrieve previous lessons learned in future projects.

With the compilation of documented lessons learned information can be analyzed and recommendations for change can be incorporated to the Project Management processes, procedures, tools, templates and improve the Project Management Manual as well as the management of future projects.

8.6.1   How to Prepare Lessons Learned

The lessons learned are initially prepared by the Project Manager and then turned over to the City's Major Capital Projects Oversight branch for managing continual improvement.

The lessons learned are developed through a sequence of:

- reviewing the project performance results
- interviewing representatives from the Project Team and stakeholders
- identifying successes and areas in need of improvement

The lessons learned are formally documented in *Part 5 - Lessons Learned* in the *Project Close-Out Report* template.

8.7   Celebrate Project Success

Celebrate project successes in many different ways throughout the project lifecycle. Successful projects often involve incremental accomplishments through collaborative effort between the Consultant, Project Team and relevant stakeholders. It is important to reward success as it occurs.

At the conclusion of a successful project, recognitions should be leveraged to acknowledge Project Team members contributions and mark the official project closure for team members.

Contract Administration

Project Management Manual Sections

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Section 9: Contract Administration

9   Contract Administration

The reason for undertaking a project is to achieve the benefits defined in a specific Business Case. The project is delivered by managing the project, administering contracts and completing the product work.

This section outlines Contract Administration processes and procedures for:

- reviewing
- monitoring
- controlling
- communicating
- clarifying
- interpreting
- making decisions
- fulfilling the City's obligations

They apply to contracts with various types of vendors, including consultant assignments and construction contracts.

While the general intent is to comply with the approach defined in the Project Management Manual, contract administration services must be carried out in accordance with the terms of the Contract being administered. In the event of conflicts with the terms of a Contract, the Contract documents generally take precedence over the Project Management Manual.

The type of contract may also impact on the processes and procedures to be applied. These contract administration procedures have been prepared for the Design-Bid-Build (DBB) approach.

Under performance-based contracts, the means and methods may reside with the Contractor, in which case the project management and contract administration roles will be different, and will be appropriately identified in the Business Case or Project Delivery Plan.

All City of Winnipeg contracts incorporate General Conditions (GCs) with boiler plate terms and conditions governing the contracts, and the Supplemental Conditions (SCs) which may alter specific General Condition clauses. These contract administration procedures are based off the City of Winnipeg's General Conditions for DBB Contracts. Current version of the General Conditions can be found at: winnipeg.ca/matmgt/gen_cond.stm

The Contract Administrator (CA) is responsible for contract administration and is the City's representative throughout the duration of the Contract as described in *PMM Section 5.6.* The Contract Administrator has the authority to act on behalf of the City to the extent expressly provided for in the Contract. The Contract Administrator role may be assigned to a representative from either the City or a Consultant.

The City Project Manager is responsible for the entire delivery chain and will retain oversight over the contract administration services. All reporting and requests for approval originating from contract administration are to be directed to the Project Manager (PM).

In accordance with the foregoing, the Contract Administrator is to utilize processes, procedures and templates identified within this section to deliver the Design-Bid-Build contract administration services. Application to Consultant contracts will require selection and application of the appropriate procedures.

9.1 Records and Reporting

This section identifies the process the Contract Administrator (CA) will follow for records and reporting pertaining to the Contract, which reporting will be conducted throughout the duration of the Contract and how the information will be filed.

The Contract Administrator is responsible for developing or compiling contract information and records, and preparing and issuing reports. The records and reports are to be completed and distributed in accordance with the Project Delivery Plan (PDP) – Communications Plan. It is essential that timely information is produced and distributed within 48 hours of its creation, unless defined otherwise.

9.1.1 Records

Written records in template or report format are required for all correspondence. The records are to be filed electronically. Hard copies are not required unless specifically identified. In many cases this may require conversion of hard copies to electronic format for filing.

Copies of incoming correspondence are to be:

- stamped with the date and time received,
- the initials of the persons reviewing the communication, and
- notations of action taken as a result.

Depending on its complexity, it is advisable to assign unique numbers to all correspondence and to maintain a log of all correspondence.

In addition to two-way, job-related written correspondence, **internal reminders** such as memos to file are important and should be systematically maintained by the Contract Administrator.

Other communications (telephone calls, meeting minutes, conversations, and general ideas on the Contract) that form the basis for a job-related activity should be recorded in memoranda and filed with other correspondence.

9.1.1.1 Contract Records

The Contract Administrator is responsible for maintaining a complete and orderly file of all aspects of a Contract. This is to include complete files on scope, cost, schedule, and quality, as well as level of effort and site issue reports. The entire correspondence file of reports, forms, memos and minutes of meetings is an important part of that record.

At a minimum, the Contract Administrator is responsible for generating the following specific records throughout the course of the Contract:

- **Meeting Minutes**: Minutes of all regular and special Contractor meetings, coordination meetings and conference calls.
- **Scope Change Documents**: Coordination, compiling and preparing Change Management documentation including: Proposed Change Notices (PCN), Proposed Change Notice Log, Change Work Orders (CWO),Change in Scope of Services (CSS), Contract Change Log, Contractor Claims and other applicable documents.
- **Clarification and Directives**: Collection and dissemination of additional Information requested by or provided to the Contractor including: Requests for Information (RFI) and Field Instructions (FI).
- **Quality Assurance**: Collection and filing of inspection documents and remedial works including: Construction Review Records, Test Records and Non Conformance Reports.

- **Daily Progress Reporting**: Prepare, or cause to be prepared, Daily Construction Reports (DCR) containing weather conditions, communications with the Public, labour resources onsite, equipment onsite, work activity, coordination with outside agencies, problems encountered, activities started, completed and planned, site conditions, work stoppages, unusual events, and verbal instructions given to the Contractor and inspections completed.

Other important records that must also be maintained and filed are:

- **Job Photographs** (which should be filed with the progress reports): Job photographs should be fully documented and include a digital date of when the photograph was taken and assigned a phot number. The photo number should be referred to in a file explaining who took the photograph, the direction the photo was taken, and the activity reported to be shown by the photograph. These records are necessary for a potential legal challenge to accuracy.

- **Design notes**

- **Shop-Drawing Logs**

  The log should show at a minimum:

  - a number identifying the individual drawing
  - drawing titles
  - the date the drawing was received
  - to whom the drawing was forwarded to for review
  - the date the drawing was returned, and
  - the current status of the drawing (accepted, additional information or revisions required).

- **Bid Documents and Job Diaries**

  These are to be included as part of the permanent Contract record:

  - Contract documents - the Bid Opportunity submission
  - Bidding Instructions
  - Addenda
  - General Conditions (GCs)
  - Supplemental Conditions (SCs)
  - Drawings
  - Specifications
  - Shop Drawings
  - Performance Security, and
  - All other exhibits mentioned in the Contract documents as forming part thereof (i.e.: equipment certification, equipment warranties, performance certificates);
  - Record drawings (i.e.: "as-built drawings") showing revisions and additions to the original plans must also be maintained as a part of a proper job record.

9.1.2 Reporting

Reporting includes compiling records of the contract administration details and responding to the requirements of the Project Delivery Plan (PDP).

The following reporting may have been pre-defined under the PDP, and if not, is required as part of the contract administration procedures, if applicable to the type of Contract.

9.1.2.1 Monthly Construction Status Reports

The Contract Administrator shall compile and submit to the City a Monthly Construction Status Reports containing the following:

- Executive Summary – A written summary of the current and cumulative progress of the Contract identifying:
  - major activities completed during the period,
  - major activities planned for the next period, and
  - any areas of concern.
- Safety and Security
- Provide an overview of Contractor's safety performance including:
- Record of Incidents
- Investigations
- Permits
- Trainings
- Inspections
- Hazard Reviews
- Notifications
- Safety Committee Meetings held
- Cost Reporting - A commitment-based cost report reflecting:
  - costs committed to date
  - invoiced to date
  - percent complete
  - forecast to complete
  - estimate at completion
  - variance
- A Detailed Contract Status Report listing:
  - all approved Change Orders to date
  - all outstanding Proposed Change Notices
  - Detailed Progress Estimate listing reflecting holdbacks retained
  - Manitoba Retail Sales Tax (MRST) included or self-assessed
  - amounts paid to Contractor
  - dates paid
  - holdback releases
- Construction Progress – A construction schedule presenting actual vs. planned progress shall be updated to reflect performance to date. The schedule can take the form of Gantt Charts, S-curves, and histograms to demonstrate the progress of the Contract against the baseline.
- Quality Assurance – This section of the report will provide a listing of Inspections, Reviews and testing completed during the previous period as well as status reports of all Non-Conformance Reports (NCRs).

During the construction phase of a Contract, the Contract Administrator is responsible for maintaining communications between the three parties: the City Project Manager, the Contractor, and the Contract Administrator.

Communications are divided into two broad categories:

1. Contract Reports; and

2. Records

9.1.2.2 Contract Reports

Contract Reports provide comments, advice, recommendations or observations on any aspect of the construction.

There are four categories of Contract reports:

9.1.2.2.1 Cost Control Reports

Costs are divided into two broad categories: payments to the Contractor and payments to others. Payments to the Contractor include regular and final progress payments for the Work of the Contract and for extra work or Change Orders. Payments to others may include the Contract Consultant, their sub consultants, testing laboratories, utility companies, other Civic departments working on the site, property acquisition costs, suppliers, etc.

It is the responsibility of the Contract Administrator to assess and contract costs on a regular basis and to report at least monthly the cost-to-date, the contracted contract cost and any variations from the budgeted contract cost. The Contract Administrator's estimate of cost becomes the basis for preparing progress estimates.

The Contract Administrator is also responsible for monitoring other contract costs, and for verifying and recommending payment. Where predetermined costs have been established, the Contract Administrator shall also indicate cost variations and provide an explanation and justification of any significant variation from the estimates.

The Cost Control Report prepared by the Contract Administrator is to indicate for each of the contract cost components (contract cost, consultant cost, utilities, testing, etc.):

- budget funds for the component
- cost for current period
- cost-to-date including approved changes
- contracted final cost

This information allows the City Project Manager to anticipate funding shortfalls and take appropriate measures (i.e.: report to Chief Administrative Officer for transfer of funds, etc.).

9.1.2.2.2 Quality of Work Reports

Quality of Work Reports cover material testing reports and inspection reports related to workmanship. The testing and inspection is usually done by specialists in their particular field. Their reports are immediately received by the Contract Administrator, who reviews for compliance and disseminates the information.

Acceptance of material quality is usually subject to evaluation of a number of characteristics of the material, whether it be concrete, asphalt, paint, electrical equipment, etc. The specifications in the Contract documents include a quality assurance program against which the materials are tested. The methods used to test the material usually refer to national standards (i.e.: CSA, CGSB, ASTM, etc.) Reports from testing laboratories typically indicate the characteristics being measured, the specified requirements, and the test results.

Workmanship is defined in the Contract specifications, and usually refers to "minimum acceptable standards" (e.g. tightness of bolts, soil compaction, etc.) or to subjective measures (i.e. "no visible overlap in paint"). The inspection firm's report contains measured findings (e.g. compaction) or evaluation of workmanship based on typical industry standards (i.e.: concrete finish).

9.1.2.2.3 Progress and Level of Effort Reports

In order to complete progress and level of effort reports, it is usually necessary for the Contract Administrator to prepare a scheduled Daily Construction Report or combination of reports indicating:

- the precise work and activity descriptions, separated as to physical location
- the labour force, broken down by subcontractor, locations, and major activities
- equipment on the site, and whether it is being used or stored by the Contractor
- the weather conditions and temperatures at key times of each day
- other contractors, utilities, agencies, etc., on the site
- site clarifications, interpretations or instructions issued to the Contractor
- proposed change notices issued to the Contractor
- change order work accomplished, with relevant details
- photographs taken during the day
- visitors to the site
- meetings, discussions, commitments and conversations

Such scheduled reports indicate the exact nature of the construction operation. Several of these scheduled reports can be combined into one format. The information may be on a single form or on several forms. The most important aspect is that all the information is recorded in every time period and filed in logical sequence.

From the daily reports, the Contract Administrator can provide the City Project Manager with a complete current report on the Contract status on a monthly basis.

9.2 Meetings

The Contract Administrator shall arrange and chair all Contract Administration site meetings including preparation, distribution and filing of minutes within three business days of the meeting date.

9.2.1 Minutes of Meetings

Meeting Minutes template

Download from the City's Infrastructure Planning Office website

The Minutes of Meetings represent an invaluable source of evidence to prove or rebut claims of delay. Minutes of job site meetings are of little value unless they indicate why the meeting was held, when and where it was held, who attended, what was discussed and agreed upon, and the resulting action. They are usually prepared at a time when litigation is not yet contemplated and therefore they tend to be more accurate. In a large construction contract, these minutes will be very extensive.

General guidelines for taking minutes of meetings include:

- Number the meetings.
- Use outline format.
  - o Keep the minutes in outline form to maintain clear, to-the-point representations
    - − Separate "old business" (items from prior meetings) from "new business."
  - o Number each successive item in each section.
    - − This will make all references to any specific job meeting discussion fast and accurate. (i.e.: "Job Meeting 4, Item 4.4").

- Where items are being carried over to other meetings, maintain the reference number from the initial meeting in which the item was discussed.
  (i.e.: "Job Meeting 7, Item 4.4" – initially discussed in Meeting 4 and discussed again in Meeting 7).

- Where an item is discussed over a number of meetings, it is also helpful to recopy in the minutes the statements made about the item from the previous meetings, added in chronological order. This allows for quick reference of the action taken to date without "digging" through the previous minutes, and is easily accomplished with word processing software used today.

- Use a title for each item.
  - A summary description clarifies a paragraph's subject. They make research fast and correlation of topics easy.
  - Use exactly the same wording in each meeting that the item is discussed.
  - Issues that continue through numerous meetings can be clearly tied together through their consistent title.

- Include all appropriate references in an item title.
  - If it involves a change order, include the change order number in the description.
  - If it involves a change in the schedule, a direction from the Contract Administrator, or whomever, note it as such.
  - The inclusion of related numbers will relate the discussion to all the affected files.

- Name names.
  - Avoid using titles; use the person's name instead.

- Use short and specific statements. Be concise.

- Read back the exact language at the meeting.
  - Get agreement that the representation is entirely accurate and that everyone understands the implications, as well as the obvious.

- Require defined action on items.
  - Include the names and the precise dates that action is required by.
  - Ask frank questions at the meeting.
  - Narrow complex or difficult issues down to the next step required in the resolution process.
  - Confirm "whose court the ball is in" and write it down.

- Notify all recipients of the meeting minutes to advise the writer of any errors or omissions in the minutes.
  - Include such a request on the meeting minute form itself.
  - Request acknowledgement of the accuracy of the "old business" before proceeding to the "new business" at each meeting.
  - Include any resulting acknowledgement or corrections as the first item of the "new business".

9.2.2 Pre-Award Meeting

Pre-Award Meeting template

Download from the City's Infrastructure Planning Office website

Pre-Award Meetings have been established to consider the responsiveness of the bid submitted by the apparent low bidder and considering the bidders understanding of the overall project scope, estimated cost, and utilization of proposed subcontractors, expertise, and review of the mandatory pre-award requirements. The Pre-Award Meeting is to be held in accordance with the *PMM Section 6.4.14 Evaluate Bids and Award Contracts*.

The Contract Administrator is the Chair of the meeting.

9.2.3 Pre-Construction Meeting

Pre-Construction
Agenda and Meeting
Minutes
template

Download from the
City's Infrastructure
Planning Office
website

The Contract Administrator shall convene a Pre-Construction Meeting and include representatives of management from the various parties who have the authority to make decisions, so as to resolve any problems that may arise. The Pre-Construction Meeting should be held in conjunction with a site inspection to verify site conditions and the need for preparatory works.

The meeting is conducted to address a number of purposes:

- The introduction of contract personnel from the City, the Contract Administrator, and the Contractor. Often persons representing utilities, other City departments, key subcontractors and other contractors who have a major impact on the Work may be in attendance.

- Establish lines of authority and lines of communication.

- Review the status of the Contract.

- Review the Contract schedule, including existing site activities and any constraints to the Work.

- Identify start-up requirements.

- Other items pertaining to the Contract.

- Advise the City's Insurance Branch of the confirmed effective date that construction will begin, in order to place the Course of Construction and Wrap up Insurance. Insurers require the insurance be placed on the day the construction begins.

The following persons should be represented at the Pre-Construction Meeting:

- City employee responsible for on-site administration of the Work, and for office administration.

- Representatives of the Contract Administrator (if not City employee) responsible for on-site and office administration and inspection of the Work.

- Contractor's Contract Manager and Site Superintendent.

- Representatives of principal subcontractors.

- Representatives of other contractors (other than subcontractors), utilities or other City departments who are currently working on the site and whose work will impact on the Work of the Contractor.

Meeting Minutes of a Pre-Construction Meeting

Templates should be used for the Agenda and for recording of Meeting Minutes.

The Contract Administrator is responsible for preparing and distributing detailed Minutes. The Minutes are to be distributed to all attendees and to other persons having key input into the Contract. Minutes of the Pre-Construction Meeting are to be kept by the Contract Administrator.

To be effective, these Minutes must be distributed in a timely manner to all parties for confirmation of the accuracy of the Minutes and to allow sufficient time for required actions to be taken prior to the next site meeting. Following a discussion of the various items, the decisions reached should be included in the Minutes.

The following should be included in a Pre-Construction Meeting Minutes:

- The date, time and location are to be recorded.

- The Contract description and reference number (File No.)

- Contractor and Contract Administrator information are to be recorded.

- From the list of persons invited to the meeting, record the attendees and regrets.

- State the purpose of the meeting.

- Notes on the following agenda items are to be recorded:
  - o Introductions - Identify Contract personnel from the City, the Contract Administrator and the Contractor, and specify the respective role and responsibilities of each individual (lines of communication) relative to the Contract.
  - o Communications.
    - Review Confidentiality and Non-Disclosure clauses.
    - Review lines of communication and flow of communication.
    - Review media procedures.
  - o Review the Award of Contract.
    - State who the Contract was awarded to (successful bidder).
    - Report the date the Letter of Intent was issued, and indicate that this date is to be used on all relevant documents.
    - Review Contractor insurance and bond requirements.
    - Review the status of any City insurance.
    - Report on the status of Submissions by the Contractor and, where required in the Contract, their subcontractor(s).
    - Verify Business Registration and WCB standing.
    - Verify COR/SECOR or equivalent Certification.
    - Verify security clearances.
  - o Scope of Work
    - Review Project scope.
    - Review Contract documents and schedule and answer any questions.
    - Review submittals required in accordance with the specifications.
  - o Subcontractors
    - Obtain list of Contractors.
    - Obtain list of construction equipment to be used onsite.
    - Obtain material orders and delivery schedules. Identify any delivery issues.
    - Obtain subcontractor schedules.
    - Review Contracts between major subcontractor(s) and the Contractor in terms of these Contracts meeting the terms and conditions of the City's Contract with the Contractor, particularly in the area of scheduling. This is a follow-up to the Pre-Award Meeting, where this requirement for subcontractor Contracts is to be emphasized.
    - Review Communications/Submission procedures regarding changes to subcontractor list.
    - Review labour resources and equipment proposed to maintain the Schedule. Discuss need for any changes to the Schedule. Request updates to the Schedule.
    - Review procedures for issuing and revising design information and authorizing changes.
  - o Commencement
    - Confirm Contractor's receipt of LOI or Purchase Order as in Part D Supplemental Conditions under Commencement clause, first paragraph.
    - Confirm receipt/evidence of the following requirements as specified in Part D Supplemental Conditions under Commencement clause, second paragraph.
    - Verify list of required security clearances.

- o Schedule
  - − Obtain detailed Contract schedule. Discuss need for any changes or any potential scheduling delays.
  - − Review labor resources and equipment proposed to maintain schedule.
  - − Review material orders and identify any delivery problems.
  - − Obtain commencement date.
  - − Review Substantial and Total Performance dates, Warranty Period.
  - − Discuss Liquidated Damages and the intent to apply them as per the Contract.
  - − Discuss Crew phone numbers.
  - − Discuss working hours and restricted hours.
  - − Determine date for delivery of construction notices.
  - − Obtain emergency contact names and phone numbers.
  - − Review breakdown of Contract price and procedures for progress billings and associated certifications.
  - − Review layout of the Work, control points and Contractors layout responsibilities. Identify layout requirements and identify responsibilities for various stages of layout (i.e.: control survey; construction survey) of the Contractor and Contract Administrator.
  - − Review testing and inspection and responsibilities for same.
  - − Review site coordination and the work of others relative to the Contract. Review the activities of other Contractors, utilities, other City departments and other agencies (i.e.: Heritage resources) on the site. Review their respective schedules, clearances required and resulting impact on the Contract.
  - − Review temporary service provisions, power, trailers, waste removal, internet/phone, snow removal, fencing, water service and disposal. Discuss site facilities - Contractor's field office, Contract Administrator's field office. Is Contract Administrator's field office adequate as per Specification? Determine location of field offices (if not previously specified). Review site access constraints and special requirements.
  - − Review permits required, building, occupancy, special permits.
  - − Discuss approvals to be obtained by Contractor prior to commencing work (i.e. Navigable Waters approval from Transport Canada to construct temporary structures in rivers - work bridges, etc.).
  - − Review Commissioning and Turn-over requirements, Operations and Maintenance Manuals, Red Line Markups, Warranties and Training.
- o Construction Sequence
  - − Discuss project phases.
  - − Discuss sequencing of Work.
- o Utilities
  - − Coordinate utilities (i.e.: Hydro, MTS, etc.)
  - − Discuss work required by others prior to Contract Work.

- o Stakeholders
  - – Review Communication Strategy (i.e.: Notices, etc.)
  - – Discuss site requirements.
  - – Discuss noise issues.
  - – Review access permissions.
  - – Discuss shut downs.
  - – Review permits.
- o Traffic Management
  - – Review site access constraints and special requirements.
  - – Discuss traffic, pedestrian accommodations and controls.
  - – Discuss building access.
  - – Site Security, site requirements for site storage of materials.
- o Project Issues
  - – Review Change Management procedure.
  - – Review procedures for RFIs, PCNs, CWOs, CSSs, and FIs**.**
  - – Review submissions, shop drawings, material approvals, etc. required in accordance with the specifications. Identify a schedule for each submission and the processes (i.e.: "who gets what").
  - – Discuss expectations for site clean-up.
  - – Discuss importance of communicating any project / site issues as soon as they arise.
  - – Discuss project specific risks (i.e.: Constructability issues, lead time concerns, construction methodology, work by others)
- o Site Meetings
  - – Establish frequency for site progress meetings.
  - – Set time and date for next site progress meeting.
- o Status Meetings
  - – Establish frequency for status meetings.
  - – Set time and date for next status meeting.
- o Safety
  - – Obtain Safe Work Plan
  - – Review Safety, Health and Environment procedures and constraints.
  - – Identify site and plant orientation requirements.
  - – Discuss protection equipment for the Public and occupants.
  - – Inform that safety is a standing item on the Site Meetings whereby Contractor must reports any safety incidences for that period.
- o Security
- o Environmental, review environmental procedures/constraints.
- o Regulatory
- Identify a list of persons who are to receive minutes for all meetings.
- Identify a list of persons who are to receive a copy of any correspondence relative to the Contract.

9.2.4 Site Meetings

Site Meeting Minutes template

Download from the City's Infrastructure Planning Office website

Depending on the scope and nature of the Contract, the Contract Administrator shall convene weekly or bi-weekly meetings with the Contractor and record minutes of such meetings.

On Projects or Programs where multiple Contracts are awarded, the Contract Administrator shall arrange regular site coordination meetings to facilitate logical sequencing of the Work. Minutes of the meetings shall be prepared by the Contract Administrator. The minutes shall record agreed-upon-dates, timeframes, and actions by respective parties.

Regular site meetings should be held at the site and include representatives of management from the various parties with the authority to make decisions, so as to resolve any problems that may arise. Site meetings should be held in conjunction with a site inspection to observe progress and quality of work. The meetings should focus on immediate Contract needs and allow for resolution of conflicts.

Special meetings or conference calls shall be convened by the Contract Administrator as may be required to resolve issues with a smaller focused group or to disseminate special materials pertinent to the progress of the Work. The Contract Administrator shall chair and record minutes of such meetings and conference calls.

A **meeting agenda** is to be prepared for each type of meeting. Regular Contractor site meetings shall address the following:

- Review progress to date.
- Discuss expected progress
- Review Contract schedule.
- Identify coordination needs of Contact Administrator.
- Identify and resolve any problems occurring during construction, and
- Other items pertaining to the Contract.

At regular site meetings, the following persons should be represented:

- City employee responsible for on-site administration of the Work, and for office administration.
- Representatives of the Contract Administrator (if not City employee) responsible for on-site and office administration and inspection of the Work.
- Contractor's Contract Manager and site superintendent.
- Principal subcontractors, when requested.
- Representatives of other Contractors (other than subcontractors), utilities or other City departments who are currently working on the site and whose work will impact on the Work of the Contractor.

The minutes of job site meetings are essential to the Contract, as they become an official part of the Contract record, and are a valuable history of the Contract in the event of disputes. Accurate minutes are to be kept by the Contract Administrator.

The following is an example of the type of content to be included:

- The date, time and location are to be recorded.
- The Contract description and reference number (File. No.)
- Contractor and Contract Administrator information are to be recorded.
- From the list of persons invited to the meeting, record the attendees and regrets.
- State the purpose of the meeting.

- Notes on the following agenda items are to be recorded:
  - Review of Last Meeting Minutes and Action Items.
  - Review the Contract Schedule.
    - On "Working Day" Contracts, identify the number of working days used since the last meeting and in total. Identify "lost" working days and the reasons for same.
    - On "Completion Date" Contracts, identify whether interim or stage completion dates have been achieved.
    - Discuss any necessary revisions to the Schedule.
    - Track construction and material delivery activities which are behind schedule.
  - Review Progress Status
    - Review progress to the end of the previous day.
    - Review progress to date against the Contract Schedule.
    - Review expected progress until the next regularly scheduled site meeting.
  - Construction Issues
    - Discuss defects in the Work and remedial measures to be taken.
  - Utilities
    - Review utility requirements/issues.
    - Discuss work required by others.
  - Project Risks
  - Environment
    - Regulatory Status.
    - Environmental incidents.
  - Safety
    - Report any incident/near misses, regardless of severity of action required by any party.
    - Review the Site and Plant Orientation requirements.
  - Submittals
    - Identify any problems.
  - Work By Others
    - Report on Work by others.
    - Review extra work orders issued since the last meeting.
    - Receive requests for extra work from the Contractor.
  - Change Control
    - Discuss any contract changes to date and the impact on the Contract Schedule and Contract price.
  - Request for Information (RFI) & Response Log
    - Discuss any changes identified in the RFI & Reponse3 log to date and the impact on the Contract Schedule and Contract price.
  - Traffic Management
    - Review site access constraints and special requirements.
    - Review adequacy of traffic and pedestrian accommodation and controls.
    - Discuss building access.

- o Site Security
  - − Review protection requirements for the Public.
  - − Review security requirements for site storage of materials which are to be used/incorporated into the Work.
- o Resident Business Concerns
  - − Identify resident/business concerns and any appropriate action required.
  - − Discuss complaints, inquiries, claims, etc., received since the last meeting and any required actions.
- o Quality Control and Quality Assurance
  - − Report on quality control and quality assurance.
  - − Review tests performed and results, if applicable or notable.
  - − Schedule inspections/final inspection by City employee as appropriate.
- o Stakeholders
- o Other Business

- Identify a list of persons who are to receive minutes for all meetings.
- Identify a list of persons who are to receive a copy of any correspondence relative to the Contract.
- Schedule special meetings to deal with specific problems affecting the Work of the Contract.
- Determine a date for the next meeting, and identify whether said meeting is a special meeting or a regularly scheduled site meeting.
- Site meeting minutes need to be distributed in a timely manner to allow sufficient time for review and action prior to the next site meeting.

9.3 Contractor Submittals

This section describes the responsibilities of the Contract Administrator with regard to Contractor submittals throughout the duration of the Contract. The Contract Administrator shall obtain a listing of submittals and submittal schedule from Contractor.

The Contract Administrator shall notify the Project Manager of any requested substitutions, alternates or equivalents proposed by the Contractor during the course of the Work.

9.3.1 Shop Drawings and Product Data

Submittal Log template

To be developed.

The Contract Administrator will receive Contractor shop drawings, log drawings into the Submittal Log template and transmit the shop drawings to respective design disciplines for review. Unless stipulated in the Contract or agreed otherwise, the shop drawing review period shall be no longer than 10 working days.

The respective design disciplines shall return the reviewed shop drawings to the Contract Administrator for recording the review status in the shop drawing log and transmission of the shop drawings to the Contractor:

- "Reviewed",
- "Reviewed as Noted", or
- "Revise and Resubmit"

Only "Reviewed" or "Reviewed as Noted" shop drawings shall be used for the Work.

Shop drawings stamped "Revise and Resubmit" are to be acted upon accordingly by the Contractor. The Contract Administrator shall place copies of the "Reviewed" or "Reviewed as Noted" shop drawings in the Contract file.

For instances where multiple Contracts have been awarded on the Contract, the Contract Administrator shall review the shop drawings with respect to work of other Contracts and transmit copies of the reviewed shop drawings to the other Contractors for coordination with their Works.(i.e.: anchor bolt layouts from an equipment vendor to the concrete contractor for embedment).

9.3.2 Samples

All samples submitted by the Contractor will be logged by the Contract Administrator in the Submittal Log template, identifying:

- Date of Submission,
- Origin,
- Intended use in the Work, and
- Any deviation from the requirements set out in the Contract documents.

The samples shall be reviewed by the appropriate reviewer and comments recorded on the Submittal Log template. The Contract Administrator shall advise the Contractor regarding "*Acceptance"* or "*Rejection"* of the sample and record same in the Submittal Log template.

9.3.3 Operations and Maintenance Manuals

Upon receipt of Operation and Maintenance (O&M) Manuals from the Contractor, the Contract Administrator shall review the manuals for compliance with the Contract documents. The Contract Administrator will send the O&M manuals to the respective design disciplines and the City Project Manager for their review and approval. The Contract Administrator will compile the review comments from the reviewers and return the compiled comments to the Contractor for incorporation into the final O&M manual submission.

The Contract Administrator shall ensure the O&M manuals (first draft) are submitted and available for Pre-commissioning prior to issuance of Certificate of Substantial Performance.

9.3.4 Training Materials

The Contract Administrator shall receive, track and review lesson plans and other training materials. The Contract Administrator shall forward training materials to the City Project Manager for review and comment. All submittals shall be recorded in the Submittal Log template with their status identified.

9.3.5 Spare Parts

The Contract Administrator shall coordinate receipt of, inspection, tracking and storage of all spare parts in a location designated by the City Project Manager. The Contract Administrator shall create a listing of spare parts including description, specification reference and relative equipment tag.

9.4 Health, Safety, Security and Environment

The following section outlines the Contract Administrator's duties in relation to Health, Safety, Security and Environment (HSSE).

The minimum standard for all City of Winnipeg construction sites is:

- the Safe Work Plan,
- Workplace Safety and Health Act (WSHA) W210 and Regulation MR 217/2006, and
- Contractor Safety Management Plan.

In the event of a conflict of standards the most stringent standard shall apply.

9.4.1 Health and Safety

The Contract Administrator and the Contractor must ensure effective ongoing exchange of safety information as well as notification in the event of an incident or emergency situation. It is strongly recommended that Contract contacts are posted at the job site for contract work taking place at City of Winnipeg facilities to ensure this information is available to City Supervisors and employees working in the area.

9.4.2 Site Health and Safety Orientation

Before Contract work begins, site-specific safe work and emergency procedures must be communicated to Contractors by the Contract Administrator in consultation with City's safety resources as needed.

Contractors are also to be briefed on roles and responsibilities as well as the consequences of not following the Safe Work Plan or any site-specific safe work procedures. This includes the corrective action that will be taken to stop unsafe work and the subsequent remedial measures.

This is consistent with the duty to provide information that may affect the safety and health of a person at the workplace as per the Manitoba WSHA.

9.4.3 Hazard Communication

Effective ongoing communication between the Contract Administrator, the Contractor, and any subcontractor is essential to identify situations that may arise during the course of work not originally discussed or identified. It is also important that any changes to Safe Work Plans be made and communicated on an on-going basis. Safety is to be an integral part of pre-work discussions and contract meetings.

9.4.4 Monitoring Contractor Safety

Safety monitoring is performed along with other aspects of contract work during site visits by the Contract Administrator. This is done to ensure that Contractors follow the City's safety requirements as well as the Safe Work Plans for the work being done.

The Contract Administrator should consult with the City's Project Manager and safety resource if they have questions or need assistance with the monitoring process.

How often a site is monitored can be determined by:

- The nature of work and the risks involved.
- The Contractor's familiarity with the work being done and whether the work was done previously by the Contractor for the City and without incident.
- The level of knowledge and experience the Contractor has with respect to safe work and emergency procedures.

- Whether or not the Contractor has obtained a recognized safety certification. (i.e.: COR™ or SECOR™)

Safety monitoring can be random or announced, narrow in focus or more encompassing depending on the type and complexity of the work being performed. If unsafe work is observed, corrective action is taken by the Contract Administrator or others. Corrective action can range from immediate work stoppage until appropriate control measures are implemented up to and including termination of the Contract in extreme situations.

9.4.5 Responding to Safety Concerns and Follow-up

If a City employee becomes aware of a safety concern involving Contract work, the first step is always to notify their direct Supervisor. It is the Supervisor's responsibility to evaluate and respond to the concern in a timely manner in consultation with safety resources and the Contract Administrator.

Contractors have the same obligations to their employees as any other employer in Manitoba. Where safety issues arise regarding Contractor employees, the concern will always be taken to the Supervisor of the employees involved.

The City has the right to require the Contractor to resolve any safety issue raised to the City's satisfaction before work continues. This decision belongs to the Contract Administrator responsible for the Contract with support from any safety resource needed.

In circumstances where contract work could result in serious and imminent harm to a person, all employees are encouraged to take immediate corrective action to address the situation in a way that does not endanger themselves or others. This may mean stopping the work in progress and contacting their Supervisor to address the situation with all stakeholders.

9.4.6 Health and Safety Reporting

The Contract Administrator shall include in the Monthly Status Report a listing of all recordable incidents that occurred during the reporting period.

9.4.7 Investigations

The scene of an incident shall not be disturbed until permission is given by the Contract Administrator, the City, and by Manitoba Workplace Health and Safety. Investigation of the incident will be performed by the Contractor and the City. The Contract Administrator shall obtain the resultant investigation documentation. The Contract Administrator shall file the generated safety documentation in the Contract file for record purposes.

9.4.8 Security

The Contract Administrator shall review the prime Contractor's access control plan. The prime Contractor shall conduct site orientations for all personnel requiring access to the construction site.

9.4.8.1 Visitors

Inspection Report template

Download from the City's Infrastructure Planning Office website

For major job sites, the Contract Administrator shall obtain prior approval from the City Project Manager, for visits of non-resident personnel to the site. The Contract Administrator shall provide the City Project Manager with a list of non-resident personnel with the intended date of visit, reason for their visit and the expected duration of the visit. Non-resident inspectors do not require pre-approval however must complete an Inspection Report supporting the visit and provide the Contract Administrator with a copy for the Contract file.

Unscheduled media representatives, journalists and others shall not have access to the site. The Contract Administrator shall refer them to City Project Manager and City of Winnipeg Media Relations.

9.4.8.2   Plant Access

Plant Entry Permit template

To be developed.

For projects on an operating plant, the Contract Administrator shall coordinate access for work undertaken within the plant. A Plant Entry Permit shall be completed listing all workers, description of work to be performed and expected duration of work activity.

The Plant Entry Permit shall be signed by the plant operator in charge, Contractor and Contract Administrator.

A signed Plant Entry Permit will be required each day in-plant work is required. Contractor shall request from the Contract Administrator a Plant Entry Permit no later than 3:00 pm the previous day.

9.4.8.3   Criminal Record Search

For projects where security is of concern, the Contract Administrator shall review the Contractor's security plan for the site. The Contractor shall provide the Contract Administrator with a Criminal Record Search Certificate for each individual proposed to perform work on the site prior to their engagement in the Work.

9.4.9   Permitting

The following permit process applies to major work on operational facilities only. In other cases the Contract Administrator shall review work requirements with the City Project Manager and establish safety protocols accordingly.

Permits Required for Work WITHIN an Operating Plant	Permits Required for Work ADJACENT to an Operating Plant
The Contract Administrator shall ensure the following permits are completed by the Contractor for Work to occur within an operating plant and are signed by the plant operator in charge. Some of the key permits that need to be obtained: ❑ Plant Entry Permit ❑ Process Interruption Permit ❑ Lockout Tag Out Permit ❑ Hot Work Permit ❑ Confined Space Permit	The Contract Administrator shall ensure the following permits are produced by the Contractor for Work adjacent to an operating plant. Permits for this work do not require plant operator in charge sign off. ❑ Confined Space Permit ❑ Critical Lift Permit ❑ Lockout Tag Out Permit ❑ Pressure Test Permit

9.4.10 Environmental

Safe handling and storage of fuel, oils, and chemicals shall be of the highest priority and care. Any mishap shall be immediately reported to the Contract Administrator.

The Contract Administrator shall immediately notify the City of such spills in accordance with established City of Winnipeg protocols and monitor the Contractor's containment and remediation actions. The Contract Administrator shall obtain copies of Contractor's Incident Report and investigation and file in the Contract file.

9.5 Schedule of Work

All construction contracts require schedules for completion. The time element may involve specified commencement and completion dates, or specified working days. Large or more complex Contracts may involve more detailed performance schedules for individual critical work activities.

This schedule is a tool that the Contract Administrator uses to monitor and control the Contract Work. The Contractor shall submit a Detailed Construction Schedule, incorporating the planned schedule as set out in the Supplemental Conditions of the Contract, for the Contract Administrator's review. The Contract Administrator shall forward the schedule along with their recommendation to the City Project Manager for review and approval. This schedule then forms the Contract time baseline to which actual progress is tracked. It is an enforceable obligation of the Contract, like every other aspect of the Contract, and thus, a party-causing delay which results in increased costs, is likely to be liable for additional costs resulting from the delay.

The Contract schedule to be provided by the Contractor is dependent on the complexity of the Contract. It may vary in format from a reproduction of the Schedule of Work contained in the Bid Opportunity submission, to more detailed Gantt Charts or a detailed Critical Path Method (CPM) Chart for individual critical activities.

Progress reviews shall be carried out on a regular basis, typically at the regularly scheduled site meetings. Activities which are behind schedule are to be identified, and corrective actions identified to bring those activities back on schedule. Progress reviews may be augmented by special or additional meetings to discuss critical activities which are behind schedule.

The onus is on the Contractor to bring the Work back on schedule. Depending on the circumstances behind the delay, the Contractor will have to consider whether to:

- deploy more resources by bringing additional labour and/or equipment onto the site
- shift Contract resources to address the activity behind schedule
- increase working hours
- bring in a subcontractor to complete the late activity
- change subcontractors who are not performing in accordance with the schedule
- review remaining activities to see if there is opportunity to recover lost time on future activities
- substitute existing equipment onsite with higher productivity equipment
- change suppliers (if they are dealing with a supply problem), as approved by the Contract Administrator
- substitute materials, as approved by the Contract Administrator.

9.5.1 Revisions to the Schedule

Where the schedule must change, it may only be revised with the prior written consent of the Contract Administrator, and only to reflect valid changes in the Work or delays beyond the control of the Contractor.

Should the Contractor fail to meet the schedule, liquidated damages are to be assessed in the manner indicated in the General Conditions and the Supplemental Conditions of the Contract.

9.5.2 Delays in Completing Work

Construction delays fall into three different categories:

Category Type	Explanation / Description
Compensable Delays	Are typically delays caused by the City.
	These types of delays are compensable in that they may be corrected by extending the Contract time or by providing additional compensation for damages.
	Examples of these types of delays not caused by the Contractor include:
	-late award of the Contract
	-failure to make available or to provide unimpeded access to the site
	-late delivery of City-supplied equipment or materials
	-failure by others to complete preliminary work or undertakings
	-delays that result from another Contractor's work
	-late provision of plans, drawings, and other information or instructions from others
	-failure by the City to make interim payments as required
	-City financing problems
	-failure to receive time extensions as provided for in the Contract, and
	-legitimate extras
	The consequence of a compensable delay is that the City must give the Contractor an extension of the time(s) specified for the phase or phases of the Work and/or for the dates specified for Substantial or Total Performance of the Work.
Non-Excusable Delays	Are delays caused by the Contractor, such as their own inability to complete the Work on schedule or delays caused by their subcontractors?
Excusable Delays	Involve delays beyond the control of the City or Contractor (Force Majeure).
	These may include strikes, lock-outs (including lock-outs decreed by a recognized contractor's association for its members of which the Contractor is a member), an act of God, or any other cause which the Contractor satisfies the Contract Administrator to be totally beyond his control or any cause within the Contractor's control which the Contract Administrator has determined is an excusable delay. In these cases, the Contract time shall be extended for a period of time equal to the time lost due to such delays. Extensions in Contract time shall be recorded via a change order.

9.6 Owner Supplied Equipment

The City may pre-purchase equipment with long delivery times or for cases where detailed equipment information is required to complete the detailed design works. The following outlines the Contract Administrator's responsibilities.

9.6.1 Vendor Submittals

The Contract Administrator shall receive, review and process, and log submittals from City Supplied Equipment Vendors. Typical submittals include Manufacturer Shop drawings, Inspection and Test Plans and Operations and Maintenance (O&M) Manuals. The Contract Administrator shall forward copies of the shop drawings to the installation contractors.

9.6.2 Factory Acceptance Testing

The Contract Administrator shall review Inspection and Test Plans and coordinate factory inspection and tests whether they are performed by third party agencies or by the design consultant. The Contract Administrator shall estimate the costs associated with all factory inspections and submit to the City for approval prior to arranging the inspections and tests. The Contract Administrator shall obtain and review all Factory Acceptance Testing results and incorporate into the Contract file.

9.6.3 Delivery and Receipt of Goods

The Contract Administrator shall coordinate the shipping and receipt of City Supplied Equipment with the Contractor. Once the Goods have arrived to site, the Contract Administrator, Contractor and Manufacturer shall inspect the goods and complete the Certificate of Equipment Delivery form which transfers the care and custody of the Goods to the installing Contractor. Any deficiencies noted during the inspection shall be listed on the form. The completed form shall be provided to the Contract Administrator prior to the Manufacturer leaving the site.

9.6.4 Installation

Prior to the installation of the equipment, the Manufacturer and Contractor shall complete the Certificate of Readiness to Install Form signifying the Contractor has received adequate instruction relative to Installation of the Goods. The Manufacturer shall provide the Contract Administrator with a fully signed copy of the Form prior to leaving the site. The Contract Administrator shall incorporate the signed Forms into the Contract file.

Once the Contractor has completed Installation of the equipment, the Contractor shall notify the Contract Administrator that the Installation is ready for inspection by the Manufacturer. The Contract Administrator shall coordinate the Manufacturer's inspection and have the Certificate of Satisfactory Installation Form completed and signed. Any deficiencies in the installation shall be noted on the Form. The fully signed Form shall be delivered to the Contract Administrator prior to the Manufacturer's representative leaving the site. The Contract Administrator shall incorporate the signed Forms into the Contract file.

9.6.5 Pre-Commissioning

The Contract Administrator shall coordinate with the Manufacturer and Contractor to undertake Pre-Commissioning of the equipment. No Pre-commissioning activity shall take place on the Goods prior to receipt and review of the Operations and Maintenance Manuals. Once all pre-commissioning checks, run tests, and operating checks have been successfully completed, the Contractor and Manufacturer shall complete the Certificate of Equipment Satisfactory Performance form and submit to the Contract Administrator. The Contract Administrator shall file the Form in the Contract file.

Once the form has been signed-off, the Contract Administrator will prepare a Certificate of Substantial Performance for the City Supplied Equipment Contract, initiating the Lien Holdback release period.

9.6.6 Commissioning

The Contract Administrator shall coordinate the Manufacturer's representative attendance during Process Commissioning. Once Process Commissioning of the equipment has been completed and accepted, the Manufacturer shall complete the Certificate of Equipment Satisfactory Process Performance Form. Receipt by the Contract Administrator shall signify Total Performance of the City Supplied Equipment Contract and initiate the start of the warranty period. The Contract Administrator shall complete a Certificate of Total Performance and file the signed Forms in the Contract file.

9.7 Construction Inspection and Testing

The Contract Administrator is responsible for ensuring that the Works are constructed in compliance with the Contract documents. Inspection is the most common way to monitor Contract performance.

Inspection is carried out by trained inspectors employed by or working for the Contract Administrator, and may include independent testing and inspection organizations.

Where part-time inspection is employed, the inspector should carry out both scheduled and unscheduled inspections:

- **Scheduled inspections** are required to ensure that defects in the Work can be communicated to the Contractor's supervisory personnel who would be in attendance at these inspections. These inspections are typically associated with regular site meetings.

- **Non-scheduled inspections**, carried out at random or critical times during the course of the Work, are necessary to ensure that the Work is being carried out to the standards stated in the specifications.

On-site Inspectors are responsible for ensuring that the Contract is being carried out in accordance with the Contract documents. The Inspector's duties and responsibilities are usually included in the Contract documents. In addition to ensuring that Contract-specific conditions (i.e.: site facilities and services, safety, security, clean-up, etc.) are met, the Inspector's main role is to check conformance with specifications and the quantity of construction and notify the Contractor of unacceptable work or materials.

The Inspector must have unrestricted access to the site. The Inspector must have the right to reject materials or equipment delivered to the site which does not meet the quality requirements of the Contract documents. This is particularly important where materials such as concrete or other products which have a non-reversible chemical process are incorporated into the Works. Preventing or stopping delivery of these types of materials before it leaves the delivery vehicle will avoid costly removal by the Contractor at a later date. It will also allow the Contractor to return to the supplier and correct the condition. To ensure timely communication of the quality and quantity of work, the Inspector must have immediate access to the Contractor's senior supervisor on the Contract at all times.

9.7.1 Inspection and Test Plans

The Contract Administrator shall obtain or prepare a detailed Inspection and Test Plan based on the construction work.

Inspection and Test Plans identify the items of materials and work to be inspected or tested, by whom and at what stage or frequency, as well as "hold and witness points", references to relevant standards, acceptance criteria, and the records to be maintained. Inspection and Test Plans, when properly implemented, help ensure that, and verify whether, work has been undertaken to the required standard and requirements, and that records are kept.

The Contract Administrator shall expedite and receive Inspection and Test Plans from City Supplied Equipment Vendors. The Contract Administrator shall identify the need for Factory Acceptance Tests, witnessing and inspections. The Contract Administrator shall coordinate and arrange for appropriate inspectors to visit the manufacturing facilities at the appropriate hold points identified in the vendors' Inspection and Test Plan.

The Contract Administrator shall place Inspection and Test Plans and associated inspection reports in the Contract file and copies of the inspection reports shall be forwarded to the responsible design discipline for their review and acceptance.

9.7.2 Inspection

Non Conformance
Report
template

To be developed.

The Contract Administrator shall perform, or cause to be performed, construction reviews throughout the duration of the Contract. The Contract Administrator shall coordinate inspections performed by discipline specific individuals as required to ensure the Work conforms to the drawings, specifications and relevant codes. The Contract Administrator shall also notify the Project Manager of the planned Construction Review, facilitating the option for other City representatives to attend the Construction Review.

A Construction Review Record (CRR) form shall be completed by the reviewer. Copies of the Constructive Review Record shall be filed in the appropriate Contract file and a copy forwarded to the Contractor. Should any non-conformances be identified during the Construction Review, the Contract Administrator shall record the items on a Non Conformance Report (NCR) form and transmit the NCR to the Contractor for action. The Contract Administrator shall log the NCR in the NCR Log for tracking, monitoring and disposition. The NCR Log shall be reviewed and updated at regular Contractor Site Meetings.

9.7.3 Preconstruction Inspections

Claims by the Contractor may occur for many reasons. For example, on-street renewal contracts, the drainage facilities (i.e.: curb inlets, catch basins, etc.) are usually cleaned prior to the commencement of the Work. Upon completion of the Work, the City will require that these facilities be returned to like-condition if they are found to be otherwise. Refer to *PMM Appendix F: Claims Management Process* for additional information on claim prevention, mitigation, identification and quantification, and resolution.

On other major City Contracts, property owners may make claims for damages they attribute to the construction activity. Such claims are best addressed by carrying out a thorough preconstruction inspection of the Works.

The Contract Administrator is responsible for ensuring that the preconstruction condition of existing facilities and properties adjoining the right-of-way or City-owned property are sufficiently documented to allow proper evaluation of any claims that may occur.

This typically involves compiling a detailed photographic record of the existing surface features within the public right-of-way or City-owned property, and by carrying out inspections of the City's underground facilities, as with the example on drainage facilities, with both the Contractor and appropriate City employee present, prior to commencing the Work. Also, during preparation of this record, the exterior of all buildings and residences located adjacent to the site should be visually inspected for distress. Existing damage such as cracked windows, cracks in stucco exteriors and foundations, settlements, disrepair, etc. should be photographed or video recorded. When evaluating cracks in street pavements, sidewalks and private driveways, it may be beneficial to paint small cracks to enhance their visibility in the photograph or video.

On occasion, the Contract Administrator may deem it necessary to examine the interiors of residences and businesses for damage prior to construction. This preconstruction inspection may be required where the proposed works require use of equipment which causes ground vibrations (i.e.: pile driving, pavement breakers, etc.) and which are working close to any buildings. Examination of the interior requires that the owner grant entry to the building. The drawback to inspecting building interiors is that it is both time-consuming and costly.

Some consider the inspection as an invitation to claims, as the owners could view the inspections as the City setting a benchmark for damages to be incurred during the prosecution of the construction works. Measures must be taken during the design, tendering and construction of a contract so that the construction methods utilized do not unduly distress adjacent buildings. Lastly, it should be noted by the Contract Administrator that buildings are damaged over time by factors other than those which are construction related (i.e.: soil swelling and shrinkage, weather, etc.)

Generally, post construction inspections are only made if a complaint or claim is received.

9.7.4 Testing

Arranging for testing is a prime activity to ensure the quality of the product. The quality assurance program will have been incorporated into the specifications, and the quality control program must be implemented and monitored by the Contract Administrator.

On-site testing frequency and reporting is either pre-defined or established by the Contract Administrator. The Contract Administrator shall coordinate third-party materials testing firms with progress of the work, receive and interpret test results, instruct the Contractor to propose corrective measures and review Contractor proposed corrective measures for acceptance.

The Contract Administrator is responsible for maintaining complete records of the tests undertaken, their results and the action taken. Distribution of the test results to the three parties (City Project Manager, Contractor and Contract Administrator), the interpretation of the results, and recommended corrective action as required, is the Contract Administrator's responsibility. Where test results indicate a significant defect in the Work, the Contract Administrator is to advise the City Project Manager of the problem and of the recommended action prior to ordering that corrective measures be undertaken by the Contractor. The Contract Administrator shall file all test reports in the Contract file.

Testing and certification of material or equipment fabricated off-site is often delegated to the Contractor. The Contract Administrator may engage specialized inspection services to inspect and monitor the progress of critical off-site activities.

9.7.5 Defects

Defects identified by the Contract Administrator are to be communicated immediately upon being discovered. The Contract Administrator must provide written notice of the defects with instructions to the Contractor and retain records of the documentation for follow-up and Contract file.

Resolution of claims against the Contractor for defects can be complicated by a number of factors, including:

- the potential involvement of a number of participants in sorting out the cause of defects
- Contract documents that fail to sufficiently define Contract scope or design details
- ambiguous or poorly drafted Contract provisions and
- extremely unilateral Contract provisions.

When disputes over defects arise, it often becomes evident that insufficient detail was paid at the Contract outset in documenting Contract obligations and in appropriately identifying and specifying relevant design and performance requirements amongst various project participants. These aspects are also high on the list of factors contributing to the difficulty in sorting out responsibility for defects.

Of key importance is the careful administration of the Contract in accordance with the requirements of the Contract documents. Construction Contract documents are, by their nature, working documents responsive to a wide range of traditional Contract circumstances, as typically addressed in the General Conditions, covering a wide range of rights, obligations, procedures and requirements.

9.8 Progress Monitoring and Control

9.8.1 Daily Construction Reports (DCR)

Daily Construction Report template

Download from the City's Infrastructure Planning Office website

The Contract Administrator (or Resident Inspector) shall prepare Daily Construction Reports (DCR). The DCR is an essential document in construction projects as it provides a chronological record of the Contractors progress including a record of the number of workers/employees and work equipment at the site, type of work performed, time work began and ended, job progress – delays or disruptions, the day's weather conditions, incidents, completed tasks, milestones, and documents non-working days, construction issues, communications with the Public, coordination with outside agencies, problems encountered, activities started, completed and planned, site conditions, work stoppages, unusual events, and verbal direction given to the Contractor and inspections completed.

A DCR reports what work was done and what occurred each day and may serve as evidence in case of contract disputes, and/or is useful in actions resulting from liens.

The Contract Administrator shall place DCRs in the Contract file's appropriate subfolder.

9.8.2 Request for Information (RFI)

Request for Information

Request for Information & Response Log templates

Download from the City's Infrastructure Planning Office website

The Request for Information (RFI) form is the document used by the Contractor to request information or clarification related to the plans, specifications or Contract requirements.

RFIs are also used to request approval for minor contractual deviations that do not impact scope, cost or schedule, and to obtain direction on how to proceed when there are conflicting Contract requirement or to document Contract claims.

Upon receipt of the RFI from the Contractor, the Contract Administrator is to log the receipt in the Request for Information & Response Log, and forward the RFI to the applicable design discipline for response.

The Contract Administrator shall log the response date and return the RFI to the Contractor for their action. If the RFI will have cost or schedule implications the Contract Administrator shall undertake the Change Management process, and obtain a Project Record Index number (PRI) from the City Project Manager if the PRI system is being used.

9.8.3 Contract Changes

Contract changes may be initiated by the City, the Contract Administrator or the Contractor.

There are numerous reasons for Changes in the Work to occur, including:

- Changed site conditions

    (i.e.: unexpected soil variations or conditions discovered during alterations to an existing structure which were not disclosed in the Contract documents, and which could not have been discovered as part of normal site investigation when preparing the bid.)

- Changes in external requirements

    (i.e.: changes to building codes; where the City cannot obtain a permit to allow the Contractor to proceed with a portion of the Work, affecting the Contract Schedule or the manner in which the Contractor can carry out other phases of the Work.)

- Changes in the Scope of the Work by the City

- Changes to allow for better, faster or more economical construction

- Design errors

    (i.e.: contradictions, discrepancies, inconsistencies, impossibilities, etc.)

- Discrepancies in the Contract documents contradicting the intent of the Contract

- Changes in market conditions

  (i.e.: specified products become unavailable, new and products become available, new information becomes available which affects the choice of specified materials.)

- Final coordination of new construction with existing equipment

  (i.e.: space changes, mechanical or electrical changes.)

Contract Change Log template

Download from the City's Infrastructure Planning Office website

The Contract Administrator must deal with the change request in a timely manner. The change process is described in the General Conditions and the *PMM Section 7.2.*

All changes must be fully documented including the reason for the change, technical details of the change, cost and schedule impacts, Contract Administrator's recommendation for the change and the formal approval. Changes in contract must be entered in the Contract Change Log template.

9.8.4 Change Order (CO)

The City has developed two different types of change orders to accommodate City project work as they are based on two different references to the General Conditions. Both the Change in Work (CWO) and Change in Scope of Services (CSS), from this point on will be referenced as Change Orders (CO) for the sake of simplicity.

Once the Contract Administrator has received the City Project Manager's authorization to proceed, the Contract Administrator is to prepare a Change Order (CO), including references to the Project Record Index (if being used), the Proposed Change Notice, date of Contractor's written quotation, value of change and impact on Contract time.

The Contract Administrator will obtain the Contractor's signature, confirming the Contractor's agreement to the Change in the Work and affix the Contract Administrator's signature recommending the CO approval. The Contract Administrator will then forward the CO to the City for signature and acceptance.

The Contract Administrator shall file all change documentation in the Contract file.

9.8.4.1   Change Work Order (CWO)

Change Work Order (CWO) template

Download from the City's Infrastructure Planning Office website

The Change Work Order (CWO) serves as the vehicle to issue a formal notice of a change to the Contract in accordance with the applicable General Conditions for Construction, Services (for example: software, cleaning, snow clearing; which is not to be confused with Consultant Services), or Goods.

A CWO is issued by the Contract Administrator for Construction, Goods, and Services contracts.

9.8.4.2   Change in Scope of Services (CSS)

Change in Scope of Services (CSS) template

Download from the City's Infrastructure Planning Office website

The Change in Scope of Services (CSS) serves as the vehicle to issue a formal notice of a change to a Consultant Services Contract in accordance with the applicable General Conditions for Consultant Services.

A CSS is issued by the City Project Manager for Consulting Contracts.

9.8.5 Field Instructions (FI)

Field Instructions (FI) template

Download from the City's Infrastructure Planning Office website

In cases where there is insufficient time to follow the formal change process, the Contract Administrator has the authority to issue an Field Instruction authorizing the Contractor to proceed immediately, in accordance with *PMM Section 7.2 – Perform Integrated Change Control Process*.

9.8.6 Cost Control

The premise of cost control is to know the complete financial status of a Contract at any given point in time during progress of the Works. Cost control is a commitment based strategy that provides the City with early indication of estimated final costs for the Contract prior to final job cost accounting. A commitment based system means that no costs will be charged against the Contract unless there is a corresponding commitment authorization, in other words invoicing cannot exceed the committed value.

The Contract Administrator shall prepare a Monthly Forecast Cost Report which will include a record of all commitments including the initial Contract price and Change Orders (Change Work Order (CWO) and/or Change in Scope of Services (CSS)), Progress Estimates coupled with a Forecast to Complete, and Estimated Final Contract price.

The Estimate to Complete is an estimate of Known Unknowns (i.e. Outstanding Proposed Changes Notices and pending claims) as well as a sum for Unknown Unknowns (i.e. contingency).

The Forecast Cost Report is to be included in the Monthly Contract Status Report and include a variance report explaining changes that have occurred during the reporting period.

9.8.7 Over-Expenditure Analysis

When required, the Contract Administrator shall provide analysis and documentation supporting changes in the Work. The analysis and documentation will be used by the City as part of the Contract Over-Expenditure Report required by City of Winnipeg FM-002 Materials Management Administrative Standard.

9.8.8 Contractual Disputes

The General Conditions generally provide methods for resolving contractual disputes between the Contract Administrator and the Contractor over the Contract Administrator's valuation, measurement or change in Contract time and/or Contract price for the extra work. The methods are specific to the General Conditions that are applicable to the Contract.

In most cases dispute resolution between the Contract Administrator and the Contractor is as follows:

- If the Contractor disputes a determination made by the Contract Administrator, the Contractor shall act in accordance with the Contract Administrator's determination.

- The Contractor has the right to appeal a determination or order in accordance with the terms of the General Conditions.

9.8.9 Claims Resulting From Extra Work or Diminution of Work (Non Insurance Related)

Claims resulting from extra work can be classified into the following categories:

1. The Contractor disputes the determination of the Contract Administrator as to whether the Change in Work is extra work.

2. The Contractor disputes the Contract Administrator's valuation of the extra work.

3. If the Contractor feels strongly that the value indicated in their quote for the extra work is fair and reasonable, they may appeal the Contract Administrator's determination in accordance with the General Conditions.

4. There is no way for the Contractor or the Contract Administrator to evaluate the effect of multiple Change Orders for extra works on the Contract at the time an individual Change Order is being priced (the "ripple effect").

5. Taken individually, the valuation of the Change Orders may appear reasonable; however, multiple Change Orders on a Contract can potentially disrupt a Contractor's operations.

   (i.e.: the Contractor may find that their original schedule for labour resources and equipment is subject to the demands of the extra work, and they may have to take personnel from "critical path" activities to complete the extra work. Or, the extra work may require supply of equipment or material which is not readily available and which prevents the Contractor from proceeding with the extra work and with previously scheduled critical activities.)

6. While the Contractor may be positive that all the Change Orders have affected their productivity, the Contract Administrator may consider that the Contractor was poorly organized and that their labour was uncoordinated; in short, that the Contractor caused their own problem. In order to evaluate the Contractor's claim, it is imperative that the Contract Administrator have the Contractor document the events and activities that may have caused any delays or loss of productivity.

7. The Change Order(s) may extend the Contract time. This may result in extra costs if the extended duration of the Contract takes the Work into late fall or winter, causing the Contractor to heat and/or hoard the Work, and with resulting productivity.

8. Extensions to the Contract time may result in the Contractor facing new wage rate increases or material price increases.

   Material variations in the scope of the Contract or in the Contract time could result in the surety being discharged from its obligation to the City under the performance bond. Where Change Orders result in these changes, the surety must consent to such changes prior to undertaking the extra work.

9. The Contractor proceeds to perform extra work before receiving written authorization to proceed.

10. There is potential for a claim to be made by the Contractor if they are directed to proceed with extra work or a Change in the Work without written authorization. There may certainly be a dispute if the Contract Administrator considers the extra work to have a lesser value than the Contractor. Also, such direction may have been given without fully understanding the effect of the changes on the operation or safety of the facility being constructed, and may ultimately not be accepted by the City.

To qualify and evaluate all claims, it is important that the Contract Administrator carefully document in the field all activities related to Changes in the Work. These should be included as a separate component of Daily Inspection Reports.

9.9 Claims and Damages (Contractual – Non Insurance Related)

This section illustrates the process for addressing Contractor claims during the course of the Contract, identifying the duties of the Contract Administrator and the routing of the associated documentation.

Refer to *PMM Appendix F: Claims Management Process* for additional information on claim prevention, mitigation, identification and quantification, and resolution.

9.9.1 Claims

Upon receipt of a claim from a Contractor, the Contract Administrator shall examine the justification for the claim, evaluate the merit of the claim within the context of the Contract documents, and develop a recommended course of action.

The Contract Administrator shall notify the City Project Manager of the claim within 24 hours of receipt of a Contractor's claim.

The City Project Manager shall log the claim in the Request For Information (RFI) Log or as a Project Record Index (PRI) if this system is being used.

The Contract Administrator should undertake the follow steps:

1. Gather pertinent information to verify the existence of a basis for the claim within the scope of the Contract, specifically the circumstances that gave rise to the claim and the principles on which the claim can be contractually considered.

2. Evaluate the Contractor's assessment of their loss or delay.

3. Evaluate the criticality of the affected tasks on the Contract's Critical Path.

4. Assess the causality of the claim. Integral to this shall be a review of any actions that could be reasonably expected that the Contractor should have undertaken to mitigate their losses.

9.9.2 Damages

If the Contract Administrator makes a determination in favor of the Contractor's claim for damages, a recommendation is to be submitted to the City Project Manager.

Upon receiving authorization from the City Project Manager, the Contract Administrator shall prepare a change order reflecting the claim criteria and price, and forward the change order with the Contract Administrator's recommendation to the City Project Manager for formal authorization.

If the Contract Administrator determines the claim has no merit, the Contract Administrator shall issue a Field Instruction (FI) notifying the Contractor of the rejection of their claim with the basis for such rejection.

If the Contractor does not agree with the Contract Administrator's determination, the Contractor has the right to appeal the determination, as provided for in the General Conditions.

9.9.3 Delay Damages

It is important to recognize that timely completion of the Work does not depend solely on the behavior of the Contractor. The City Project Manager and Project Team, and the Contract Administrator also have contractual responsibilities which, if not met, can impede progress of the Work and result in delays for which the Contractor may seek compensation. Examples of delays in which the Contractor is not likely to be held responsible were listed previously in *PMM Section 9.5.2 – Delays in Completing Work.*

To be successful in a claim for delay under the above circumstances, the Contractor must prove that any change or delay was a risk which it had not assumed and that its reasonable reaction resulted in extra costs or damages.

Where a Contractor fails to comply with the Contract Schedule, the City may obtain damages for costs incurred as a result of the delay. The City is entitled to have the Work completed in the time specified. However, the Contractor will not be liable for excusable delays or for damages that are too remote.

Some reasons that the Contractor could be held liable include:

- ineffective supervision and direction of workers,
- labour disruptions,
- problems with subcontractors, and
- slow or incompetent work at any stage of construction.

On a Contract, there is a duty for all parties – the Contractor, the City and the Contract Administrator – to cooperate and not interfere with the performance of the other parties.

Interference with the Contractor's work by the City or the Contract Administrator may take the form of:

- not providing proper access to the site,
- inhibiting performance of the required work,
- dictating procedures or the order of work to be done after award of the Contract, or
- otherwise making the Contractor's job more difficult.

9.9.4 Default by Contractor during Construction

The Contract Administrator has an obligation to ensure that the Contractor complies with the Contract documents when undertaking the Work.

The Contract Administrator has a further obligation to instruct the Contractor to remedy any breach of its contractual obligations. If there has been a material breach of the terms of the Contract, the Contract Administrator must direct the Contractor in writing to remedy the default and also send a copy of that direction to the surety.

Examples of situations in which a letter must be written to the Contractor and copied to the surety are:

- The Contractor has failed to remedy, reconstruct, or replace faulty work or work that fails to meet contract requirements during construction as instructed.

- The Contractor has failed to follow instructions to remove and replace inferior materials (whether incorporated into the work or not) and material that does not comply with Contract requirements during construction.

- The Contractor is not complying with the latest approved schedule of work.

- The Contractor disobeys or refuses to follow the Contract Administrator's instruction to improve methods of work, to increase or improve the plant, or to employ additional or better qualified workers.

If a consulting firm has been retained, the City Project Manager should instruct the Contract Administrator to document all breaches and to advise the City Project Manager immediately if a breach occurs.

9.9.5 Default by Contractor during Warranty Period

The Contract Administrator also must inspect the Contractor's work for defects and deficiencies and give the Contractor notice, if they occur, with an instruction to remedy them before the warranty period expires.

The surety must be advised before the warranty period expires of any defects or deficiencies the Contractor has not remedied otherwise the surety will be discharged from its obligations under the performance bond. Inspections must be carried out well before the expiration of the warranty period to ensure the City can meet its obligations to the surety.

In conclusion, if any of the defaults described above occur either during construction or during the warranty period, the City Project Manager is to notify the Legal Services Department immediately.

9.10 Claims and Damages (Insurance Related)

9.10.1 Third Party Bodily Injury or Property Damage Claims

The following flowchart describes the steps in the Third Party Claims Reporting Process for reporting claims of bodily injury or property damages claims suffered by a third party as depicted.

Figure 9-1. Third Party Claims Reporting Process

Third Party Claims Reporting Process
(Related to bodily injury or property damage claims suffered by a third party whom is external to the project)

The following process map depicts a simple claims reporting process that involves the City Project Manager or Contract Administrator and the City's Claims Branch. Documentation is limited to the *Third Party Bodily Injury and Property Damage* Form.

City Project Manager or Contract Administrator (person representing the City Interests for the project)

Start

1.0 Notified of bodily injury or property damages suffered by a third party (external party)

2.0 Directs any third party claimant to report the damages via 311.

3.0 **Immediately** advises of the potential claim by phone.

3.1 Complete and email the *Third Party Bodily Injury and Property Damage* Form **within 7 days** of occurrence.

9.0 Responds to claim information request(s)

City's Claims Branch

4.0 Receives notification of the potential claim.

5.0 Claims Adjuster assigned.

6.0 Send acknowledgement of claim letter to City Project Manager and/or Contract Administrator.

7..0 Initiates investigation.

8.0 Clarifies and validates claim information

10.0 Claim determination

End

9.10.2 Third Party Claims Reporting Process Narrative

(Related to bodily injury or property damage claims suffered by a third party whom is external to the project).

The following Table 9-1 describes the steps in the Third Party Claims Reporting Process as depicted in Figure 9-1.

Table 9-1. Third Party Claims Reporting Process description

Third Party Claims Reporting Process		
Step Number	Responsible	Action
1.0	City Project Manager or Contract Administrator	Is notified of a claim relating to bodily injury or property damage suffered by a third party (external party), that may have arisen from the operation of the construction project.
2.0	City Project Manager or Contract Administrator	***Directs any third party*** claimant ***to*** report the damages via ***311.***
3.0	City Project Manager or Contract Administrator	Immediately advises of the potential claim to the City's Claim Branch by telephone at (204) 986-2828.
3.1	City Project Manager or Contract Administrator	Complete and email the *Third Party Bodily Injury and Property Damage* form to claims@winnipeg.ca. The form can be found on the City's Intranet – CityNet.
4.0	City Claims Branch	Receives the notification of potential claim and a completed *Third Party Bodily Injury and Property Damage* form.
5.0	City Claims Branch	Claims file assigned to an internal City Adjuster and a claim file is opened.
6.0	City Claims Branch	Email claim acknowledgement letter to City Project Manager and/or Contract Administrator.
7.0	City Claims Branch	City Adjuster initiates unbiased investigation with various stakeholders by gathering relevant information, such as witness statements, reports, pictures, list of damages and quantifying losses.
8.0	City Claims Branch	Clarifies and validates claim information from various stakeholders.
9.0	City Project Manager or Contract Administrator	Responds to claim information request(s) in a timely manner.
10.0	City Claims Branch	Upon completion of investigation, City Adjuster determines City responsibility or liability, if any. Investigation may determine that the City Adjuster refer the claim to an external source, such as Insurers, general Contractors, and/ or Consultants for handling. If City denies responsibility, confirmation of position is provided to claimant in writing.

9.10.3 First Party Property Damage Claims

The following process flow chart describes the steps in the First Party Claims Reporting Process for reporting claims of damages which occurred during the course of a construction contract on City-owned structures being built or worked on.

9.10.4 First Party Claims Reporting Process

Figure 9-2. First Party Claims Reporting Process for City-owned property
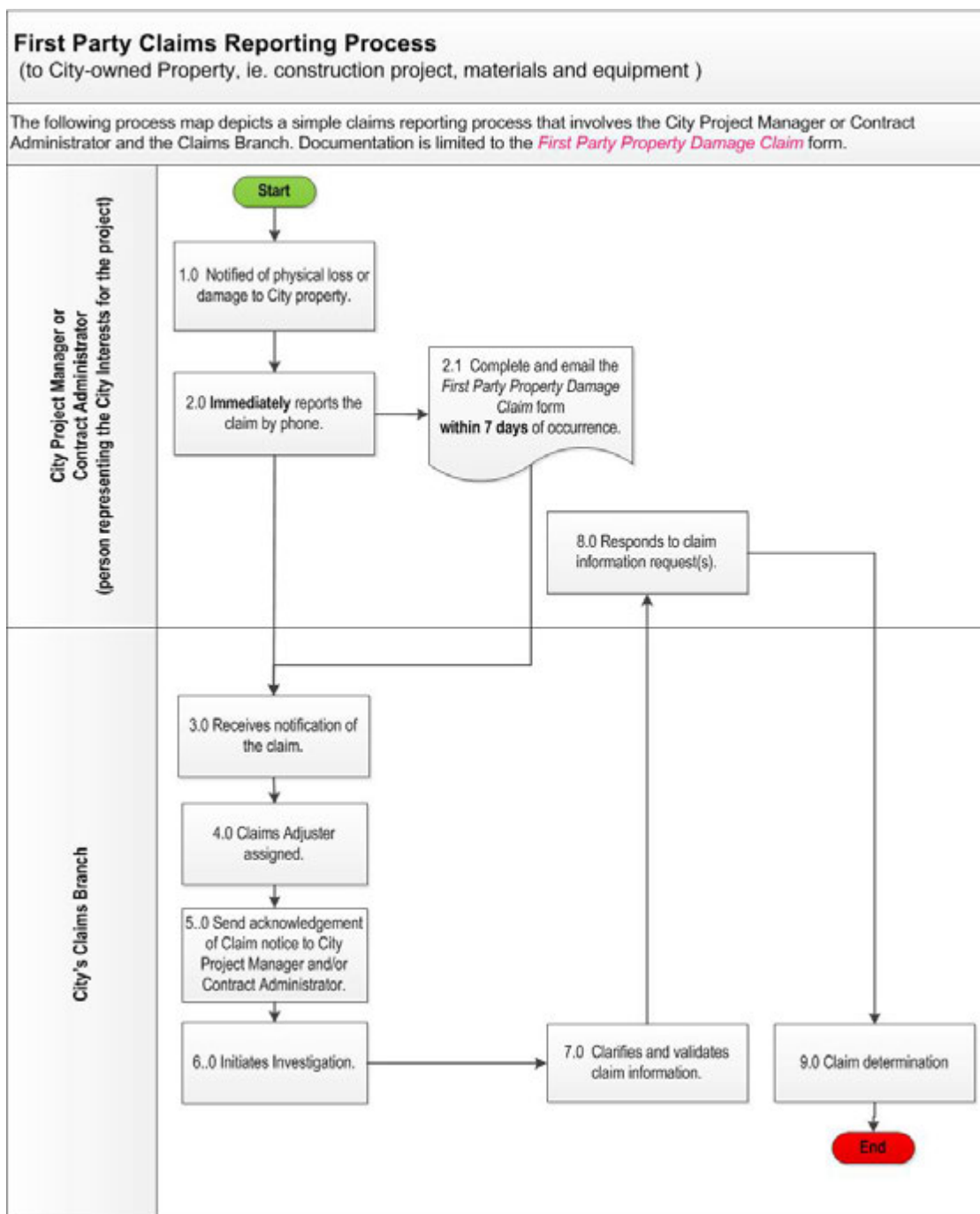
First Party Claims Reporting Process Narrative (for City-owned Property)

The following Table 9-2 describes the steps in the First Party Claims Reporting Process for reporting claims of damages which occurred during the course of a construction contract on City-owned structures being built or worked on as depicted in Figure 9–2.

Table 9-2. First Party Claims Reporting Process (for City-owned property) description

First Party Claims Reporting Process (for City-owned property)		
Step Number	Responsible	Action
1.0	City Project Manager or Contract Administrator	Is notified of physical loss or damage to City property under construction, or any City owned property and/or equipment
2.0	City Project Manager or Contract Administrator	Immediately reports the claim to the City's Claim Branch by telephone at (204) 986-2828 during business hours.
2.1	City Project Manager or Contract Administrator	Completes and emails the *First Party Property Damage Claim* form **within 7 days of the occurrence** to claims@winnipeg.ca . The form can be found on the City's Intranet – CityNet.
3.0	City Claims Branch	Receives the initial claim notification and a completed *First Party Property Damage Claim* form.
4.0	City Claims Branch	Claims file assigned to an internal City Adjuster and a claim file is opened.
5.0	City Claims Branch	Email claim acknowledgement to City Project Manager and/or Contract Administrator.
6.0	City Claims Branch	City Adjuster initiates unbiased investigation with various stakeholders by gathering relevant information, such as witness statements, reports, pictures, and list of damages relating to the loss.
7.0	City Claims Branch	Clarifies and validates claim information from various stakeholders.
8.0	City Project Manager or Contract Administrator	Responds to claim information request(s) in a timely manner.
9.0	City Claims Branch	Upon completion of investigations, City Adjuster determines availability of funding the damage by way of the City's insurance programs/insurance contracts or other available sources.

9.11 Manage Contract Risks

The City has established practices to manage certain types of Contract risks, including insurance and bonding. Ways to preserve the City's claim against the insurer are described in the following sections.

Note: Contract work is to be included in the project Risk Management Plan (RMP) as defined in the Project Delivery Plan.

Risks identified in the risk register will have defined risk response owners assigned in accordance with Project Delivery Plan Section 8 Risk Management Plan. The identified risks are to be managed in accordance with the risk response plans.

9.11.1 Managing Risk from an Insurance Perspective

1. Communication - Report all possible insured losses to the City's Claims Branch with 24 hours of discovery.

2. City construction projects are typically insured under a Course of Construction Policy (Builders Risk) and Wrap Up Liability policy. The Wrap Up Liability policy provides coverage for claims involving possible negligence of the Contractor as long as they are discovered after substantial completion and prior to the expiry of the timeframe provided under the Products and Completed Operations extension included in the Wrap Up Liability coverage. Typically the time frame allotted after substantial completion has been reached is 12, 24 or 36 months depending on the type of project.

3. Loss Prevention plans should include methods to reduce risk via transference or reduced by contract (insurance), retention of risk, financial plans/contingencies, etc.

9.11.2 Liability Insurance Policies

Comprehensive or Commercial General Liability (CGL) Policies and Contractor-Purchased Wrap Up (WU) Policies

The City requests to be listed as an Additional Insured or Named Insured on Contractor-purchased liability policies.

In the event that the Contract Administrator and/or Project Manager is contacted by a third party claimant – they should direct the claimant to 311. To protect the City's claim against the Insurer, the City has an obligation, independent of the Contractor who may have purchased the CGL or WU Policy, to put the Insurer on notice immediately following receipt of advice that a third party has suffered bodily injury or property damage as a result or consequence of the Contractor undertaking the work.

Contract Administrator's therefore must be instructed to call the City Project Manager who will notify the City's Claims Branch of any such claim including particulars, immediately after witnessing or being advised of the issue.

9.11.3 Professional Liability Insurance Policies (Errors and Omissions)

The Contract Administrator and/or City Project Manager must inform the City's Claims Branch if it becomes aware of an error or omission attributable to its Architects or Engineers that will or may result in a loss to the City.

The City RFP or Bid Opportunity requires the architect or engineer to continue their professional liability insurance or to provide an extended reporting period from 12 – 36 months after total performance. This period of time allows for discovery of any defect or deficiency and for reporting to the City Claims Branch.

The City's Claims Branch will determine if there is professional liability insurance on file for the project and request that the architects or engineers put their Insurers on notice.

If no insurance is available, the City's Claims Branch in consultation with the Insurance Branch, the Contract Administrator and/or the City Project Manager will contact the City's Legal Services Department immediately to determine next steps.

9.11.4 Construction Property Insurance Policies

Course of Construction or All Risks Builders Risk Policies are two names used for the policy that provides for damage to a structure while it is under construction.

The City may be listed as an Additional Insured or Named Insured on these policies. Therefore, the procedure to follow is identical to the procedure outlined for First Party Property losses.

9.11.5 Contractor's Equipment and Automobile Insurance Policies

The City is not an Additional Insured on the Contractor's Equipment Insurance Policies.

Contractor's equipment is defined as tools and mobile machinery such as graters, excavators, backhoes, etc. used in the construction industry. The City requires evidence of unlicensed motor vehicle liability under the Contractor's general liability insurance be provided on a certificate of insurance.

City bid opportunities or RFPs require evidence of automobile liability from the Contractor, if their vehicles will be operated on the roadways or City property. Evidence of insurance is provided by a certificate.

Only in instances when a Contractor's vehicle has damaged a City owned facility, signage, fencing, etc. does the Contract Administrator and/or City Project Manager need to notify the Claims Branch of the damage. For those instances follow the identical procedure outlined for First Party Property Damage claims including the name of the person or Contractor, if known.

9.11.6 How to Preserve the Claim against the Surety

For the City to preserve its claim against the surety if the Contractor defaults, the City must honour the terms and conditions of the bid and performance security and the law as it relates to them.

If the City fails to honour these terms and conditions or acts in a manner that prejudices the surety's right to a contribution or an indemnity, the surety will be discharged in whole or in part from its obligation to the City under the performance security.

The following describes an example of City acts or omissions that could result in the surety being discharged, in whole or in part, from its obligations to the City under the performance bond:

- Failure to Disclose Material Facts

  An example of failing to disclose material facts can be found in the leading 1937 Supreme Court of Canada case *Doe et al. vs. Canadian surety Company,* in which the Contractor had omitted bidding on two items totaling $13,000 in a $100,000 Contract to build a church.

  The Contractor attempted to withdraw his bid, however was faced with losing his deposit. As a result, the Contractor proceeded with the work, ran into financial problems, and defaulted on the Contract. The Court held that the surety was discharged on the grounds that the owner did not disclose the two substantial bid omissions prior to the surety issuing its blanket performance security.

9.11.7 Material Variation in the Terms of the Contract

Material variations include a material change in the nature or scope of the work, overpaying or underpaying the Contractor, and extending the Contractor's time for completion without the consent of the surety.

1. Alterations in the Nature or Scope of the Work

   The key word under this heading is "material." If the alteration in the work is so material that the Contractor would no longer be performing the type of work described in the bid opportunity, the surety will be discharged.

2. Overpayment

   If the City overpays a Contractor, the surety may argue that the overpayment has prejudiced its rights by depleting the Contract monies that would have been available to the surety to complete the work. Overpayment can take the form of premature payments, payment for faulty or defective work, or paying without deducting the required holdbacks.

3. Underpayment

   Conversely, as the surety is entitled to the same defense as the Contractor, if the City wrongfully fails to pay the full amount of the Contractor's progress payments, the surety may be discharged from its obligations under the performance bond on the grounds that the City breached the Contract by failing to make the required payments. Further, if the Contractor becomes insolvent, the surety can argue that the City caused the Contractor's financial difficulties and by doing so has prejudiced the surety.

4. Extending Time

   By issuing a performance bond, the surety has agreed to guarantee the Contractor's performance of the Contract for the period of time specified in the Contract. If the City extends the contract time for a reason other than the reasons permitted by the General Conditions without the consent of the surety, or incorrectly determines that the delay was beyond the control of the Contractor, the surety can be released from its obligations under the performance bond.

9.11.8 Laches

"Laches" is a legal term involved when the City has omitted to do something it has contracted with the surety to do, or has failed to preserve some security or benefit to which the surety is entitled.

If the City does not provide the surety with prompt notice of the Contractor's default or faulty performance, the surety will definitely be discharged. The surety could also be discharged if the City neglects to call a Contractor to account within a reasonable period of time after faulty performance (i.e. defective work) or default (i.e.: failure to meet schedule).

9.11.9 Protecting the City's Claim against the Surety

The general rule to follow is "**if in doubt, notify the surety**."

However, the individual directors have not delegated authority to the City Project Manager or Contract Administrators to make the foregoing contacts.

As a result, if the City Project Manager or Contract Administrator wants the Contractor to undertake a material change in the work, or if the Contractor's actions are so serious that they have resulted in a situation covered by the General Conditions, the City Project Manager or Director must contact the Legal Services Department immediately. Legal Services will prepare the required letters to the surety for the Director's signature.

The **Department's Director** and the **City Solicitor on the Director's behalf** are the **only people authorized to contact the surety** to:

- Obtain the surety's consent to materially change the work; and
- Put the surety on notice, by copy of the Default Letter to the Contractor, that the Director is taking the whole or part of the work away from the Contractor (General Conditions 8.04).

9.12 Liquidated Damages

Liquidated damages can only be applied to chargeable (non-excusable) delays. Chargeable delays involve situations which are the responsibility of the Contractor, and therefore do not entitle the Contractor to an extension of time or to any other compensation.

The amount of liquidated damages is the amount as stated in the Bid Opportunity, regardless of the actual loss or damages. Liquidated damages become payable immediately upon breach and must be deducted from progress estimates payable to the Contractor.

When liquidated damages are deducted, the Contract Administrator must fully document the decision, and the details of the deductions.

It must be noted that time extensions do not constitute a waiver of liquidated damages. The extended dates for the phases of the Work and for the Substantial and/or Total Performance of the Work are merely substituted for the original dates without affecting the City's right to damages if the new dates are not met.

9.13 Start Up, Commissioning and Transfer

Start Up, Commissioning and Transfer takes place in the Project Delivery Process "Transfer" sub-phase as defined within this manual.

The Contract deliverables from this phase include items such as Installation Verification and Performance Verification, Training as outlined in the Contract documents, Operation and Maintenance (O&M) Manuals, as-built drawings, and Asset Register updates.

9.14 Operation and Maintenance Manuals

Operation and Maintenance (O&M) Manuals may include manufacturer's operating and maintenance instructions, manufacturers' drawings, constructions drawings, shop drawings, catalogues, spare part lists, and photographs, all as necessary to operate and maintain the Works.

O&M Manuals are clearly required for the safe and effective operation of equipment. They are part of the Contract, and Total Performance cannot be achieved without them. In fact, in many cases the Works are not ready to be used without O&M Manuals; that is, they are necessary for Substantial Performance.

The specifications must outline what is required and the timing of the manuals which will then create a contractual obligation for their delivery.

The final step in the Contract implementation involves completion and submission of "as-built" record drawings for the Contract, as well as a "Final Construction Report" and all applicable design notes and shop drawings.

9.15 Training

The Contract Administrator is responsible for coordinating the training at the job site. The Contract Administrator will receive and review lesson plans submitted by the Contractors and forward them to the operating units for review and comment. The submittals shall be tracked via the submittal procedure.

The Contract Administrator, in concert with the City Project Manager, City operations, Contractors and Equipment Vendors, will develop the training schedules for both classroom and field level training.

The Contract Administrator shall prepare a Training Session Log of all training sessions. A Certificate of Satisfactory Classroom Training identifying the component training and sign-offs signifying completion and acceptance for each session, is to be prepared by the Contract Administrator and recorded on the Training Session Log. A Certificate of Satisfactory Field Training identifying field training and sign-offs, will also be recorded on the Training Session Log.

When required, the Contract Administrator shall coordinate video recording of the training sessions by City designated videographers.

9.16 Operation between Substantial and Total Performance

In some cases the specifications will require all or a portion of the completed Work to be placed into service after Substantial Performance but before Total Performance.

For these situations, the specifications will identify the documentation and training required for the City to assume responsibility, and responsibilities for the cost of operations and warranty obligations during the interim period. The Contract Administrator will be responsible for advanced arrangements and proper allocation of responsibilities and cost during this interim period.

In the case of treatment works, it is to be made clear that the Contractor is obligated to operate the Work and that the City is operating the Works under the "guidance and direction" of the Contractor. The Contractor has responsibility for faults, even those caused by actions of City employees. This is especially advisable where training, operating and maintenance manuals still have not been delivered by the Contractor.

9.17 As-built Drawings

A primary responsibility of the Contract Administrator is to accurately document all changes that have occurred throughout the course of construction on a Contract, and to produce accurate "as-built" drawings for Contract record purposes.

These as-built drawings become the description of the Contract after construction, which invariably is somewhat different from the design drawings. Typically, in consulting contracts, as-built drawings are required within one month to three months of Total Performance of a Contract. The Contract Administrator should ensure that the as-built drawings are complete in the time-frame specified in the consulting contract.

The specifications require that the Contractor is to supply information on any deviation from the Contract drawings for the purpose of preparing the as-built drawings. These are to be turned over to the Contract Administrator as each section of the Work is complete. Foundation as-built drawings should be turned over immediately after foundation work is complete, before the foundation subcontractor leaves the job. This level of attention to as-built drawings throughout the Contract will ensure that the as-built drawings are accurate at the end of the project.

9.17.1 As-built Drawings in Commissioning Plan

As-built drawings must be produced in accordance with City drawing standards.

The Contract Administrator shall be responsible for coordinating implementation of the Commissioning Plan as defined in the specifications. The Contract Administrator will coordinate Contractors' commissioning efforts in relation to the Commissioning Plan, which in some cases may involve consulting staff, the use of a new subcontractor, or even a new contractor.

The Contract Administrator shall store all pre-commissioning tests and documentation completed by Contractor in the Contract file.

9.18 Final Construction Report

The Final Construction Report provides complete documentation of all aspects of construction on the Contract, including a complete photographic record.

Included with, or attached as separate Volumes, can be such Contract-specific documentation as may be required by the Contract, as follows:

- Detailed Design Notes **–** including such items as structural and hydraulic design calculations.
- Detailed Operational Template **–** describing the intended operation of the system, and referring to the Operation & Maintenance Manuals received from the Contractor.
- Related Shop Drawings – reviewed and accepted 'final' copies.
- Equipment Manuals.
- Details and copies of any extended (product or equipment) Warranties – provided in accordance with the Contract specifications by the applicator, manufacturer, supplier and/or Contractor.
- Service records, video inspections, other contract record information.

9.19 Progress Payments

The Contract Administrator is responsible for progress payments made to the Contractor during the course of the Contract. Progress Payments are to be made in accordance with the terms of the Contract. Typical terms of payment for construction contracts are as follows:

- The Contract Administrator shall prepare a Progress Estimate based on the value of the Work performed during the preceding month:
  - o A completed progress estimate is to be submitted to the City Project Manager by the fourteenth Calendar Day after the end of each month, or as soon thereafter as possible, subject to receipt of all necessary information from the Contractor by the seventh calendar day after the end of the month.
  - o The Contract Administrator shall also ensure **reasonable amounts** are withheld for deficient work. The retention holdbacks and holdback releases must be indicated on the Progress Estimates. Retentions that set off deficiency works can be paid out to the Contractor when the corrective measures have been reviewed and accepted by the Contract Administrator. (Holdbacks for uncompleted work may also apply in some cases, however are not normally required since no payment should have been made for uncompleted work).
  - o The Progress Estimate shall be structured in accordance with the bid pricing. Line item breakdowns may be used for cases such as lump sum contracts where greater detail is required on progress and payments, however must roll-up to the Contract price.
  - o The progress payments are to include those for subcontractor work, since the City does not contract directly with subcontractors.
  - o It is the Contract Administrator's responsibility to certify progress of the Work and the payment valuation.
- All approved Change Orders (Change Work Order (CWO) and/or Change in Scope of Services (CSS)) shall be listed on the Progress Estimate with applicable progress valuation. The Contract Administrator shall attach copies of all COs being progressed during the period.
- Progress Estimates must reflect statutory holdbacks, holdbacks to date and holdback releases.
- The Contract Administrator shall apply Statutory Holdbacks to all Interim Progress Payments in the amount stipulated in the Manitoba Builders Lien Act.

- Once Substantial Performance has been achieved, the Contract Administrator shall prepare a Release of Holdback Progress Estimate identifying the payable date as the end of the 40-day lien expiry period. The Contract Administrator shall also retain Lien Holdbacks on Progress Estimates submitted during the period between Substantial Performance and Total Performance. The release of these holdbacks shall be triggered on the Date of Total Performance and paid at the expiry of another 40-day Lien Period.

- Lien Holdbacks cannot be utilized to set off the cost of deficiency corrective measures should the Contractor abandon the Work.

A requirement to report the value of Manitoba Retail Sales Tax (MRST) included in the Progress Estimate, may apply for manufactured goods within the Province of Manitoba.

The Contract Administrator shall ensure the Contractor identifies applicable MRST on the Progress Estimate. In the case where the Contractor is an Equipment Supplier that is not registered as a Manitoba Vendor, the Contract Administrator shall self-assess the MRST value and indicate same on the Interim Progress Estimate.

More information on MRST is available here: citynet/finance/tax_info.stm.

9.20 Substantial Performance

The Contract Administrator is responsible for retaining and releasing Builders' Liens Act holdbacks, and for issuing a "Certificate of Substantial Performance" on Contracts and, where requested on subcontractors. The Act provides for a holdback on contracts of 7.5% of the dollar value of the Work. This money and earned interest is held in trust by the Owner. In effect, this holdback serves to formalize the process of dealing with the Builders' Lien Act. The holdback also protects the Owner, ensuring that subcontractors and workers are being paid, avoiding a registered lien.

"Substantial Performance" is defined under the Builders' Liens Act, and accordingly must be used in administering a contract.

9.20.1 Builders' Liens Act

The Builders' Lien Act is complex and it is risky summarizing it. The Act is intended to protect the interests of Contractors, subcontractors, workers and suppliers, so that each is paid for their work on a Contract. It lays out the responsibilities of Owners and Contractors and the procedures for making a claim (lien) for payment of money owed.

The definition of "Substantial Performance" and the requirements for Holdbacks should be obtained from the most recent version of the Builders' Lien Act. The clause that has historically been in place is as follows:

Substantial Performance:

2(1)   For the purposes of this Act, a contract or subcontract shall be conclusively deemed to be substantially performed when:

a) the structure to be constructed under the contract or subcontract of a substantial part thereof is ready for use or is being used for the purpose intended or, where the contract or subcontract relates solely to improving land, the improved land or a substantial part thereof is ready for use or is being used for the purpose intended; and

b) the work to be done under the contract or subcontract is capable of completion or correction at a cost of not more than

      i.   3% of the first $250,000.00 of the contract price;

      ii.   2% of the next $250,000.00 of the contract price; and

      iii. 1% of the balance of the contract price.

The Act also lays out the deadlines for registering liens, after which, the City need not be concerned about a lien. Under the Builders' Lien Act, holdbacks must be retained for 40 days after Substantial Performance (or Total Performance for work after Substantial Performance). This corresponds to the period within which a lien must be registered.

In the event a lien occurs, the City's obligation is to put the holdback account into court, asking that the liens be vacated.

If a lien occurs on a contract that you are working, in all likelihood you will hear about it from the Legal Services Department. The Legal Services Department will instruct that no further progress payments be made until a resolution is made.

If you receive a question from any person working on the job about the Builders' Lien Act or if anyone on the Contract complains that they are not being paid for their work, don't give any advice. Suggest that they contact the Legal Services Department or their own legal counsel.

As a consequence of previously discussed clauses with respect to Builders' Lien or Risk, Liquidated Damages, it is obvious that the Contract Administrator should issue the Certificate if and only if Substantial Performance is achieved. In other words, the Contract Administrator should take the Certificate very seriously.

9.20.2 "Substantial Performance" on a Subcontract

The Builders' Lien Act contains sections whereby holdbacks can be released and paid on subcontracts that are complete. This occurs when a subcontractor requests a Certificate of Substantial Performance for a subcontract, in advance of Substantial Performance of the Work. The example often used is completion of a foundation subcontract. The Builders' Liens Act allows for this. Accordingly, more than one Certificate of Substantial Performance may be necessary on a Contract.

The Contract may make many references to Substantial Performance as trigger dates. The Contract Administrator should refer to the specific Contract to confirm how the Contract has been written:

- The City takes over risk at the point the Contract is put to use. This makes sense, since the City is using the Contract. So for example, if a fire damages a building after Substantial Performance and before Total Performance, the City is at risk.
- The Contractor is normally expected to remove any products, tools, construction machinery and equipment not required for the performance of the remaining Work.
- Substantial Performance can be the trigger date with respect to liquidated damages.
- Commencement of the Warranty may commence (as an alternative to Total Performance).

9.20.3 Determining Substantial Performance

The Contract Administrator shall determine if and when Substantial Performance is achieved and shall certify the date thereof.

When the Contractor is of the opinion the Work of their Contract has been substantially performed, they shall notify the Contract Administrator requesting arrangement of an inspection of the Work. The Contract Administrator shall arrange an inspection with the applicable engineering discipline inspectors, City representative and the Contractor. The Contract Administrator shall review the outcome of the inspection in context with the Builders' Liens Act and certify whether Substantial Performance of the Contract has been achieved.

In cases where correction of deficiencies is restricted by climatic or seasonal conditions, AND the asset is fit for its intended use, the Contract Administrator can issue Substantial Performance of the Work. In these instances, the start of the Warranty Period on the completed works only will begin 30 days following the Date of Substantial Performance. Documentation to this effect must be saved in the Contract file.

9.20.4 Certificate of Substantial Performance

Certificate of
Substantial
Performance
template

Download from the
City's Infrastructure
Planning Office
website

When the Contract Administrator determines the conditions of Substantial Performance have been achieved, a Certificate of Substantial Performance must be completed and signed by the Contract Administrator.

The Contract Administrator shall forward a copy of the completed signed Certificate of Substantial Performance to the Contractor to prominently display at the Contract work site as notice to subcontractors and suppliers of the Contract completion status.

Copies of the signed Certificate of Substantial Completion shall also be forwarded to the City Project Manager, included with the Progress Payment, and included in Contract file.

9.21 Total Performance

Total Performance means that the entire work, except those items arising from the provision of Warranty items, have been performed in accordance with the Contract. Removal of all temporary services for construction including however not limited to site trailers, storage facilities, restoration of laydown areas and debris removal are complete.

There can be no deficiencies or defects in the Works apparent at Total Performance. If you certify Total Performance and there are deficiencies, you will likely not be able to bind the surety in respect of those deficiencies, unless they are identified to the surety and on the Certificate of Total Performance in a manner acceptable to the Legal Services.

The Total Performance Date may initiate the start of the Warranty Period, however may have extended durations as further specified in the Supplemental Conditions or Contract specifications. The Contract Administrator with the City Project Manager and Contractor shall complete a final inspection to certify the Date of Total Performance.

Total Performance is also of importance in the Builders' Lien Act, in that it triggers another 40-day period for holdbacks on work done since Substantial Performance.

Total performance also triggers the end of the period for Contract changes. Since the Work is finished, the City and or Contractor no longer have the right to issue a Change in Work.

9.21.1 Certificate of Total Performance

Certificate of Total
Performance –
Construction

Certificate of Total
Performance - Goods
templates

Download from the
City's Infrastructure
Planning Office
website

When the Contract Administrator determines that Total Performance has been reached on the Contract, a Certificate of Total Performance must be completed and signed by the Contract Administrator.

The Contract Administrator shall prepare either the Certificate of Total Performance – Construction or Certificate of Total Performance – Goods, depending on the contract.

The Contract Administrator shall forward a copy of the completed signed Certificate of Total Performance to the City Project Manager, Contractor and Contract file.

The Certificate of Total Performance should include a statement indicating specifically what warranties begin at Total Performance, or if warranties on some of the Work began earlier.

The Certificate of Total Performance must not be signed if there are deficiencies, since certifying Total Performance releases the surety for all but Warranty Items.

9.22 Warranty

The Warranty Period shall begin on the date specified in the Contract, and extend for the duration specified in the Contract. Extended warranties may remain in effect for specified items, usually specific to a product or manufacturer, and include a separate Warranty Certificate that will be maintained and managed by the City.

Once the Contract has been Totally Performed (or at the date stated in the Supplemental Conditions for commencement of the Warranty Period), the Contract Administrator is responsible for providing inspection services during the Warranty Period.

The Contract Administrator is responsible for making regular visits to the site to inspect for defects in the completed Works.

9.22.1 Warranty Defects

The Contract Administrator shall notify the Contractor in writing of any observed defects or deficiencies which are categorized as warranty items. The Contractor shall remedy all defects or deficiencies identified on the notice to the satisfaction of the Contract Administrator within the time period specified on the notice.

The Contractor is responsible for maintaining the Works during the course of the Warranty Period, as stated in the General Conditions. The Certification of Acceptance shall not however relieve the Contractor from their responsibilities for any breach of Contract including but not limited to, defective or deficient work appearing after the date of Acceptance.

In the event that defects become apparent, the Contract Administrator is to evaluate the defect(s) in terms of:

- define the defect
- determine whether the cause of the defect is obvious, and testing and investigations that may be required to determine/confirm the cause of the defect
- begin a monitoring program to determine the extent of the defect and whether the defect is getting progressively worse
- determine whether there is a correlation between the defect and the data gathered during the course of the Contract (i.e.: test results, weather, etc.)

With the available information at hand, the Contract Administrator is to immediately advise the City Project Manager of the defect(s) and their proposed resolution of the defect(s). Upon receiving concurrence of any proposed action by the Contract Administrator, the Contract Administrator shall forward to the Contractor appropriate Notice from the City to correct the defect(s).

At this point, the Contractor is fully responsible for correcting the defect(s). In the event that the Contractor cannot or does not meet their obligation to correct the defect(s), the City may take appropriate action to correct the defect(s).

Note: Prior to the City proceeding to undertake the remedy with its own forces or by another Contractor(s), the City's first step is to advise the Contractor's surety of the failure of the Contractor to remedy the defect and allow the surety the choice of assuming the obligation to undertake the Work to remedy the defect. Only the Director, not their designate, can send Notice directly to the surety.

The intent is that the Contractor is responsible for correcting all defects evident during the Warranty Period, and is obliged to correct same upon receiving notice from the City. In the event that the Contractor disputes that they are responsible for the defect, they are responsible for providing proof to support their claim.

In the event that there are unresolved defects as the end of the Warranty Period approaches, the surety must receive Notice from the Director, as noted previously, of the defects prior to the end of the Warranty Period, in order to preserve the City's right to claim against the surety in the event of default by the Contractor.

9.23 Acceptance

Prior to expiry of the Warranty Period, the Contract Administrator shall arrange an acceptance inspection with the Contractor and City representatives to identify any outstanding warranty issues.

The Contract only terminates at the end of the Warranty Period, or upon successful resolution of any Warranty Defect disputes, whichever is the latter. As of the date of the Certificate of Acceptance, the Contract shall be considered to be closed, with the exception of any manufacturers or special warranties that extend beyond the Warranty Period of the Contract.

In no case shall the Performance Security be released, or allowed to lapse, prior to successful resolution of all disputes and/or correction of all defects.

9.23.1 Certificate of Acceptance

Certificate of
Acceptance –
Construction

Certificate of
Acceptance - Goods
templates

Download from the
City's Infrastructure
Planning Office
website

If the work has been completed in compliance with all requirements of the Contract, the Contract

Administrator shall certify acceptance of the Work, in accordance with the General Conditions.

The Contract Administrator shall prepare either a Certificate of Acceptance – Construction or Certificate of Acceptance – Goods, depending on the Contract.

The Certificate of Acceptance is signed by the Contract Administrator and City Manager or Director, or his/her designate.

The Contract Administrator shall forward a copy of the completed signed Certificate of Acceptance to the City Project Manager, Contractor and Contract file.

Design-Bid-Build (DBB)
Process Charts

Appendix A: Design-Bid-Build (DBB) Project Delivery Process Charts

APPENDIX A: DESIGN-BID-BUILD PROJECT DELIVERY PROCESS CHARTS

Initiation Phase – Design-Bid-Build (DBB)

Major Capital Project Advisory Committee

Major Capital Project Advisory Committee Established
(Major Capital Project Delivery Process:
Part 3 Implementation
Detailed Design, Construction)

Project Advisory Committee

Project Advisory Committee Established

Presented Project Delivery Plan (PDP)

Manager, Major Capital Projects Oversight

Meets P3 Criteria, proceed as P3 Candidate
PMM 5.6

If P3 Project, Presented Project Delivery Plan (PDP)

Project Sponsor

Start

Approved Business Case w/ Basis of Estimate

Assign Project Manager

Sign-Off Project Charter?

Establish Major Capital Project Advisory Committee **PMM 4.3**

Presents Recommendation

Private, Public Partnership (P3) Candidate? **PMM 5.6**

Project Delivery Plan Approved?

Project Manager

Receives Project Assignment and Business Case w/ Basis of Estimate

Identify Stakeholders **PMM 4.2** *Stakeholder Assessment and Communication Plan template*

Develop Project Charter **PMM 4.5** *Project Charter template*

Project Meets MCP $ Threshold?

Establish Project Advisory Committee **PMM 4.3**

Presents Recommendation

Assess Alternative Project Delivery (APD) Options **PMM 5.6**

Develops Project Delivery Plan (PDP) **PMM 5.1** *Project Delivery Plan template*

Update Business Case, (if required)

Close Initiation: Phase Gate Approval

P2

***To be revised post PMM V4.0 ***

Last updated Feb 2, 2015 PMM V3.0

APPENDIX A: DESIGN-BID-BUILD PROJECT DELIVERY PROCESS CHARTS

APPENDIX A: DESIGN-BID-BUILD PROJECT DELIVERY PROCESS CHARTS

Planning Phase – Design Bid Build (DBB)

Manager, Asset Management Office

Report Performance **PMM 7.5** *templates*

Major Capital Project Advisory Committee and/or Project Advisory Committee

Report Performance **PMM 7.5** *templates*

Project Sponsor

Report Performance **PMM 7.5** *templates*

Project Manager

P1 → Design Bid Build (DBB) Project Delivery Method → Acquire Project Team, if required **PMM 6.1** → Prepare Consultant Request For Proposal (RFP) **PMM 6.4** → Conduct RFP Solicitation **PMM 6.4** → Evaluate Proposals **PMM 6.4** → Award Contract **PMM 6.4** → Contract Administration **PMM 9** → Report Performance **PMM 7.5** → Review and Circulate DRAFT Preliminary Design Report for Approval → DRAFT Preliminary Design Report Approved? —Yes→ Revise Project Delivery Plan (PDP) and/or Business Case (BC) → Close Planning Process: Phase Gate Approval → P3

Consultant

Monitor & Control → Report Performance **PMM 7.5**

Develop Project Delivery Plan **PMM 5.1** *Project Delivery Plan template* → Perform Preliminary Design Work → Quality Control (QC) Reviews **PMM 5.5** → Final Milestone Review? —No / —Yes→ DRAFT Preliminary Design Report

***To be revised post PMM V4.0 ***
Last updated Feb 2, 2015 PMM V3.0

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APPENDIX A: DESIGN-BID-BUILD PROJECT DELIVERY PROCESS CHARTS

APPENDIX A: DESIGN-BID-BUILD PROJECT DELIVERY PROCESS CHARTS

Delivery Phase – Design Bid Build

If Major Capital Project Delivery Method Part 3: Detailed Design

Process flowchart with the following swimlanes:

Major Capital Project Advisory Committee and/or Project Advisory Committee
- Monthly Reviews or Milestone Events

Project Sponsor
- Monthly Reviews or Milestone Events

Project Manager (City)
- Select New Consultant? → No / Yes
- P2
- Prepare Consultant RFP — PMM 6.4
- Conduct RFP Solicitation — PMM 6.4
- Evaluate Proposals — PMM 6.4
- Award Contract — PMM 6.4
- Contract Administration — PMM 9
- Integrated Change Control — PMM 7.2
- Report Performance — PMM 7.5
- Reviews → Approve Detailed Design?
- Reviews → Approve Procurement Package? → Yes / No
- Track Business Case Benefits → Yes
- Revise Project Delivery Plan (PDP) and/or Business Case
- Close Design Phase: Phase Gate Approval
- P4

Contract Administrator (Consultant)
- Project Initiation
- Project Team
- Develop Project Delivery Plan — PMM 5.1 — Project Delivery Plan template
- Monitor & Control — PMM 7
- Report Performance — PMM 7.5 — templates
- Perform Detailed Design Work → Final Milestone Review? → No / Yes
- Quality Control (QC) Reviews — PMM 5.5
- Detailed Design Report
- Prepare Procurement Package

Contractor(s)

***To be revised post PMM V4.0 ***

Last updated Feb 2, 2015 PMM V3.0

APPENDIX A: DESIGN-BID-BUILD PROJECT DELIVERY PROCESS CHARTS

APPENDIX A: DESIGN-BID-BUILD PROJECT DELIVERY PROCESS CHARTS

Delivery Phase – Design Bid Build

Major Capital Project Advisory Committee and/or Project Advisory Committee

- Monthly Reviews or Milestone Events

Project Sponsor

- Monthly Reviews or Milestone Events

Project Manager (City)

- Award Contract **PMM 6.4**
- Project Management
- Integrated Change Control **PMM 7.2**
- Report Performance **PMM 7.5**
- Track Business Case Benefits
- Revise Project Delivery Plan (PDP) and/or Business Case

Contract Administrator (Consultant)

- P3
- Conduct Vendor Solicitation **PMM 6.4**
- Evaluate Proposals **PMM 6.4**
- Recommend Award
- Initiate Contract
- Contract Administration **PMM 9**
- Shop Drawing Approval Process
- Manage Vendor Payment Process
- Report Performance **PMM 7.5**
- Turn-Over Package:
  - Operating Manual
  - Standard Operating Procedure (SOP)
  - Emergency Standard Operating Procedure (ESOP)
  - Piping & Instrumentation Drawings (P&ID)
  - Record Drawings
  - Training material
- Proceed to Performance Testing?
- Close Transfer Phase: Phase Gate Approval
- P5

Contractor(s)

- Health, Safety, Security, and Environment (HSSE) Plan, Safe Work Plan (SWP) **PMM 5.11**
- Quality Plan **PMM 5.5**
- Commissioning Plan (start) **PMM 5.12**
- Perform Work
- Quality Control (QC) Inspections **PMM 5.5**
- Milestone Review?
- Manage Deficiency List
- Contract Deliverables:
  - Red-Line Drawings
  - Loops Drawings
  - Training material
  - Operations and Maintenance Manual (O&M)
- Asset Data
- Populate Asset Data to Registers

***To be revised post PMM V4.0 ***

Last updated Feb 2, 2015 PMM V3.0

APPENDIX A: DESIGN-BID-BUILD PROJECT DELIVERY PROCESS CHARTS

Transfer / Commissioning Phase – Design Bid Build

	Equipment Demonstration	Process Performance	System Demonstration	Total Performance

Project Manager

Contract Administrator (Consultant)

P4

Approve Daily Commissioning Activities → Certificate of Satisfactory Training

Substantial Performance? —Yes→ Form 104 Satisfactory Process Performance

Form 105 Commissioning Completion Certificate

Total Performance → Close Commissioning Phase: Phase Gate Approval

P6

Design Consultant

Technical Training Required? —Yes

Occupancy Permit? —Yes

Operations

Start Test? —Yes

Support

Commissioning Team

No — Yes

Start Test → Process Performance Tests → Satisfactory Process Performance? —No

System Demonstration Test → Transfer to Business Owner? —No

Contractor(s)

No — No

Equipment Ready to Perform?

Operations & Maintenance Manuals → Operations & Maintenance Training

Equipment Readiness:
Form 101 Readiness to Install
Form 102 Satisfactory Installation
Form 103 1 Hour Demonstration Test

Deficiencies

***To be revised post PMM V4.0 ***

Last updated Feb 2, 2015 PMM V3.0

APPENDIX A: DESIGN-BID-BUILD PROJECT DELIVERY PROCESS CHARTS

Close-Out Phase – Design Bid Build

Close-Out

***To be revised post PMM V4.0 ***

Last updated Feb 2, 2015 PMM V3.0

B

Project Management Templates

Appendix B: Project Management Templates

The Project Management Manual makes reference to a number of templates as outputs or deliverables from the processes. Current and future Project Management templates are listed in this section under the Project Management phase where they are typically used, and where it is referenced in the Project Management Manual.

The templates are located on the City of Winnipeg website.

Project Management Phase	Template Name	Acronym	Section
Initiation	Stakeholder Assessment and Communication Plan		4.4
	Project Charter	PC	4.5
Planning	Project Delivery Plan	PDP	5.1
	Project Management Checklist		5.1
	Insurance Requirements Checklist		6.4.6
	Pre-Award Meeting Minutes		9.2.2
	Pre-Construction Agenda and Meeting Minutes		9.2.3
	Basis of Estimate	BoE	5.4.3
	Risk Event Identification Checklist		5.9
	Risk Analysis and Evaluation Register		5.9
	Project Environmental Impact Checklist		5.11.5
Executing	*Team Charter*		*6.2*
	Request for Proposal	RFP	6.4
	Bid Opportunity	BID OP	6.4
	Summary of Bids		6.4
	Award Reports		6.4
	Letters to Bidders		*6.4*
	Progress Estimate (mixed tax, HB)		*9.19*
	Project Status Report		5.8.5
	Decision Log		5.8.5
	Site Meeting Minutes		9.2.4
	Meeting Minutes		9.2.1
	Inspection Report		9.7.2
	Daily Construction Report	DCR	9.8.1
	Criminal Record Search Certificate		*9.4.8.3*
	Major Capital Projects Quarterly Project Status Report		5.8.6

* Denotes future templates.

APPENDIX B: PROJECT MANAGEMENT TEMPLATES

Project Management Phase	Template Name	Acronym	Section
Monitor & Controlling	Proposed Change Notice – Construction	PCN	7.2
	Proposed Change Notice - Consultant	PCN	7.2
	Proposed Change Notice Log		7.2
	Request for Information	RFI	7.2
	Request for Information and Response Log		7.2
	Change Control Log		7.2
	Change in Scope of Service	CSS	7.2
	Change Work Order	CWO	7.2
	Field Instruction	FI	7.2
	Field Instruction Log		7.2
	Consultant Progress Report		7.2
	Training Session Log		*9.15*
	Certificate of Satisfactory Classroom Training		*9.15*
	Certificate of Satisfactory Field Training		*9.15*
	Certificate of Equipment Delivery		*9.6.3*
	Certificate of Readiness to Install		*9.6.4*
	Certificate of Satisfactory Installation		*9.6.4*
	Certificate of Equipment Satisfactory Process Performance		*9.6.5*
	Inspection and Test Plan	*ITP*	*9.7.1*
	Non-Conformance Report	*NCR*	*9.7.2*
	Non-Conformance Report Log		*9.7.2*
	Contract Over Expenditure under $100,000		*7.3*

Project Management Phase	Template Name	Acronym	Section
Close-out	Certificate of Substantial Performance	SP	9.20
	Certificate of Total Performance – Construction	TPc	9.21
	Certificate of Total Performance – Goods	TPg	9.21
	Certificate of Acceptance – Construction		9.23
	Certificate of Acceptance – Goods		9.23
	Project Close-out Report		8.2
	Standard Performance Review for Consultants		8.4
	Lessons Learned		8.6

* Denotes future templates.

Alternative Project Delivery Methodology Analysis

Appendix C: Alternative Project Delivery Methodology Analysis

TECHNICAL MEMORANDUM

CH2MHILL

Alternative Project Delivery: Procurement and Delivery Methodologies Analysis

PREPARED FOR: City of Winnipeg rev1

PREPARED BY: Leofwin Clark/CH2M HILL

DATE: 24 February 2012

Contents

Implementing an effective project procurement and project delivery system for a complex infrastructure project requires an understanding of a wide spectrum of proven contracting methodologies and accompanying insight to how varying methodologies can align with specific project needs and risk allocations. This Technical Memorandum provides an overview of these procurement and delivery methods and summarizes the strengths, weaknesses, and risk allocation methodology typical of each model. Next, the City of Winnipeg's specific procurement and project objectives are outlined in the context of these procurement options. Finally, a methodology for defining a preferred procurement approach, including several specific contracting mechanisms, is proposed.

The Spectrum of Alternative Project Delivery Methodologies

Procurement methods can take numerous forms, ranging from standard design-bid-build techniques through construction management-at-risk to full at-risk alternative delivery, including many variants of design-build and beyond. This "spectrum" of methodologies is illustrated in Exhibit 1.

Exhibit 1: Project Delivery Spectrum
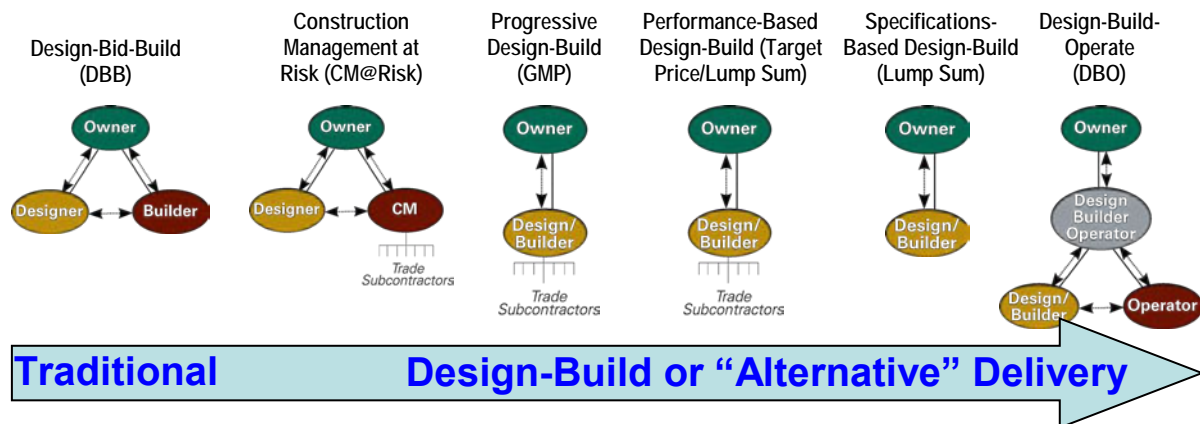
Moving from left to right on the spectrum, project delivery methods generally evolve from the traditional design-bid-build approach implemented by most public entities until the emergence of a variety of alternative delivery methodologies over the last 15 years. Note that the lines in Exhibit 1 take two forms: direct connections indicate firm *contractual* relationships between the giving entities and arrows represent *collaborative* relationships necessary to make the given model a success. While recognizing that, in practice, there is an almost infinite variation on the specific methodologies and relationships represented by this spectrum, the commonly recognized procurement and delivery models include:

Design-Bid-Build, where an owner contracts separately for engineering and design services that are completed prior to issuing a separate request for bid from contractors. The construction scope is handled by a separate contract directly with the owner and the relationship between engineer and builder is ideally collaborative in the resolution of Requests for Information (RFIs) and verification of compliance with the design.

Construction Management At-Risk, where an intentional overlap is created between the engineer and the contractor, allowing the contractor to bring construction insight to bear as early as practical in the design process. Sometimes referred to as "design-build-light" this methodology maintains two separate contracts, but encourages collaboration during design to reduce risk once the contractor proceeds to construction in the field.

While in conformance to most traditional procurement processes (the engineer is selected using traditional professional services criteria), this method introduces the concept of contractor selection without a hard bid of the construction cost. Instead, contractors are generally selected based on their qualifications in combination with their proposed scope of services and fee for service prior to construction as well as their fee and overhead costs for construction services. The ultimate construction cost is developed during the design period, typically in an open-book

APPENDIX C: ALTERNATIVE PROJECT DELIVERY METHODOLOGY ANALYSIS

fashion, and ultimately agreed upon as a "guaranteed maximum price" (GMP) prior to authorizing the start of construction.

Where agreement on a GMP cannot be reached or construction pricing competitiveness cannot be verified, owners often maintain the option to convert the construction scope to a hard bid request. In many instances, owners convert GMPs to lump sum pricing.

While promoting collaboration early in the design process, the formal contract vehicles with separate agreements between the Owner and Engineer and the Owner and Contractors are essentially unchanged compared to traditional design-bid-build delivery. During construction delivery, traditional practices for managing contractor change orders, RFIs from the designer, and verification of construction performance remain unchanged.

Design-Build, where the entire project is contracted with a single entity (or a consortium of entities acting together as one entity) with a single-point of responsibility to the owner. In practice, design-build can be procured using a number of different methods, often tailored to meet local procurement regulations and practice as well as to align with project complexity and the level of design completion anticipated to be undertaken prior to the procurement.

The various forms of design-build procurements differ largely in the type of pricing requested of proposers and in the degree of problem definition developed for the project in advance of a procurement and subsequently provided to the design-builder in the request for qualifications (RFQ)/request for proposals (RFP). The industry recognizes three basic design-build models as follows:

> *Progressive design-build.* In a progressive design-build procurement, a design-builder is selected based primarily on qualifications and, where local practice requires it, limited pricing information generally similar to the construction management at-risk model with an added component of cost for design services (either in a lump-sum for or on a not-to-exceed basis). As the design-builder develops the design, a construction cost estimate is progressively developed, often in conjunction with the 30- and 60 percent levels of design detail. Once the design is well advanced (beyond 60 percent and often up to 90 percent), a GMP is defined for approval by the owner. (As with Construction Management At-Risk, some owners convert GMPs to lump sum pricing.) If the design-builder and the owner cannot reach agreement on an acceptable GMP or lump sum, the owner can use the completed design as the basis for a hard construction bid procurement.

> Progressive procurements are often preferred when a project lacks definition or when an owner prefers to remain involved in the design process while leveraging the schedule, collaboration, and contractual advantages provided by design-build. This model is also valuable when regulatory permitting requires well-developed design solutions, or when an owner believes that they can lower cost by participating in design decisions and in managing risk progressively through the project definition phase.

> Owners do not generally use the progressive procurement method when a project's definition is well advanced prior to the procurement or when a lump sum construction price is preferred (or required) to select a design-builder.

> *Performance-based design-build.* In a performance-based design-build procurement, the RFQ/RFP generally includes a conceptual design as a minimum and a 15 percent design as a maximum. Requirements are stated as measurable performance <u>objectives</u>

of the completed project rather than the specific approaches or processes the design-builder should follow to achieve those objectives.

A performance-based procurement gives design-builders' the flexibility to propose how they will meet the owner's objectives while requiring proposers to provide a lump sum price for completion of the project. Alternatively, owners may ask for a "target price" for construction that establishes a not-to-exceed construction price basis, while allowing the owner to collaborate on and adjust scope during detailed design definition. In this case, the "target" lump sum can be adjusted after award, but only as directed via owner-approved scope changes. Except for these explicitly approved owner changes, the design-builder must conform to their originally proposed price.

Performance-based procurements are often preferred when an owner has a clear vision for how a facility must perform, with limited resources, time, interest in the specific method for gaining required performance. This model is used to prompt industry's most innovative and cost-effective solutions through what is essentially a design competition, typically in combination with a need to accelerate schedule.

Prescriptive design-build. In a prescriptive design-build procurement, the RFQ/RFP typically includes at least a 30 percent design completed by an owner's consultant prior to the procurement, often referred to "bridging documents." Requirements are stated in terms of specific approaches or processes the design-builder must follow.

Prescriptive procurements are often preferred when owners are very clear on their preferences and want to use design-build to accelerate the schedule while allowing selection of a design-builder based on a combination of qualifications and a lump sum price. While a design-builder may offer a variation or alternative concept to the bridging documents, procurement procedures are often established to require owner review and approval of these exceptions or "alternative technical concepts" in advance of the proposal submittal. With this method, the lump sum price in the design-builder's proposal is only adjusted for specific owner-initiated scope changes, generally due to unforeseen conditions or a change in law or regulatory practice.

Design-Build-Operate (DBO) and Design-Build-Maintain (DBM), anchors the end of the alternative project delivery spectrum, providing owners with a whole-life solution for project implementation. Typically, DBO/M procurements are developed from the basis of a performance-based design-build model with the added component of requiring the proposer to operate the facility for an extended period of time (typically no less than 5 years and often as long as 15 or 20 years). The operations component ensures that the performance commitments of the design-build proposal are indeed met as the design-build must deliver on them during its tenure – or alter or repair the facility accordingly. Depending on the type of infrastructure, long-term operations can focus on maintenance and repair or replacement of critical components (typical for transportation projects) or on day-to-day operations with permanent staff (as is typical of water/wastewater projects). In either case, DBO/M entities are typically formed by a consortium of designers, builders, and operators, often led by operators as the majority value of DBO/M contracts can often be in the operations scope versus the capital construction.

DBO/M procurement models allow proposers to evaluate true lifecycle costs of a project while requiring them to operate facilities for an extended period of time, transferring risk to the DBO/M entity. Owners typically select this alternative when whole-life (lifecycle) is of greatest

concern, often when they do not currently have a fixed operations staff in place for the given facility. Also, owners prefer DBO contracts when selecting new or unproven technology that requires long-term, hands-on demonstration of performance.

The DBO methodology is less preferred when an owner already maintains an operations staff in place, particularly if their operators work under public union contracts that are administratively or politically difficult to transfer to the private sector.

DBO/M Finance (DBOF or DBMF), models that include financing are most common in context of public-private-partnerships (P3) in Canada. For example, the Canada P3 Infrastructure fund requires a long-term operations component or a finance component to be considered as a qualified P3 infrastructure project (and, in practice, both operations and financing are preferred. In Manitoba, P3 projects general contain both a financing and operations component. For the purposes of this analysis, P3 considerations are generally considered separately from alternative delivery methodology analyses. Conclusions as to applicability of an alternative delivery method are applicable to a project no matter where its ultimate funding is obtained.

As noted, there are numerous variations on all of these primary delivery types. For example, projects with extremely specialized technical needs or with unusual risk profiles, such as tunnelling, often require a hybrid procurement and delivery approach that blends many of the concepts defined here. Given a defined set of common traditional and alternative delivery models, the next step is to define specific project goals and, if necessary, identify specialized project drivers that require the development of a tailored procurement approach.

Goals for Successful Alternative Project Delivery Procurements

Evaluating the benefits of a given procurement and project delivery models rests on the City of Winnipeg's overarching goals and mission. For this analysis, we identified several goals that are essential to defining a successful procurement and follow-on project:

Transparent. All procurement processes, methodologies, and selection criteria must be fair, objective, and transparent to the professional services and construction community. No work should be awarded outside of a well advertised and fairly administered competitive process.

Cost effective. Any procurement methodology should ensure that the City of Winnipeg is receiving best value for the services and construction they are purchasing. To the extent possible, services should be priced and price should be evaluated as part of the selection methodology. Generally, this goal supports target, GMP, or lump sum pricing when possible, although fee-based pricing may be acceptable if the contracting methodology provides an "off-ramp" for hard-bidding construction work to ensure cost competitiveness.

Objective-Focused. Procurement selection strategies should be based on clearly defined evaluation criteria that mirror project challenges and opportunities for project success. In turn, the evaluation criteria will support overall project success.

Efficient. The cost to the City of Winnipeg for implementing the procurement process should be minimized in favor of using funding to maximize delivery of actual project scope.

Similarly, the bidding community's resources should be respected by minimizing to the extent practical the cost to propose on work.

Timely. Duration of procurement processes should be minimized, allowing for sufficient response time from bidders in conjunction with a reasonable amount of time to evaluate proposals without other undue delays. Valuable time should be conserved and made available for execution of project scope.

Inclusive. The overall procurement process should ensure that local subconsultants and subcontractors have equal access to project scope for which they are qualified. Projects should be packaged to ensure wide participation, especially for alternative delivery models which might otherwise preclude local firms from at-risk work.

Compatible. Procurement methodologies must remain consistent with existing Winnipeg statute and procurement policy unless specific changes are approved to accommodate identified benefits of alternative delivery. Required modifications to procurement process and practice should be clearly identified as part of the alternative delivery analysis. Similarly, alternative project delivery options specific to wastewater should be aligned with the City's Strategic Partner concept and accommodation for the Strategic Partner's participation in the determination and implementation of procurement methodology must be accommodated.

Tailored Approach to Alternative Project Delivery

Recognizing that each project has specific needs, each of the goals identified above should be addressed by the City's menu of potential procurement methodologies. Alternative delivery is not applicable or beneficial to all infrastructure projects. However, alternative delivery's potential benefits should be considered on the merits at the outset of most projects with a focus on:

> **Single-Point Responsibility.** The benefits of contracting with a single entity for both design and construction are well understood. The most important is avoidance of finger-pointing. If problems arise, the designer cannot blame the builder for not adhering to the design, and the builder cannot blame the designer for a faulty design. With the designer and builder working together from the outset, constructability problems are less likely to arise, and if they do arise, the owner can hold the design-builder responsible for dealing with the problems. In contrast, the arms-length relationship between the designer and the builder in a design-bid-build procurement effectively puts ultimate responsibility for the design on the owner.

> **Value-Based Selection.** In public infrastructure procurements, many owners prefer to select based on some form of detailed pricing to protect rate- or taxpayer interests. However for design-build procurements, factors in addition to price can be considered when awarding a contract – factors such as prior experience with similar projects, innovative ideas for meeting project objectives, overall lifecycle costs, and ability and willingness to work as a team with your staff.

> **Time Savings.** Design-build delivery has proven to be particularly effective for water and wastewater projects with strict schedule constraints because construction often begins before the design is completed.

APPENDIX C: ALTERNATIVE PROJECT DELIVERY METHODOLOGY ANALYSIS

Early Understanding of Total Project Costs. Alternative delivery infrastructure projects are typically priced using a GMP or lump sum approach. The quoted price includes design and construction. This price is arrived either at the initiation of the project or at an early stage of the design effort. This avoids the potential problem in design-bid-build projects of a design that is only constructible at a prohibitive cost.

Based on these recognized advantages of each common delivery method as shown in Exhibit 2 (next page), there is a clear value in *considering* alternative project delivery for a given project.

Exhibit 2: Advantages and Disadvantages of Procurement and Alternative Project Delivery Methodologies

Methodology	Advantages to Owner	Disadvantages to Owner
Design-Bid-Build	Well understood and time-tested process and procedures. Ability to select subconsultants by qualifications and cost in the traditional manner. Limited at-risk exposure to local professional firms. Bids to full plans and specifications. Full going-in construction price known at bid time.	Linear process takes time. Little or no designer/contractor collaboration. Limited job size/scope may not attract best potential technologies/best practices. Relies on engineer's estimates until very late in the project. Hard bids subject to design omissions and resulting change orders. Little opportunity to select contractor on qualifications and past performance in addition to price. Separate contracts for design and construction creates multiple points of contact for owner and does not align business interests.
Construction Management At-Risk	Relies on proven, accepted method for selecting professional engineering services based on qualifications/price. Integrates constructibility earlier in the design process. Provides contractor-led estimates earlier and allows scope revision during design to meet project budget. Can reduce overall project risk and contingency. Can reduce design misunderstandings and resulting potential for change orders. Allows qualifications and past performance to be taken into account when selecting a contractor.	Still relies on engineer's estimate for initial cost characterization. Creates a "forced marriage" between designer and contractor that may – or may not – work. Final construction scope still subject to change order potential. Added cost to owner for contractors pre-construction phase services (although may be offset with construction savings due to early collaboration). Requires selection of contractor based on fees without knowing full construction price. Separate contracts for design and construction creates multiple points of contact for owner and does not align business interests.
Progressive Design-Build with GMP	Maximum control over project design, construction, and O&M costs because final contract is not signed until a large portion of the design is complete Single straightforward and inexpensive procurement process can be completed in short timeframe. Increased marketplace interest due to relatively low proposal preparation cost. Allows selection of designer and contractor based on past performance, qualifications, and ability to work as a	Requires selection based on fee, full construction cost is not known at the time of initial contract. Existing project design investment may not be of value or use to design-builder. May not be as fast to deliver as other design-build methods due to potential for extended design/estimate development period, including involvement of numerous stakeholders in the design process. May not be perceived as being "competitive" for construction pricing.

APPENDIX C: ALTERNATIVE PROJECT DELIVERY METHODOLOGY ANALYSIS

Methodology	Advantages to Owner	Disadvantages to Owner
	single-entity team with aligned interests for project success.	Requires significant owner staff involvement and resources during design.
	Provides progressively accurate, contractor's estimates of total project costs from earliest point in project through GMP definition.	May limit local/small subconsultant participation due to at-risk nature of the work.
	Provides maximum opportunity for designer, contractor, and owner collaboration to define scope, meet schedule and budget, and tailor subcontracting plan.	
	Provides an "off-ramp" to hard-bid construction if GMP is not competitive or cannot be agreed upon.	
	No contractor-initiated change orders.	
	Requires little or no design to be completed by owner in advance of procurement.	
	Single contract and point of contact with owner.	
Performance-Based Design-Build with Target Price or Lump Sum	Maximum potential for design-build cost savings through design innovation during competitive procurement.	If lifecycle cost is not analyzed or operations not included in scope, may result in higher O&M costs or undesirable project features.
	Maximum transfer of design-related performance risk to design-builder.	Proposal evaluation and selection is relatively complex.
	Minimal design work by owner required prior to procurement, resulting in relatively low cost to prepare RFP.	Limited ability to predict what will ultimately be proposed.
	Fastest possible procurement and project delivery schedule.	Lump sum pricing may include excess risk and contingency cost due to undefined project scope.
	Perceived as "competitive" construction pricing, providing full contract cost at bid time.	Limited opportunity for owner and design-builder collaboration on design during procurement process.
	Allows selection of designer and contractor based on past performance, qualifications, and ability to work as a single-entity team with aligned interests for project success.	Limited ability for owner to adjust proposed design, scope without resulting in owner-initiated change orders and resulting price adjustments.
	No contractor-initiated change orders.	May limit local/small subconsultant participation due to at-risk nature of the work.
	Single contract and point of contact with owner.	
Prescriptive-Based Design-Build with Lump Sum	Substantial control over project design and O&M costs.	Procurement schedule is prolonged and RFP preparation is costly due to high level of design required to be developed by owner prior to procurement.
	Proposal selection can emphasize project design-build cost.	Design risk not clearly assumed by the design-builder.
	Allows selection of designer and contractor based on past performance, qualifications, and ability to work as a single-entity team with aligned interests for project success.	Very complex and staff intensive evaluation of proposals.
	Perceived as very "competitive" construction pricing, providing full contract cost at bid time.	Does not promote as much innovation, or results in design-builder "alternative" proposals requiring additional evaluation.
	High level of project definition when the	Limited opportunity for owner and design-builder collaboration on design during

Methodology	Advantages to Owner	Disadvantages to Owner
	design-build contract is signed.	procurement process.
	No contractor-initiated change orders.	Limited ability for owner to adjust proposed design, scope without resulting in owner-initiated change orders and resulting price adjustments.
	Single contract and point of contact with owner.	
		May limit local/small subconsultant participation due to at-risk nature of the work.
Design-Build-Operate	Opportunity to include long-term operations and lifecycle cost.	Requires long-term commitment to contract mechanism and future payments.
	Provides for numerous turn-key delivery options.	Can be complex to implement and controversial.
	May provide method for obtaining project financing not otherwise possible.	May encounter public employee union resistance.

To better define these methodologies and the best path forward for the City of Winnipeg, we propose to expand the evaluation of each procurement and project delivery methodology via an interactive workshop.

Workshop Methodology to Refine Preferred Project Procurement and Delivery Approaches

Developing and implementing a procurement and project delivery methodology that meets all of the City of Winnipeg's goals and specific project needs will require continuing dialogue and refinement. Experience has shown that one of the most efficient and useful methods for identifying and documenting owner requirements and input is via a workshop format. Workshops provide an opportunity to communicate concepts, define terminology and common industry practice, and identify issues and potential solutions. They also provide ample opportunity for dialogue, posing questions, and identifying key issues for future resolution. Finally, workshops are very effective at establishing documented action items and a path forward for refining a preferred project delivery evaluation methodology.

To expand on this Technical Memorandum and document City of Winnipeg's initial preferences and preferred path forward, we recommend a 4- to 6-hour workshop facilitated by our project management team and our design-build professionals and attended by key members from the City of Winnipeg.

The workshop content will be based on similar efforts previously conducted by CH2M HILL, but adapted as per this memorandum to meet the expected needs and desires of the City of Winnipeg. The workshop agenda begins with a structured presentation, but provides for full interaction and discussion by all participants. A typical 4- to 6-hour workshop agenda is as follows:

Introductions and Safety Moment ....**15 minutes**
Brief Overview of Relevant Project Issues to Date ....**15 minutes**
Definition of Common Project Procurement and Delivery Method Terminology .....**45 minutes**
Discuss and rank overall program procurement and project delivery goals ....**45 minutes**
      (may use short survey)
Overview of Each Primary Delivery Method ....**45 minutes**
      Procurement sequence and pricing methodology
      Workshop survey: rank pros and cons, identify additional issues for each method

APPENDIX C: ALTERNATIVE PROJECT DELIVERY METHODOLOGY ANALYSIS

Break ....*20 minutes*
Overview of competitive landscape ....30 minutes
       Who is likely to bid?
       Who has the ability to successful deliver?
Alternative Project Delivery Comfort Zones ....30 minutes
       Identify key areas of risk/concern in adopting Alternative Project Delivery
       Survey: Comfort Zones Exercise
Break20 minutes
Impact to Procurement Processes/Procurement Lessons-Learned.........................60 minutes
Procurement Document Development Scope ....20 minutes
Action Items/Path Forward...15 minutes
Workshop Assessment ....10 minutes

The above agenda provides a framework for gaining the City of Winnipeg input to identify a preferred and tailored procurement and project delivery approach. It also provides an opportunity to discuss alternative delivery's impact on existing procurement processes for our subsequent preparation of Selection Guidelines.

A follow-on activity that will be required by the City is development of effective templates to be used for preparation of procurement documents. We will introduce this discussion, based on our lessons-learned from participating in hundreds of these procurements as they have evolved over the last decade, as discussed below.

Alternative Project Delivery Procurement Procedures Development

The follow-on tasks to defining preferred subcontracting and procurement approaches that meet City of Winnipeg goals, conform to established procurement policies and Strategic partnership commitments, and encourage broad competition by qualified firms relate to the development of procurement procedures and documentation. Processes to integrated alternative project delivery Requests for Qualifications, Requests for Proposals, and draft Contracts must be developed.

The first key to efficient procurement process development is to refine the preferred procurement and project delivery methodologies to as few options as possible to reduce the overall number of document formats that must be produced. For example, it will be much more efficient to create a master template for construction management at-risk (perhaps for conveyance tunnel projects) in conjunction with a single tailored hybrid design-build approach than to develop procurement packages for all of the methods discussed here.

We also suggest a modular approach to these procurement packages, developing a standardized set of submittal requirements and evaluation criteria. These would be supplemented on a per-project basis with specific criteria weighting, performance requirements, and design detail. In addition, a package for pre-selection of subconsultants and prequalification of subcontractors would need to be developed.

In developing procurement processes and packages, we recommend applying numerous lessons-learned on design-build projects throughout Canada and North America. These lessons relate specifically to the adjustments in procurement processes required to make design-build successful, including one-on-one meetings with proposers to aid collaboration during the procurement, adjustments to small business program requirements, proposal formats and addressing technical inquiries during the proposal process.

APPENDIX C: ALTERNATIVE PROJECT DELIVERY METHODOLOGY ANALYSIS

Another critical aspect of implementing the procurement methodology is the development of a transparent scoring methodology that drives proposers to solutions that meet the city of Winnipeg's needs at the best lifecycle cost, yet with an understanding of the available capital budgets for individual projects. It is essential that the selected scoring methodology be tested to ensure that highly rated qualifications are effectively scored in relation to price, reaching an optimized balance that does not force a high-price selection while avoiding the necessity to always accept a low price proposal. Numerous examples of scoring methods are available for consideration and these need to be discussed in detail and tested prior to implementation.

As noted above, we will introduce these scoring issues as well as broader procurement impacts as part of the procurement and project delivery methodologies workshop to provide guidance for their subsequent development by the City.

APPENDIX C: ALTERNATIVE PROJECT DELIVERY METHODOLOGY ANALYSIS

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Appendix

D

Organizational Change Management

Appendix D: Organizational Change Management

1 Introduction to Organizational Change Management

Organizational Change Management (OCM) is a discipline which offers a structured approach that is aligned with the Project Management Institute project delivery lifecycle.

Organizational Change Management guides how organizations prepare, equip and support individuals to successfully adopt changes such as new behaviours, skills, expectations, implementation of new tools in order to drive a project's success and outcomes. OCM provides a structured approach for supporting people in the organization. Stakeholders are more likely to buy into changes and commit to changes throughout a project lifecycle with a formal OCM in place.

Organizational Change Management refers to the management of organizational change and should not be confused with Change Control Management.

The City of Winnipeg has certified Change Managers located in every department who form a Change Management Working Group that is sponsored by the CAO. This group is a change management resource pool for projects. Its members are trained to apply tools and methods for change management within the change lifecycle framework.

Project Managers should know who their departmental Change Managers are, and should engage them in all the phases of the project's lifecycle. For a list of departmental Change Managers, refer to the email distribution list in Microsoft Outlook, CITY-ADKAR-Change-Managers, or contact the Manager, Corporate Asset Management Office.

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APPENDIX D: ORGANIZATIONAL CHANGE MANAGEMENT

1.1   Organizational Change Management Framework

The Project Management Institute recognizes that Organizational Change Management is an important feature of Project Management and successful project delivery. Without attention to change management, less than 40% of projects are successful. Therefore, the inclusion of Organizational Change Management activities within the project delivery model is essential for minimizing barriers to organizational change and for ensuring rapid and effective implementation of project outcomes.

Figure 1. Change Management Lifecycle Framework
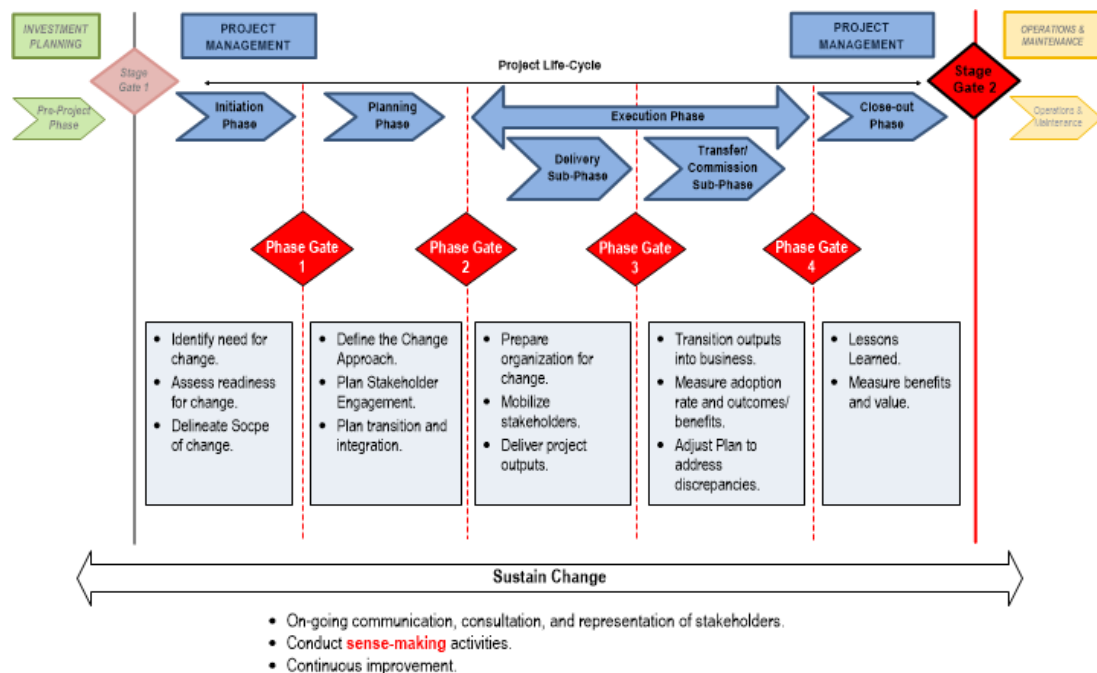
1.2   Purpose

The purpose of Change Management is to:

- promote and enable the adoption of changes that may occur as the result of project delivery, and thereby to support the achievement of project results and outcomes.

- ensure that organizational change is managed in a consistent manner on all projects.

2 Responsibilities

Role	Responsibility
Project Sponsor	Validates that a Change Plan is included in the Project Delivery Plan.
	Checks progress at specific milestone events during the project's lifecycle.
Project Manager	Develops an Organizational Change Management Plan.
	Executes the Organizational Change Management Plan.
Change Manager	Supports the Project Manager in developing the Organizational Change Management Plan in the Project Delivery Plan.
	Leads specific elements as defined.
Care and Control Owner	Receiver of the product or service.
	Provides a champion from within their organization to lead the group that is impacted by the change.
	Has authority to direct resources within the service area being impacted.

3 Organizational Change Management Process

The Organizational Change Management Project Delivery Process Chart in Figure XX shows the Organizational Change Lifecycle framework that should be used for City of Winnipeg Project Delivery. Details for each phase are described in this Procedure. The Organizational Change Lifecycle framework is based on *Managing Change in Organizations: A Practical Guide* (PMI, 2013b), and is therefore consistent with Project Management Institute practices.

3.1 Initiation Phase

This section identifies the Organizational Change Management activities within the Initiation Phase of the project delivery model.

At this point in the project delivery lifecycle, the Project Manager should be aware that Organizational Change Management needs to be included in the Project Charter and in preliminary planning.

Project Sponsors should be informed that the project will feature Organizational Change Management expertise and deliverables throughout the project delivery lifecycle.

3.1.1 Identify the Need for Change

The Project Manager (PM) should work closely with the Change Manager (ChM) to ensure that the Business Case and Project Charter are fully understood.

In order to understand the need for change, assess the organization's readiness for change, and to define the scope of the change, at a minimum, the Change Manager will need to:

- review the Business Case
- review the Project Charter

For example, the Change Manager will provide feedback on the content of the Project Charter to ensure that the Project Charter acknowledges the need to include organization change management effort within the project.

APPENDIX D: ORGANIZATIONAL CHANGE MANAGEMENT

3.1.2   Assess Readiness for Change

The Change Manager will conduct an organization readiness assessment to assess the organization's capacity for change based on:

- change characteristics of the project
- the organization's history of adapting to change
- Project Sponsor evaluation
- identification of change agents and stakeholders, etc.

Depending on the nature of the project, deliverables may include:

- a formal organization readiness assessment
- a gap analysis and risk assessment
- high-level change management and communication strategies
- a sponsorship engagement model
- a change management team model

Deliverables may be used by the Project Team to communicate with Project Sponsor and other stakeholders.

3.1.3   Delineate the Scope of Change

The Change Manager will delineate the scope of change from the review of the Business Case, the Project Charter, and in consultation with the Project Manager.

Factors such the number of employees affected by the project, the impact to processes, the need for process changes, etc., will need to be known in order to develop a comprehensible Organization Change Management Strategy and Plan.

The Project Manager should be prepared to gather relevant data for the Change Manager. The data may be included in the readiness assessment reports/deliverables.

3.2   Planning Phase

This section describes the planning activities and deliverables typically conducted by the Change Manager in the Planning Phase of the project delivery process.

Planning is the strategic part of the project management lifecycle. Its final result is the Project Delivery Plan that sets the framework for the rest of the project lifecycle. Organizational change is a process of transforming an item or process from its current state through a transitional period to a future state.

In the Planning Phase, the subjects of the change are operating within the current state. At this point in the project, it is important that the Project Sponsor ensures that Stakeholder requirements are well defined and addressed, and that Organizational Change Management best practices are embedded in the Project Delivery Plan.

The Project Manager must maintain a close working relationship with the Change Manager in order to understand the Organizational Change Management work that needs to be embedded within the Project Delivery Plan.

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3.1.1 Define the Change Approach

An approach based on the assessments, analysis and high level strategies developed in the Initiation Phase will address the ways in which Stakeholders will be informed, educated and trained about the change.

The change approach will also identify the model and structure for the Organizational Change Management Team. Not all projects and changes are the same, thus the Change Manager will define an approach that is appropriate for the specific project.

Deliverables included in the Project Delivery Plan:

- coaching and training plans
- Project Sponsor roadmaps which identify Project Sponsor engagement requirements throughout the project
- mitigation plans that address barriers to change

3.1.2 Plan Stakeholder Engagement

Stakeholder engagement is needed to provide complete, accurate and consistent information about the project and the change.

The Change Manager will work with the Project Manager and Project Sponsor to develop a Communication Plan that describes what messages regarding the change need to be communicated to stakeholders.

The Communication Plan may be a separate deliverable or the messaging might be included in the Project's Communication Plan.

The Project Manager should consult with the Change Manager throughout the Project Planning Execution Phases to ensure that Organizational Change Management communication issues are addressed during project delivery.

3.1.3 Plan Transition and Integration

It is well-known that change is perceived as difficult.

The purpose of this phase is to help Stakeholders understand that the transition to the future state is temporary and that the future state will address deficiencies that exist in the current state.

The role of the Change Manager is to develop a Transition Management Strategy as part of the Organizational Change Management Plan. The strategy is intended to help Stakeholders understand the need to abandon the current state and that it is important to manage difficulties associated with the transition in order to realize the benefits of the future state.

3.3 Execution Phase - Delivery Sub-phase

This section outlines the Change Manager's role in taking action and implementing the plans that were developed in the Planning Phase.

The primary role will be to work with the Project Team to ensure that Organizational Change Management products and outcomes are delivered in such a way as to support successful project delivery.

During the Delivery Sub-phase, the Organizational Change Management process moves into a transitional state where the changes effected by the project begin to be realized within the organization. Groups and individuals may need to change the way they perform tasks, for example, which may lead to increases in stress levels and anxiety.

Communication to increase awareness about the change, and training and coaching programs to prepare those affected by the change, are important activities in this phase.

3.1.4 Prepare Organization for Change

The Change Manager will ensure that Organizational Change Management Plans are implemented so that employees are aware of the change and that they are aware of what training and coaching will be available to ensure that they have sufficient knowledge and ability to adapt to the future state.

Preparing for change also involves ensuring that the right training and coaching is delivered to the appropriate groups and individuals.

3.1.5 Mobilize Stakeholders

The Change Manager will typically act as a coordinator to mobilize Stakeholders by monitoring and coordinating ongoing communications that create and sustainment awareness and to monitor and coordinate access to training and other programs that are developed to assist the adaptation to the future state.

The Change Manager will be assessing adaptation to change, looking for gaps and points of resistance in order to transform resistance into support for desired project outcomes and benefits.

3.1.6 Deliver Project Outputs

The Change Manager will use Organizational Change Management tools and expertise to assist the Project Manager in delivering project outputs through higher levels of adoption and usage.

3.4 Execution Phase – Transfer/Commission Sub-phase

This section describes the typical activities undertaken by the Change Manager in the Transfer/Commission Sub-phase.

Many of the Organizational Change Management activities that were undertaken in the Delivery Sub-phase will continue in the Transfer/Commission Sub-phase.

Additional activities include:

- collecting and analyzing feedback about the change (for example: go-lives, and cut-overs),
- involve collecting data to evaluate training programs, preparedness,
- analyzing Organizational Change Management effectiveness, etc.

3.1.7 Transition Outputs into Business

During the time that the outputs of the project are transitioned into the future state environment, the Change Manager will diagnose gaps where adaptation is lacking and needs additional change management support.

Deliverables may include:

- gap analysis
- risk mitigation plans
- compliance audits

The Change Manager may also develop action plans for enabling Project Sponsors and coaches to sustain adoption of the change in situations of resistance.

3.1.8 Measure Adoption Rate and Outcomes/Benefits

The Change Manager will need to evaluate the effectiveness of Organizational Change Management to assess the adoption rate to the change. The Change Manager will determine if Organizational Change Management Plans need to be adjusted or augmented to ensure that Stakeholders have the knowledge and ability to adapt to the change.

3.1.9 Adjust Plan to Address Discrepancies

The Change Manager will implement actions necessary to move successfully out of the Transfer Sub-phase and into the 'new' current state (production) by addressing any gaps that are identified.

Deliverables may include corrective action plans for areas where adoption to the change is more difficult to sustain.

3.5 Close-out Phase

This section describes the Organizational Change Management activities during the Project Close-out Phase.

3.1.10 Lessons Learned

The Change Manager will participate with the Project Team in evaluating the effectiveness of Change Management in the project delivery process.

3.1.11 Measure Benefits / Value

The Change Manager will measure the benefits and value of Organizational Change Management to the project.

4 Sustain Change

Sustaining change involves a set of on-going activities that begin at Initiation, continue through Execution and continue into sustainment after the project closes.

Activities may include:

- Ongoing communication, consultation and representation of Stakeholders;
- Conducting sense-making activities – as defined in *Managing Change in Organizations: A Practical Guide (PMI, 2013b)*: "conversational and social practices that enable individuals and groups to make sense of what is happening around them."
- Assessments and actions for continuous improvement.

The Project Manager should consult with the Change Manager for advice on reinforcing change through effective communication, organizational assessment, and strategies for sustaining change after project completion.

5 References

Document #	Document Name	Location

APPENDIX D: ORGANIZATIONAL CHANGE MANAGEMENT

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Record Management

Appendix E: Record Management

Objective

To provide consistent governance, procedures, and processes to manage the records produced on a project. This Appendix outlines the Record Management System to be followed on all projects.

Roles, Responsibility and Authority

Role	Responsibility	Authority
Project Sponsor	Provide record management quality assurance and control on the project.	
Project Manager	To ensure the Project Team follows the Record Management System process.	
Contract Administrator	To follow the Record Management System process.	
Care & Control Owner (Receiver of the product or service)	To follow the Record Management System process.	

Record Management Contents

APPENDIX E: RECORD MANAGEMENT

Introduction to Record Management

This Appendix supplements and builds on Section 5.7.5 Plan Record Management of the Project Management Manual.

The Record Management System is based on the five major stages in a record's life-cycle:

1. **Creation**

   Information is generated or received and gathered into a record.

2. **Distribution and Use**

   The record, along with other information, is distributed among the Project Team on the Project based on the PMM and specific requirements identified in the Project Development Plan (PDP).

3. **Storage and Maintenance**

   The records are filed using a logical and defined scheme into a managed repository, available for retrieval by authorized Project Team members. The Records Management System must maintain the integrity of the records, facilitate backup, and help users file and retrieve information.

4. **Retention and Destruction**

   Depending on the nature of the record, it is destroyed or retained for a defined period of time.

5. **Archival Preservation**

   Records that have a sustaining utility exceeding storage costs are preserved permanently in an archive.
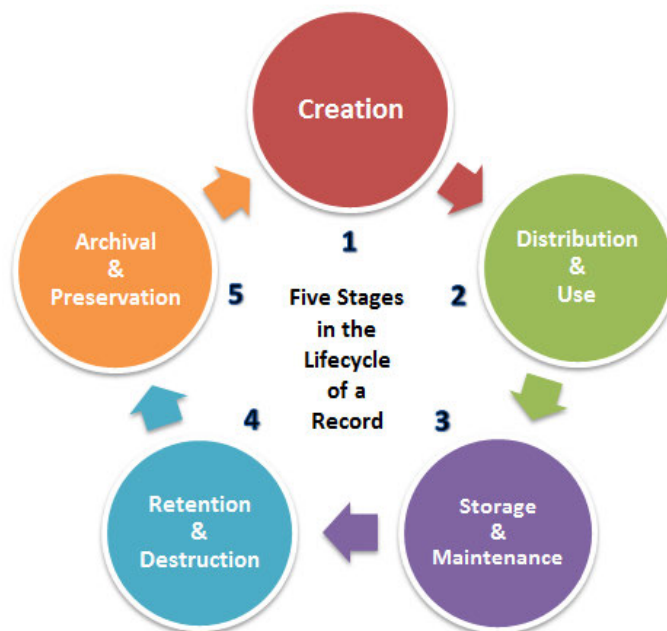
APPENDIX E: RECORD MANAGEMENT

Creation

Document Creation and Approval

- Create document and ensure that it is paginated.

  (for example, footer format: Page 1 of 4).

- Documents must contain the date of issue.

  Documents to be used for ongoing reference (e.g., Standard Operating Procedures, Manuals, etc.) and administrative procedures shall also contain a date of when the document is to be reviewed.

- All documents must contain a "Revision Control" section to record all changes made to documents.

- Attach metadata tags according to the Metadata Requirements procedure (future).

- Store the document according to the Record Management System library structure.
  See *Library Structure* section in this Procedure.

- All documents must be legible, identifiable and made accessible to defined Project Team members and Stakeholders.

- Electronic document creators are responsible for incorporating new or revised documents, and keeping their documents updated and accessible.

- It is the responsibility of the document creator to remove any obsolete or uncontrolled documents from points of use.

Documents of External Origin

It is the responsibility of the Project Manager or Contract Administrator on Contracts to identify and maintain documents of external origin.

Documents to be used for ongoing reference (Project Deliverables) must be submitted to and approved by the Care & Use owner or their designate.

Distribution and Use

Making Copies of Documents

Project team members may make uncontrolled copies of documents for short-term use (less than 30 days), audits, or proposed revision.

- Copies must be discarded after use.

- Document creators (holders) are responsible for incorporating new or revised documents, and keeping their documents updated and accessible.

- It is the document creator's responsibility to remove any obsolete or uncontrolled documents from points of use.

- Uncontrolled copies of documents, may be issued to organizations, customers, contractors, consultants and suppliers in paper or electronic form at the discretion of the Project Manager or Contract Administrator.

  These copies are to be stamped "UNCONTROLLED COPY".

APPENDIX E: RECORD MANAGEMENT

Obsolete Documents

- It is the responsibility of Project Team members to destroy uncontrolled or obsolete documents found in their work areas.

- Any obsolete document not destroyed, for historical purposes, shall be clearly stamped on paper copies or marked in the footer of electronic documents "OBSOLETE DOCUMENT" to prevent unintended use.

Revisions to Documents

The document owner must ensure that the following is on all revised documents:

- a revision number

- date of revision

- the name of the person who approved the document

- the nature of changes within revised documents maintained for ongoing use shall be clearly indicated in the "Revision Control" section at the beginning of each document. Details of all revisions must be maintained in the Revision Control section as shown in the Table 1.

Table 1: Example of Revision Control table

Document Revision No.	Revisions	Date Released	Released By:

Storage and Maintenance

Document Library

The following section outlines where to store/file the Project Record.

There are many documents generated throughout the course of a Project, each document type is unique and may occur only once whereas some document types will be created numerous times.

Some documents will be support/background documents for other Project documents and will be linked accordingly. The document system in addition to the Library and Document Folder Design will be controlled through the use of Metadata tags (future).

Library Access Control

Access to the Libraries will be secure and controlled by the Project Manager.

For large Projects, a Document Administrator will assist in developing an access protocol.

APPENDIX E: RECORD MANAGEMENT

Library Structure

The following Library Structure is to be established for each Project. The preferred environment for this is *SharePoint,* however, each department needs to assess their ability to access this environment.

- Project Delivery and Management
- Contract Administration
- Procurement
- Project Financials
- Project Development
- Public Engagement/Communication
- Project Safety and Security
- Project Transfer Documentation

A Document Folder may be created for each of these documents types depending on the size of the Project. Below is the Document Folder structure within each Library.

Project Delivery and Management

- Business Case
- Background Information
- Risk Management
- Project Advisory Committee
- Project Delivery Plan
- Regulatory Information
- Project Schedule
- Briefing Notes

Contract Administration

A Document Folder should be created for each Contract Bid. This Folder is intended to include a Contract with Consultants, as well as Contractors.

- Insurance and Bonds
- Shop Drawings
- Contract Work Schedules
- Progress
- Billings
- Change Record
- Progress Meeting Minutes
- Field Instructions (FI)
- Nonconformance Reports
- Acceptance Tests

- Progress Photos
- Contract Legal
- Certificates of Substantial Completion
- Total Performance

- Request For Information (RFI)
- Proposed Change Notice (PCN)
- Authorization for Contract Change
- Claims
- Over Expenditure Report Analysis
- Daily Construction Reports
- Daily Inspection Reports
- Material Testing Reports
- Third Party Test Reports
- Contractor Safety Records (Near Miss, Incident, Infraction, CS/HW/CL Permits, JHA's, PSI's)
- Performance
- Verification Tests
- Deficiency Lists
- Final Acceptance

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Procurement

A Document Folder should be created for each Bid Opportunity.

- Bid Solicitation Documents
- Addenda
- Bid Award Report (Recommendation)
- Staff Augmentation Request

Project Financials

- Basis of Estimate (BOE)
- Payment Transactions
- Project Cost Reports
- Tangible Capital Asset (TCA) Information
- Capital Budget Estimates
- Operating Budget Estimates
- Over Expenditure Reports

Project Development

A document folder should be created for each Bid Opportunity.

- Studies and Assessments
- Conceptual/Preliminary/ Detailed Design Documents
- Configuration Roadmaps
- Issue Log and Supporting Documentation
- Technical Memorandums
- Value Engineering
- Fit-Gap Analysis

Public Engagement/Communication

- Public Communications
- Press Releases
- Public Consultations
- "Go Live" Announcements

Project Safety and Security

- Safety Management Plan
- Daily Safety Reports
- Site Orientations
- Site Safety Procedures
- Safety or Security Training
- Work Registry
- Safety Statistics
- Access Control
- Emergency Response Plan

Project Transfer Documents (deliverables)

- Training Materials
- Commissioning Documents
- Operation and Maintenance Manuals
- Asset Register Information
- Warranties
- As-built Records

APPENDIX E: RECORD MANAGEMENT

Retention/Destruction

City of Winnipeg By-Law 86/2010 governs retention periods for specific records, which include Project Records. In order to identify and decide whether or not to keep a record, this procedure contains definitions of the different categories and types of records encountered on a project as well as the criteria for their disposition.

Each category of record has several types. For example, Project Records can range from regular Status Reports to Financial Records. Bylaw 86/2010 requires that all records be kept for 1 year to satisfy public access requests. However, all retention lengths included below exceed this standard.

In order to assist program staff in their disposition of records, the following chart outlining retention periods for each type of record has been created to facilitate the process.

Category	Retention Length	Additional Information
Asset related	Life of asset + 2 years	Life of the asset refers to the point in time where a specific asset (ex: a pump) is taken out of service. Documents such as drawings and key reports (quality management, SOPs) fall under this category, and should be retained for two years after the asset is no longer operational.
Financial	7 years	Refers to budgets, financial records, financial reports, etc. Also includes time tracking records. Section 2.03 of By-Law 86/2010
Contracts	6 years after expiry	Contracts, such as those relating to capital projects and contractors, should be kept for 6 years after their expiry date. Expiry date is considered to be the date where the contracted party has met their final obligation as detailed in the Contract. An example of this could be the end of the warranty period. Section 5.08 of By-Law 86/2010
Correspondence	See additional information	Correspondence is governed by the subject matter it contains. For example, correspondence containing financial information should be retained for the financial length of 7 years. However, if the correspondence pertained to a progress report that contained no financial information, it falls under the general category only needs to be retained for 3 years.
Policies & Procedures	2 years after being superseded	Superseded refers to the point in time when a new policy or procedure that replaces one in question is official approved for use. Section 5.13 of By-Law 86/2010
General	3 years	All records that do not fall under other categories. This will most likely be progress and phase based reporting and general correspondence not related to other categories. Section 5.12 of By-Law 86/2010
Human Resources	60 years from last day worked	Records should be maintained for 60 years starting from the last day worked. However, the City's Human Resource area will be responsible for the maintenance and disposition of these records.

Archival

Records that require archiving will follow the City of Winnipeg's procedure for archiving and be managed by the specific Departmental owner of the record. This process is beyond the scope the Project Management.

APPENDIX E: RECORD MANAGEMENT

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Claims Management Process

Appendix F: Claims Management Process

Introduction

A claim is a request for compensation (either additional time and/or payment) not anticipated in the terms of the original contract.

A change order that is written, negotiated, and accepted without going outside the project is not a claim.

A *disputed* change order is a claim. Disputes can arise over performance guarantees, schedule dates or any deviation from the original contract term.

Claims can be complicated based on the size, nature and the complexity of the projects. Conflicts may arise as a result of different goals and expectations of stakeholders such as the City, Consultants, and Contractors. If the conflicts are not managed successfully, disputes may arise, which impact the successful completion of the project.

Common drivers of claims are:
- changes in scope
- change orders
- errors and omissions
- inadequate project planning
- poorly developed or executed contracts
- aggressive schedules

Claims Management is the process involving the prevention, mitigation, identification and quantification, and resolution of consultant and construction contract claims, which requires effective management during the entire lifecycle of a project.

The four components of claims management are:

1. Claim Prevention
2. Claim Mitigation
3. Claim Identification and Quantification, and
4. Claim Resolution.

Claims Management Process Contents

APPENDIX F: CLAIMS MANAGEMENT PROCESS

1. Claim Prevention

The process starts at the pre-tender and contract development part of a project. Contract documents, project delivery plans and scope of work should include all project requirements, as after the award of contract, the chance to prevent a claim ceases to exist.

Recommended best practice is to:

- Perform Project Management responsibilities under the contract competently, promptly and prudently.

- Provide Consultants and Contractors with quality plans and/or specifications, definitive roles and responsibilities.

- Identify and manage risk exposures early and often in project delivery.

- Be pro-active in dealing with dispute situations that arise during the project delivery that could lead to claims.

- Integrate preventative measures within contracts to minimize potential sources of claims by hiring competent consultants and contractors.

- Ensure there is a contractual basis for each claim.

- Monitor project progress closely and be aware of any slippages in schedule, which could lead to a claim.

- Ensure prompt enforcement of contract clauses when delays occur.

- Resolve conflicts and misunderstanding promptly as they occur.

- Ensure good working relationships with Consultants and Contractors and communicate with them frequently.

- Employ existing industry standards, trends, and lessons learned.

2. Claim Mitigation

The best approach is to mitigate the possibilities of claims arising, is through the progression of the contract. Emphasis should be on how to mitigate claims from arising. A well-defined scope, and clear responsibilities and proper risk allocation in the contract will help to decrease the possibility of claims occurring on a project.

Recommended best practice is to:

- Ensure the Project Delivery Plan has a clear and concise description of work, a reasonable schedule, and an appropriate project delivery method for the specific type of project.

- Ensure the contract scope and specifications are written in clear and unambiguous language.

- Ensure the schedule requirements are clearly stated and developed realistically for the successful completion of the project for all parties involved.

- Use of a Risk Management Plan mitigates claims by allocating the risk between all concerned parties on the basis of which party has the most control over the risk involved.

- Ensure the proper handling of disputes. Mishandling of disputes can lead to strained relationships, delays in work, and eventually to a claim.

- Use a clearly defined decision-making process as indecision leads to delays in work, dispute, and claims.

- Perform Constructability Reviews to assist in avoiding changes.

- Employ Request for Information (RFI) procedures. Contracts requiring Designer or Business Owner approval of shop drawings, materials of construction, RFIs and like items need a specific time-bound clause in which to provide the answer in.

- Maintain efficient and effective communication between all contractual parties.

- Maintain proper project documentation in order to easily recognize a change and to improve communication on changes between the contractual parties. Proper project documentation also provides a good defense against claims.

3. Claim Identification and Quantification

Claim Identification is performed by analyzing both the scope of work and the provisions of the contract. The identification of a claim starts with sufficient knowledge of the scope and responsibilities written in contract terms, when some activity appears to be a change in scope or terms requiring a contract adjustment. Proper identification involves an interpretation of what the contract requires, and also a documented description of the activity viewed as extra to that stated in the contract.

Once an activity is identified as a claim it will be quantified in terms of additional compensation or a time extension to the contract completion or other milestone date. Schedule and critical path analysis should be made in order to calculate the delay of the project. In addition direct and indirect costs originated from the claimed activity should also be calculated. In some circumstances, the claimed activity has an indirect effect on other aspects of the construction project, making other work more costly, changing sequences, or delaying other activities. To the extent that these indirect effects can be justified and quantified they should be properly included as part of the total cost of the claim.

Recommended best practice is to:

- Analyze the baseline scope of work as approved in the contract.

- Analyze the provisions of the contract to identify who is responsible for work to perform, especially terms relating to changes, changed conditions, schedule preparation, submittal and notices given. In many cases, claims are invalid when not made in a timely manner.

- Detail the description of work believed to be extra to the contract, where, and when it took place. Statement of why it is not covered in the contract scope, and reference to the section of the contract that supports the contention.

- Record the extra work and time delays. Time extension claims resulted due to events such as unusual weather, strikes or other force majeure items outside the contractor's control may be valid while they may not be compensable. The contract often indicates which events are compensable.

- Reach a consensus among more than one person that the activity under questions does warrant claim status. In some circumstances, where a claim may be large, seek Legal Services' advice to further support the validity of the claim.

- Project documentation is the most important factor to support a claim. This may take the form of relevant contract sections, drawings, photographs or videos of the work in question, statements of persons involved in or related to the claimed work. Also, the time for work that was performed should be noted and logged independently in order to clearly separate the claim work from other contract work.

- Develop actual quantities of the claimed work.

- Develop activity base costing of the resources involved in the claimed work. The cost records provide the basis for the estimate or prepare the estimate using the current

applicable rates. Overhead costs and profit are appropriate at this time as the claim at this stage is represented as a change In case the claimed work has an effect on other project work, there may be additional cost, and this is estimated for cause and effect relationship.

- Compare the 'as planned' to the 'as built' schedule to support the time extension requested not only for the claimed activity, but also for the effect (if any) on the balance of the project work. The ultimate deciding factor is the effect on the critical path; it can become difficult to separate these because of all of the other factors that can and do affect construction schedules.

- In more complex situations, it may be of assistance to cite other contract law precedents to substantiate the claim when the contract does not clearly provide a solution. The other precedents may provide guidance as to what may or may not be included in the claim or how the claim is evaluated.

4. Claim Resolution

Claim Resolution is a step-by-step process to resolve the claim issue. The process begins with negotiation, perhaps at more than one level, before moving on to mediation, arbitration and litigation depending on the remedies afforded by the contract.

Recommended best practice is to:

- Analyze and evaluate claims utilizing a team environment approach.

- Negotiate between affected parties trying to find an equable solution.

- Abide by provisions in the contract for dispute resolution.

- Ensure the rights and obligations of the consultant/contractor are properly considered.

- Assess each claim separately with its own costs or merits based on 'reasonableness' of arguments and costs presented.

- Resolve claims promptly by being fair, open and transparent.

- Ensure that adequate project records, videos, photographs are retained for future reference.

- Estimate the cost of carrying the dispute further if the initial attempts at negotiation fail. Mediators are costly, and some arbitration cases can approach the expense of litigation due to the amount of discovery involved. An estimate of these costs can help in deciding just how beneficial it is to pursue a claim.

- Use litigation as a last resort when all attempts have failed. Construction lawsuits are complex and often take a longer time to present, and are more expensive in terms of cost.

Gating Process

Appendix G: Gating Process

Introduction to the Gating Process

This Appendix supplements and builds on Section 3: Project Delivery Framework of the Project Management Manual.

The gating process defines predetermined decision points where senior leaders provide formal project oversight to ensure project success. Refer to Figure G-1 Gating Process: Hierarchy of Stage Gates, Control Points & Phase Gates.

Stage Gates - Decision points that apply within the lifecycle of an Asset. For instance, the point at which a need has been identified during the investment planning stage and a decision has been made to proceed into the project delivery stage, would be referred to as a Stage Gate.

Control Points - Decision points that apply within the lifecycle of a Major Capital Project. For instance, the point at which the project workstream transitions from Feasibility to Preliminary Design would be referred to as a Control Point.

Phase Gates - Decision points that apply within the lifecycle of a project. For instance, the point at which the project transitions from the Initiation Phase to the Planning Phase would be referred to as a Phase Gate.

Gating Process Contents

APPENDIX G: GATING PROCESS

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Gating Process: Hierarchy of Stage Gates, Control Points & Phase Gates

Asset Lifecycle

STAGE GATES

Investment Planning
Process associated with strategic and detailed planning

Stage Gate 1

Project Delivery Major Capital Projects (Design – Bid – Build)

Stage Gate 2

Operations & Maintenance
Processes associated with asset operation and management

Stage Gate 3

Decommission & Disposition
Processes associated with asset decommission and disposition

Stage Gate 4

Major Capital Project Lifecycle

Delivery Activities: | **PRE-CONSTRUCTION** | **CONSTRUCTION**

Project Management Methodology: Concept | **Part 1: Definition** | **Part 2: Development** | **Part 3: Implementation** | **Transfer**

CONTROL POINTS

Control Point 1

Control Point 2

Control Point 3

Control Point 4

Feasibility

Preliminary Design

Detailed Design

Procurement

Construction

Project 1

Project 2

Project 3

Project 4

Project Lifecycle

PHASE GATES

Initiation Phase

Phase Gate 1

Planning Phase

Phase Gate 2

Execution Phase

Delivery Sub-Phase

Phase Gate 3

Transfer Sub-Phase

Phase Gate 4

Close-out Phase

Last Updated: June 2019

APPENDIX G: GATING PROCESS

Gate

A gate is a key decision and control point that represents a logical point at which assigned decision makers can determine whether to proceed to the next stage, work stream, or phase. These identified gates effectively "open" or "close" the path leading to subsequent work. These gates also provide an opportunity to assess the quality of work to date and to alter the course of the work and take remedial actions if required. In essence, gates serve as quality-control check points.

Projects should be structured to provide for a clear, comprehensive, and objective assessment of how the project is performing against planned objectives at all stages. Key to success is ensuring that resource implications and results are visible to senior leaders at logical predetermined "gates." Gates provide the opportunity for an informed assessment of progress and issues which enables senior leaders to make better decisions on future plans and investments.

These gates are not intended to replace normal project monitoring or assurance measures ie. independent verification and validation, or audits.

Decision-Makers

Decision-Makers assess project information. They should be knowledgeable and well informed about the project, and fully prepared to make necessary and timely decisions. A Decision-Maker could be the Project Sponsor, Business Owners, or Senior Leaders from different functional areas, and are pre-defined for each of the gates.

The Decision-Makers for all Major Capital Projects Control Points are pre-defined as outlined in Figure G-2.

For Control Point 1 and Control Point 2, the decision-maker is the Chief Asset and Project Management Officer (CAPMO), or designate. CAPMO is responsible for seeking Council approval as required.

For Control Point 3 and Control Point 4, the decision-makers are the Major Capital Project Advisory Committee.

For all other capital projects, the decision-makers are defined by the Project Manager and Project Sponsor when planning the gating process during project planning. Ensure to allocate sufficient time in the project schedule to accommodate for this gating process, especially if Council approval is required.

Important to note that the Project Manager should be prepared to proceed thru the decision points with all the pertinent project information and deliverables required for the decision-maker's assessment prior to proceeding through the gate. Being prepared in advance helps expedite the assessment and ensures efficient project time management.

Figure G-2: Major Capital Project Delivery Process: Control Points and Council Approvals
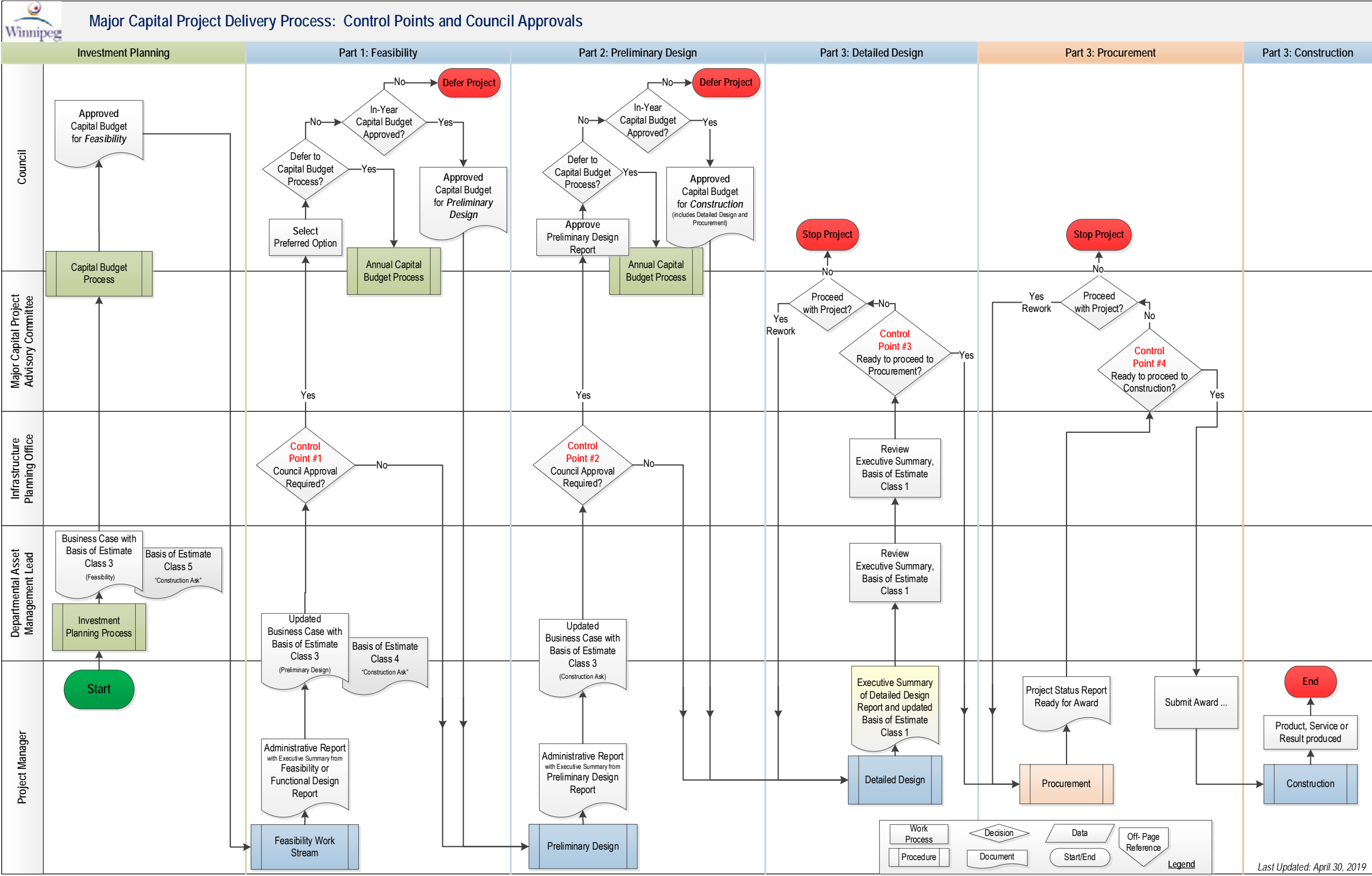
APPENDIX G: GATING PROCESS

Gate Description

Control Point 2 Approval Checklist template

To be developed.

Gates have a common format. Refer to Control Point 2 Approval Checklist template.

The checklist template outlines:

- the purpose of the gate,

- who is assigned as the decision-maker

- expected *deliverables* for the gate.
  A set of required *deliverables*: what the project team must bring to the decision point (i.e. the results of a set of completed activities).

- mandatory *exit criteria* for the gate:
  These can include questions designed to assess projects quickly, for example: • Does the proposed project align with City Strategic, Master and/or Secondary Plans?

- approval level recommendations
  Defined *outputs*:

3. Recommendations:

Approval Level - check one approval level

☐	**"Go"** Approve to next part of project.
☐	**"Go Conditionally"** Approve to next part of project with conditions.
☐	**"Recycle"** Changes required, stay in this part of project.
☐	**"Hold"** Hold, pending technical, environmental changes.
☐	**"No-Go"** Stop or cancel project.

- who is/are the assigned decision-makers for the recommendation.

4. Decision-Makers:

Yes ☑	Approval required by:	Approval Declaration: *"I hereby certify that the above deliverable criteria have been reviewed and met."*
☐	Council	As per Administrative Report #_____
☐	Infrastructure Planning Office	_____ Date: _____
☐	Major Capital Project Advisory Committee	As per Major Capital Project Advisory Committee Meeting # _____
☐	Project Sponsor	_____ Date: _____
☐	Business Owner	_____ Date: _____

Refer to Stage Gate, Control Point, Phase Gate checklists templates. (to be developed)

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APPENDIX G: GATING PROCESS

Glossary

Appendix H: Glossary

Term	Definition/Explanation
A Guide to the Project Management Body of Knowledge, Sixth Edition (PMBOK)	A set of standard terminology and guidelines for project management published by the Project Management Institute, providing a general guide to managing most projects most of the time.
ADKAR	Prosci's ADKAR Model is an individual Change Management Model. It outlines the five building blocks of successful change, whether that change occurs at home, in the community or at work. The name "ADKAR" is an acronym based on the five building blocks: A Awareness of the need for change D Desire to participate and support the change K Knowledge on how to change A Ability to implement required skills and behaviors R Reinforcement to sustain the change.
Advisory Committee	A group of high-level stakeholders who provide guidance on the overall direction of the project or the business. Advisory Committees may provide direction to the project within their mandated area of responsibility.
Alternative project delivery	Methods of delivery that are not design-bid-build. Alternative methods include design-build, variations of design-build, construction management, and P3. The Project Management Manual has additional requirements for assessing P3s, and treats them differently in this regard.
As-constructed drawings	The result of revising construction drawings such that the details on the drawings represent what and how the final product was constructed. The two types of as-constructed drawings are: Drawings represent exactly how the project was constructed and are stamped by an engineer (for example: underground works). Drawings produced by the Contractor and not stamped by an engineer.
Asset (Facility) Strategic Plan	A plan that outlines how an asset group or a specific asset will meet the needs of an organization based on the organization's strategic plan or other internal or external force. The view is long term, meeting the organization's strategic vision and the lifecycle of the specific asset.
Asset Management System (AMS)	A set of interrelated or interacting elements that establish policies and objectives on how Assets are to be managed. These elements include governance (policy & administrative standards), processes and technology that work together to achieve those objectives.
Asset Management Plan	A tactical plan for managing infrastructure assets to deliver an agreed level of service at an acceptable level of risk.
Asset Risk	Asset Risk relates to the consequences and likelihood of asset failure on the delivery of service.
Association for the Advancement of Cost Engineering International (AACE)	Non-profit association that provides its members resources to enhance their performance, and provides certification in cost management disciplines, including cost engineering, cost estimating, planning and scheduling, decision and risk management, project management, project control, cost/schedule control, earned value management, claims, and more.
Association of Professional Engineers and Geoscientists of the Province of Manitoba	Professional association that governs and regulates the practice of professional engineering and professional geoscience in the Province of Manitoba.

APPENDIX H: GLOSSARY

Term	Definition/Explanation
(APEGM)	
Basis of Estimate (BoE)	A document that defines the scope of the project, and ultimately becomes the basis in the change control process. When prepared correctly, any person with capital project experience can use the BoE to understand and assess the estimate, independent of any other supporting documentation. A well-written BoE achieves those goals by clearly and concisely stating the purpose of the estimate being prepared (i.e. cost study, project options, funding, etc.), the project scope, pricing basis, allowances, assumptions, exclusions, cost risks and opportunities, and any deviations from standard practices. In addition, the BoE is a documented record of pertinent communications that have occurred, and agreements that have been made between the estimator and other project stakeholders.
Bid Transmittal	After the bid submission deadline; Materials Management prepares the standard scoring matrix and posts it, together with the Bids, to an FTP site. Materials Management emails the FTP site link to the Contract Administrator.
Bottom-up Estimating	Approximating the size (duration and cost) and risk of a project (or phase) by breaking it down into its smallest work components, estimating the effort, duration, and cost of each component, and aggregating them into a full estimate.
British Standards Institution (BSI)	Multinational business services provider whose principle activity is producing standards and supplying standards-related services.
Business Case (BC)	A document that identifies valid needs verified through the needs assessment process. The Business Case is meant to serve as a consolidated information source for each investment: documenting needs, evaluating options, identifying influencers and constraints, and defining the solution. For further details, refer to the Investment Planning Manual.
Business Owner (BO)	The entity in the project organizational structure that accepts receipt (ownership) of the final product, service, or result (deliverables). Can be the Control & Use Owner on most projects. Equivalent to the client role in a Consultant delivered project. For more information on detailed Responsibilities and Authorities attached to this role, refer to PMM *Section 5.7.*
Business Partners	The people or organizations that the project partners with to fulfill a specific role, such as: Consultant, training, or support.
Business Unit (BU)	An organizational term to define the specific level or business area within the City organization. Can be used to define a Department, Division or Branch level.
Canadian Registered Safety Professional (CRSP)	An organization of safety professionals in Canada.
Capital Budget Expenditures (CAPEX)	An expenditure incurred against a capital account for fixed assets or to add to the value of an existing fixed asset.
Capital Investment Plan (CIP)	A plan that provides a detailed understanding of anticipated investments into tangible capital assets over multiple years.
Certificate of Recognition (COR™)	The (COR™) is an occupational health and safety accreditation program that verifies a fully implemented safety & health program which meets national standards.
Challenge Session	A process by which Business Cases are vetted through where they are scrutinized by a panel of business unit and Department Managers to ensure they

APPENDIX H: GLOSSARY

Term	Definition/Explanation
	provide a comprehensive view and justification for the required investment.
Change Control Process	A formal process that ensures changes to a project, product, system, or approach are introduced in a controlled and coordinated manner. Effective project change control processes allow the proper focus to be maintained to complete projects on-time and within budget. It properly integrates or postpones requests for changes to the project's scope that may result in revisions to the project's budget and completion schedule. Change control processes provide an efficient and effective method of change control within a Project Delivery Framework.
Change Manager (ChM)	The City of Winnipeg has certified Change Managers located in every department who form a Change Management Working Group sponsored by the CAO. Project Managers are required to know who their Departmental Change Managers are, and consult with them during the initiation phase of all projects. For a list of Department Change Managers, refer to the Distribution List in: MS Outlook, CITY-ADKAR-Change-Managers.
Change Order (CO)	A document within the change management process required to change: a baseline control document, planning or design document, contract, or specification.
Change in Scope of Services (CSS)	A request to change the agreed scope and objectives of the project to accommodate a need not originally defined to be part of the project for Consultant Contracts.
Change Work Order (CWO)	A request to change the agreed scope and objectives of the project to accommodate a need not originally defined to be part of the project for Construction/Services/Goods Contracts.
Chief Administrative Officer (CAO)	City of Winnipeg employee holding the position of Chief Administrative Officer.
Chief Asset and Project Management Officer (CAPMO)	City of Winnipeg employee holding the position of Chief Asset and Project Management Officer.
Chief Financial Officer (CFO)	City of Winnipeg employee holding the position of Chief Financial Officer.
City's General Insurance	The City's General Insurance includes the following: • All risk property insurance • Automobile liability coverage (City vehicles) • Workers compensation coverage • General liability insurance
Commissioning	The sequence of activities required for a project to become fully operational (intended purpose), and meet the output specifications provided in the performance testing and commissioning plan. On some in-house projects, may be also known as "Go Live".
Commissioning Completion Certificate	The certificate issued by an architect or engineer designated by the Project Manager, and approved by the Project Sponsor and/or Business Owner confirming that the project has met the commissioning requirements provided in the performance testing and commissioning plan.
Commercial General Liability (CGL)	An insurance policy that provides protection from third-party claims of bodily injury or property damage that allegedly arise as a result of the Contractor's operations or work on the construction project from persons not associated with the project.

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Term	Definition/Explanation
Completed Operations Extension	Completed operations insurance will continue beyond the expiry date of the Wrap Up Liability Policy for a predetermined period, which is typically, 12, 24 or 36 months and covers a contractor's liability for property damage or injuries to a third party once contracted operations cease.
Construction Cost Estimate	An estimate of the initial capital cost of a constructed facility not including projected operations and maintenance costs. This forms part of the Basis of Estimate document.
Construction Manager (CM)	The role of the individual in a specific project delivery method. This individual is responsible to construct the product. The role involves managing many contracts, and coordinating resources to meet their contractual requirements. The construction manager service can be provided as *pay for service* or *at risk*. At risk, the construction manager is committed to delivering a specific project at a defined cost and time, and can face financial penalties if not delivered.
Construction Review Record (CRR)	A document used to capture the findings of a construction inspection.
Consultant	Vendor contracted by the City to provide engineering or other specialist services for a project.
Contract Administrator (CA)	The individual whose role is identified in a contract with specific responsibilities and authority.
Contractor	Vendor contracted by the City to provide goods and services including construction contracts.
Control & Use Owner (C&U)	Person who is responsible for ownership of the asset on the City's behalf. Typically accepts the final project product, service, or result.
Course of Construction Insurance or Builders Risk Insurance	Insures buildings or projects under construction against the costs of repair or replacements in the event of a loss. It is designed to protect owners and contractors from the devastating impact caused by fires, collapse, floods/water, vandalism, wind, theft, and other unwelcome sudden and accidental events that occur on construction sites.
Critical Path Method (CPM)	A critical path is the sequence of project activities which add up to the longest overall duration. This determines the shortest time possible to complete the project. Any delay of an activity on the critical path directly impacts the planned project completion date (i.e. there is no float on the critical path). A project can have several, parallel, near critical paths. An additional parallel path through the network with the total durations shorter than the critical path is called a sub-critical or non-critical path.
Customers/Users	The people who use the project deliverables to improve their lives or work. They are sometimes involved directly within the project in the form of focus groups and/or test users.
Daily Construction Report (DCR)	A template that is used to record the daily events on a construction site.
Design Build (DB)	A project delivery method where the vendor is contracted to design the product and also build the facility to the requirements identified and approved by the owner.
Design-Bid-Build (DBB)	The traditional approach for project delivery where separate entities provide services for the design and construction of a project.
Design-Build-Maintain	A procurement delivery method where a vendor is retained to: prepare the design, construct the product, and maintain the finished product

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Term	Definition/Explanation
(DBO/M)	however not operate the facility. For example: build a community centre and maintain the facility however not have employees operate the facility.
Design-Build-Operate (DBO)	A procurement delivery method where a vendor is retained to: prepare the design, construct, and operate the finished product.
Direct costs	A price that can be completely attributed to the production of specific product, service, or result. Direct costs refer to materials, labor, and expenses related to the production of a product.
Earned Value Management (EVM)	A management technique used for project delivery for integrating and reporting on scope, schedule, and resources.
Emergency Standard Operating Procedure (ESOP)	Procedures developed in advance of a defined emergency event that is used when that emergency event occurs. Operating in an environment that is not a standard way of operating a facility or service due to an unplanned event.
Errors and Omissions (E&O) (also known as Professional Liability)	A form of third party liability insurance that helps protect professional advice and service providing individuals and companies, such as designers, engineers, architects, accountants, lawyers etc., from bearing the full cost of defense and damages expenses for committing an error or omission in performance of professional duties, from claims made by clients. Commercial General Liability policies will typically not respond to claims for professional errors and omissions. A mistake which causes a financial harm to another can occur in almost any transaction in many professions.
Estimate at Completion (EAC)	An estimate of the projected financial status at project completion.
Estimated costs	The forecasted cost of a project or deliverable.
Executive Policy Committee (EPC)	The Executive Policy Committee is comprised of: • Mayor • Chairpersons of the Standing Committees • any other members of Council appointed by the Mayor The general duties of the Executive Policy Committee include: • formulating and presenting recommendations to Council respecting policies, plans, budgets, by-laws and other matters that affect the city as a whole • ensuring the implementation of policies adopted by Council.
Facilities	Building assets that provide a service to the Public or the Public Service.
Factory Acceptance Testing (FAT)	Pre-defined test that the supplier (factory) of a piece of equipment is required to perform before that piece of equipment is transported to the job site. Purpose is to ensure quality assurance and quality control on the equipment prior to transport.
Field Instruction (FI)	A standard document that direct the contractor to take a specific action. The formal change order process should be followed concurrently to obtain required approvals and link up with the Field Instruction.
Financial Reporting Standards	Accounting principles generally accepted in Canada as recommended in the Handbook of the Canadian Institute of Chartered Accountants (GAAP), American Financial Accounting Standards Board (FASB) standards, or International Financial Reporting Standards (IFRS), as applicable, or as may be amended or replaced.

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Term	Definition/Explanation
First Party	The City of Winnipeg.
Freedom of Information and Protection of Privacy Act (FIPPA)	An act that defines the rules for what and how information can be shared when requested.
Functional Managers	Managerial employees in different departments who supply technical expertise to the project.
General Conditions (GCs)	Boilerplate clauses that apply generically to all similar types of work. GCs for City of Winnipeg Consultant Services and Bid Opportunities are published and updated on the City's website.
Guaranteed Maximum Price (GMP)	A form of contract where the Contractor provides a guarantee to the Owner that the product or service will be completed at a maximum price. The scope of the product or service is much defined with specific risks assigned to the Owner and the Contractor based on their ability to control.
Implementation Phase or Construction Phase	The phase that commences immediately following the completion of the Preliminary Design Phase and ends on the Commissioning Completion Date of the capital project.
Indemnity Clause	A statement, which provides legal exemption from liability for damages or injury.
Inspection and Test Plan (ITP)	A quality assurance / quality control plan that outlines the specific test that will be conducted to verify quality. The ITP also includes the other key elements as in any plan: who, what, when where and why.
Insurance Policy	This is a contract between the insurer and the insured, known as the policyholder, which determines the claims which the insurer may be legally required to pay. In exchange for an initial payment, known as the premium, the insurer promises to pay for losses that would be covered under the policy language.
Insurer	A for-profit company licensed by the Superintendent of Insurance for Manitoba that agrees to indemnify for losses under specific conditions.
International Organization for Standardization (ISO)	An international standard-setting body composed of representatives from various national standards organizations that promotes worldwide proprietary, industrial, and commercial standards.
Intervention	An intentional effort, either in the form of a capital project or a change in operational practice, required when an asset is at risk of service delivery failure, an enhanced level of service is required, additional demand needs to be accommodated, or new legislative requirements need to be met.
Issue	Disagreement among any parties including controversy, conflict, claim, disagreement, or difference of opinion that requires resolution. An issue must be entered into the issue register and resolved via a formal process once the issue has been identified as unresolvable by the initial originating parties.
Letter of Intent (LOI)	A formal document that is issued to the vendor selected via the procurement solicitation process. The letter states the intent of the Owner to enter into a formal contract. The letter provides legal authorization for the vendor to proceed while the formal contract is prepared for signature.
Level of Service (LOS)	Level of service is a qualitative measure used to describe the operating condition of a particular asset from a customer/user perspective. Levels of service can be grouped into three separate categories: Essential Level of Service: Aspects of service required by existing legislation/regulation or with regard to public health, such as Health and Safety,

Term	Definition/Explanation
	Environmental Protection, or Hazardous Materials.
	Quality Level of Service: Aspects of service that are discretionary to the City or business unit however affects the quality of life and experience of residents and users, such as the availability of primary amenities, reliability of building components, etc.
	Image Level of Service: Aspects of service which maintain image or appearance, such as the availability of secondary amenities, or the visual appeal of landscaping, finishes, etc.
Lifecycle Costing (LCC)	A technique that establishes the total cost of an asset, or its part throughout its cycle life, while fulfilling performance requirements. *Refer to Whole-Life Costing for explanation of difference between Whole-Life Costing and Lifecycle Costing.*
Likelihood	When performing a Risk Assessment, Likelihood relates to the probability or frequency of the failure occurring within a planning horizon, and is often represented by the estimated return period or remaining life of the asset.
Loss Prevention/Loss Reduction	Any measure which reduces the probability or frequency of a particular loss but does not eliminate completely all possibility of that loss. Loss reduction deals with minimizing the actual loss.
Materials Management Policy	Policy that governs the materials management functions and most types of procurement for the City of Winnipeg.
Members of the public	The people in the public who are affected by the project.
Microsoft Project	Scheduling software provided by Microsoft Corporation.
Monte Carlo Simulation Method (MCS)	A sophisticated quantitative technique for analyzing risk and quantifying the contingency value. As with the three-point range estimate, the output of MCS is a probability distribution for total cost of the project.
Multi-Criteria Prioritization (MCP)	An approach to evaluate and rank projects contribution to a range of service and business priorities, to allow for the development of the best-value Investment Plan for a given level of funding.
Net Present Value (NPV)	The total present value of a time series of cash flows. NPV is a standard method for using the time value of money to appraise projects.
Non-Conformance Report (NCR)	A formal report to the Contractor that details what specific element does not conform to the contract design specification.
Office of Public Engagement	The Office of Public Engagement leads the direction of the City's public consultation and engagement activities, ensuring that there is consistency and transparency in gathering and considering input from residents on City projects. The Office of Public Engagement is an office within the Customer Service and Communications Branch. The Manager and Public Engagement Officers are interested in early involvement in projects with public engagement to provide support during project planning and execution.
Operating Expense (OPEX)	A category of expenditure that a business incurs as a result of performing its normal business operations.
Operation and Maintenance Manuals (O&M Manuals)	Manuals that provide concise descriptions, technical details, operating and maintenance instructions and schedules, commissioning records, log books, catalogues, principles of operation, method of operation, and other information that will enable the ongoing operation and maintenance of the plant and equipment. The comprehensive descriptions are accompanied by diagrams and other illustrations to facilitate knowledge and understanding about the operation of the

APPENDIX H: GLOSSARY

Term	Definition/Explanation
	plant and equipment. Examples include hydraulic flow diagrams, electric wiring diagrams, electronic circuit plans, and mechanical air flow diagrams.
Operations and maintenance	Work and services necessary to operate and maintain project facilities.
Organizational Change Management (OCM)	A formal process to manage change to how individuals work within an organization. This change is created with the initiation of a project.
Over-expenditure	Contract over-expenditure: the accumulated expenditure approved exceeds the purchase order amount (contract award amount) for that specific contract. Budget over-expenditure: the accumulated expenditure for a specific budget line item exceeds the cumulative amount of approved budget for that specific project.
Performance Bond	A surety bond issued to guarantee the completion of a project by another contractor should the original contractor fail to meet their obligations.
Performance Testing and Commissioning Plan	A plan that demonstrates a project can be readily and reliably operated to achieve the predetermined specifications.
Performance Verification Tests	The testing of systems and subsystems of a project and the entire project to confirm that the project meets or exceeds the performance requirements stipulated in the specifications.
Portfolio / Program / Project Management Office (PMO)	An entity within an organization that is used to manage investments either at the portfolio or program or project level. Each level addresses a specific Business Need within an organization. Portfolio – Doing the right Investment. Ensuring the investments meet strategic needs. Providing governance and training across the organization. Program – Managing a major program initiative. Ensure resources are directed to achieve the benefits identified in the Business Case. Project – Ensuring the investment is done right. Providing support to the Project Manager and ensuring the processes and procedures are followed.
Process and Instrumentation Diagrams (P&IDs)	An engineering drawing that shows the interconnection of process equipment and the instrumentation used to control the process.
Procurement Plan	The documented defining of the steps and approach for how and when procurement will take place.
Professional Liability (also known as Errors and Omissions)	A form of third party liability insurance that helps protect professional advice and service providing individuals and companies, such as designers, engineers, architects, accountants, lawyers etc., from bearing the full cost of defense and damages expenses for committing an error or omission in performance of professional duties, from claims made by clients. Commercial General Liability policies will typically not respond to claims for professional errors and omissions. A mistake which causes a financial harm to another can occur in almost any transaction in many professions.
Program	A group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually.
Program Plan	A document defining a program's benefits and how those benefits will be realized.
Progress Estimate (PE)	The formal document that identifies the items on the Contract in which the Contractor will be paid for. The PE is signed off by the Contractor and Contract Administrator prior to processing.

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Project	A temporary endeavor undertaken to create a unique product, service, or result.
Project Charter (PC)	A document issued by the Project Sponsor that formally authorizes the existence of a project and provides the Project Manager with the authority to apply organizational resources to project activities.
Project Delivery Plan (PDP)	A document defining how the project will be executed, monitored, and controlled.
Project Execution Plan (PXP)	Documents defining how a Consultant will execute, monitor, and control a project, similar in content to a Project Delivery Plan.
Project Management Institute (PMI)	Non-profit organization with globally recognized standards, providing advocacy for a project management and certification program for members.
Project Management Manual (PMM)	The document prepared by the City of Winnipeg that provides a standard approach for delivering capital projects.
Project Manager (PM)	City of Winnipeg employee assigned the responsibility for managing a project.
Project Plan	A formal, approved document that outlines how the Project Manager will deliver the project as defined in the Project Charter. The Project Plan references and uses the tools within the IMS for both project execution and project control. The primary goal of the Project Plan is to obtain approval for how the project will be delivered and managed.
Project Quality Management Plan (QMP)	The Project Quality Management Plan outlines the quality requirements for the project and product, and how the project will achieve compliance.
Project Record Index (PRI)	A record that tracks all issues identified by the Project Manager; the ID number that is generated is used to track this event form birth to grave.
Project Schedule	The planned dates, durations, and sequencing for delivering the project; usually defined in terms of Tasks and Deliverables.
Project Sponsor	The Project Sponsor authorizes use of resources for the project, approves major deliverables, and signs off on each project phase. The individual within the business unit who is responsible to deliver the project and assign the Project Manager.
Project Team members	The resources who perform the technical project work and produce the project deliverables.
Projects IN Controlled Environments 2 (PRINCE2)	A project management methodology developed by the Government of the United Kingdom.
Property Insurance	A policy of insurance that protects the physical property (i.e.: building, equipment, contents against certain losses arising from, but not limited to fire, theft, and other weather- related perils.)
Proposed Change Notice (PCN)	A document that is forwarded to the Contractor or others wherein the proposed change in the work is outlined and pricing for the change is requested.
Public	All persons who may be interested in a decision made by the City.
Public Engagement (PE)	Public engagement is a process whereby the City facilitates dialogue with and between the public and stakeholders to collect input which supports better decision making by the City. Public engagement is required for projects that are Council directed, include a legislated requirement to consult the public, were directed to consult by the Director of Customer Service and Communications. If the project is approved in

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	the capital budget, it may require public engagement. If the public's influence will help define or influence the final outcome of the capital budget project, engagement should be considered.
	On major projects that may have significant and/or long-term impacts socially, economically, or aesthetically, a platform for public consultation and input during the design process may be required or desirable.
	If the Clean Environment Commission determines that a public review hearing is required in advance of a project proceeding, the first step of this process is an advertisement in the newspaper regarding the proposed hearing for the project that invites public response. Based upon the amount and nature of the response, a decision will be made regarding the need for a public hearing. If the hearing proceeds, the public has an opportunity to make representations regarding the proposed project. Another way by which public consultation may be required or mandated is through the Community Committee or City Council responding to public pressure.
	During the design process, Public Engagement may be advantageous to provide the public with proper project information and to receive feedback from the public.
	In recent times, there has been an increased usage of public relations Consultants to assist the City and project Consultants with the preparation and delivery of a clear, concise, and comprehensive message regarding the proposed project.
	Another opportunity for Public Engagement is official opening ceremonies for completed major projects. These official openings commemorate the completion of the project and recognize the efforts of the City in completing the projects for the benefit of the public.
Publicly Available Specification (PAS)	Organization is called PAS55.
	Optimal management of physical assets was a Publicly Available Specification published by the British Standards Institution. It has been superseded by ISO 55000 series of Asset Management standards.[1][2]
	This PAS provides guidance and a 28-point Requirements Checklist of good practices in physical asset management.
Public-Private-Partnership (P3)	A Public-Private Partnership is an alternative approach for project delivery where the private sector assumes a major share of the risks and responsibilities in terms of financing, operating, and maintaining public infrastructure.
Purchase Order (PO)	A contractually binding document that sets out the details, prices, and terms and conditions of a purchase.
Quality Assurance (QA)	The process of reviewing and auditing the project as a whole or in part for fitness of use in terms of quality standards.
	Quality assurance makes sure the right things are being done, and in the right way.
Quality Control (QC)	The process of monitoring, evaluating, and inspecting actions, results, and products during their execution.
	Quality control makes sure the results of what is being done are what is expected.
Request for Information (RFI)	A formal document used to communicate a request to clarify or more clearly identify requirements of a specific baseline document.
Request for Proposals (RFP)	A formal request for vendors to provide a product, service, or result in accordance with the way it is defined in the RFP.
Request for Qualifications (RFQ)	A formal procurement process where proponents are requested to submit their qualification for a specific project. The qualification is then analyzed against pre-determined requirements. Those proponents meeting the qualification standard can bid on the next stage in the procurement process.

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Results	An output from performing project management processes and activities. Results include outcomes (i.e.: integrated systems, revised process, restructured organization, tests, etc.) and documents (i.e.: policies, plans, studies, procedures, specifications, reports, etc.). * Project Management Institute (2017). A Guide to the Project Management Body of Knowledge, Sixth Edition, p. 720.
Risk	An uncertain event or condition that if it occurs has a positive or negative impact on one or more project objectives. * Project Management Institute (2017). A Guide to the Project Management Body of Knowledge, Sixth Edition, p. 720.
Risk Analysis	This is the process of studying the nature of risk to determine the level of a risk. Risk analysis includes a systematic use of available information to determine how often specified events may occur and the magnitude of their consequences.
Risk Assessment (RA)	The overall process of risk identification, risk analysis and risk evaluation.
Risk Management	A process of well-defined steps that when taken in sequence, support better decision making by contributing to greater insight into risks and their impacts. This includes how to effective manage potential opportunities and adverse effects.
Risk Management Plan (RMP)	A document describing how project risk management will be structured and performed on the project.
Risk Register	The record of risk events identified and assessed and actions developed to address those risk events.
Risk Tolerance	This refers to the willingness of the organization to accept, mitigate or avoid risk.
Risk Transfer	A risk response strategy whereby the shifting of the burden of loss for a risk to another party through legislation, contract, insurance or other means.
Safety Plan	A plan that is details how safety requirement will be implemented on a work site. The goal is to think about safety in advance of doing any activities in order to prevent accidents. The plan also outlines responsibilities and general response procedures in case an incident does occur.
Small Employer Certificate of Recognition (COR™)	COR™ for small employers.
Stakeholders	Any group or representatives of a group who may be interested in providing input prior to a decision being made by the City. This may include: residents groups, businesses, special interest groups, community organizations, government agencies, and any other organization or representative of an organization interacting with the City.
Standard Deviation (SD)	In statistics and probability theory, the Standard Deviation (represented by the Greek letter sigma, σ) measures the amount of variation or dispersion from the average. A low Standard Deviation indicates that the data points tend to be very close to the mean (also called Expected Value); a high Standard Deviation indicates that the data points are spread out over a large range of values.
Standard Operating Procedure (SOP)	Procedural manual containing the steps for how an individual or group of individuals are to operate a facility, piece of equipment or system. The Procedure ensures consistency, and is a Quality Assurance process document.

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Advisory Committee	A group of high-level stakeholders who provide guidance on the overall direction of the project or the business. Advisory Committees may provide direction to the project within their mandated area of responsibility.
Strategic Plan	A plan that outlines an organization's long-term vision (10 to 20 years) of where an organization wants to be and how to proceed there strategically.
Strategic Risk	Strategic Risk relates to business, environmental or regulatory factors impacting service delivery.
Supplemental Conditions (SC)	A section of the Bid Opportunity or Request for Proposals that supplements or modifies the General Conditions, and sets out terms and conditions specific to the Contract.
Tangible Capital Asset (TCA)	Tangible Capital Assets are those capital assets of an enterprise such as property, plant, and equipment, that have physical characteristics or presence. The City uses this process called Depreciation to allocate part of the asset's expense (value) to each year of its useful life, instead of allocating the entire expense (value) to the year in which the asset is purchased.
The City of Winnipeg (the City)	The City of Winnipeg as continued under the City of Winnipeg Charter.
Third Party	A person or entity outside of the City of Winnipeg organization, who may be a party to a contract or a vendor or claimant.
Top-down Estimating	Approximating the size (duration and cost) and risk of a project (or phase) by comparing the project, as a whole, to similar projects. The comparison may be made directly using analogous estimating, through an algorithm as in parametric estimating, or from the experience of estimating experts.
Useful Life	The shortest time span associated with the asset's physical, technological, commercial, and legal life.
Users / customers	The people who use the project deliverables to improve their lives or work. They are sometimes involved directly within the project in the form of focus groups and/or test users.
Value Engineering (VE)	An exercise that uses engineering effort to reduce construction costs, optimizes lifecycle costs, or improves quality.
Value for Money (VfM)	Term used to assess whether the City has obtained the maximum benefit from the goods and services it acquires and/or provides, within the resources available to it. VfM measures the cost of goods and services and evaluates the mix of quality, cost, resource use, fitness for purpose, timeliness, and convenience to determine whether, when evaluated as a whole, they constitute good value. Achieving VfM may be described in terms of the three Es – economy, efficiency, and effectiveness.
Value Management	A structured team-based approach that uses concepts and methods to create sustainable value for both the City and stakeholders. Value management identifies functional requirements of projects/contracts to achieve optimum function for minimum cost. The aim of value management is to reconcile stakeholders' views and to achieve the best balance between satisfied needs and available resources.
Vendors	The people and organizations the project procures to provide products, services, and/or results to fill the gaps in the Project Team's knowledge of abilities, or to enhance the quality of the final product.
Whole-Life Costing	The total cost throughout its life including planning, design, acquisition, and support costs and other costs directly attributable to owning or using the asset,

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	including disposal costs; or
	An economic assessment considering all agreed projected significant and relevant cost flows over a period of analysis expressed in monetary value. The projected costs are those needed to achieve defined levels of performance, including reliability, safety, and availability.
	Whole-life Costing vs Lifecycle Costing
	Lifecycle Costing refers to the periodic replacement of assets based on typical asset life spans, whereas whole-life costing evaluates investment options, based on an evaluation encompassing all of the relevant costs of ownership over a defined time span.
	Broadly, lifecycle costs are associated directly with constructing and operating an asset, while whole-life costs include other costs such as land, income from the asset, and support costs associated with the asset. The expertise of the construction industry is best placed to deliver lifecycle costs which clients can use to calculate Whole-life Costs.
Work Breakdown Structure (WBS)	A hierarchical representation of the work to be executed in a project to accomplish the project objectives and create the required deliverables.
Workplace Safety and Health Act (WSHA)	An Act intended to "'secure workers and self-employed persons from risks to their safety, health and welfare arising out of, or in conjunction with, activities in their workplaces".
	Federal, provincial, and territorial governments are used as a guideline in Manitoba for drinking water quality.
Wrap Up Liability Insurance	This a liability policy of insurance that serves as all-encompassing insurance that protects all contactors, subcontractors, owners, etc., working on large construction projects, typically valued at over $10,000,000.

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