Section

3

Project Delivery Framework

Project Management Manual Sections

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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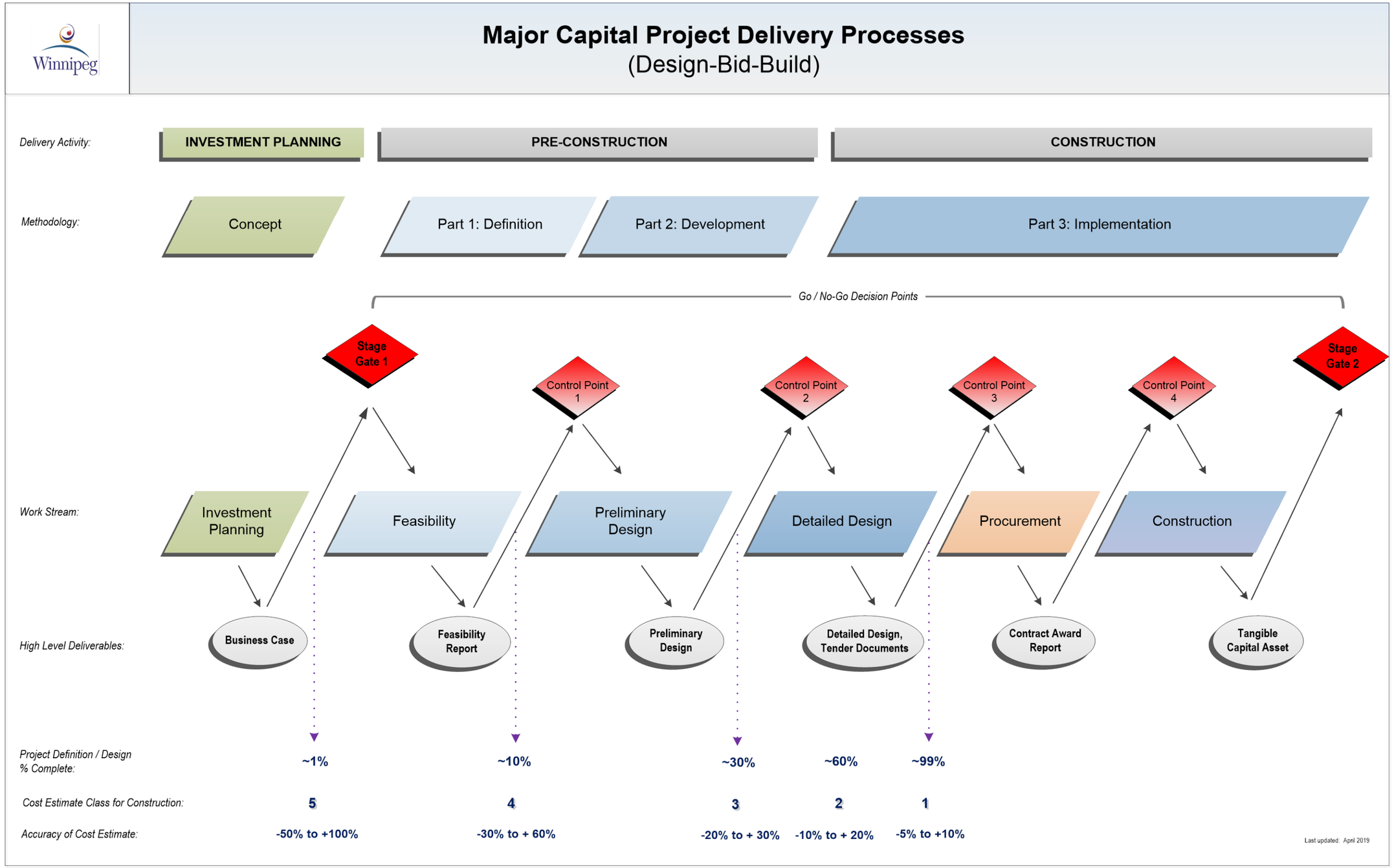
Figure 3-1. Major Capital Project Delivery Processes (Design-Bid-Build)



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.

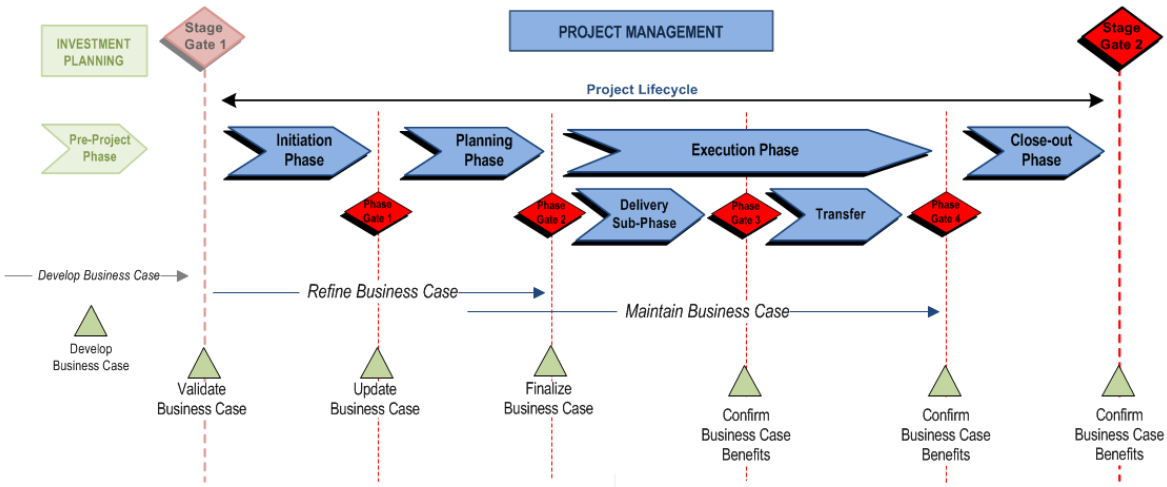
[5] *For **Major Capital Projects**, the Stage Gate #2 review is conducted by the Major Capital Project Advisory Committee and will focus on specific review on deliverables such as, but not limited to:*

- *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*

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.

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.

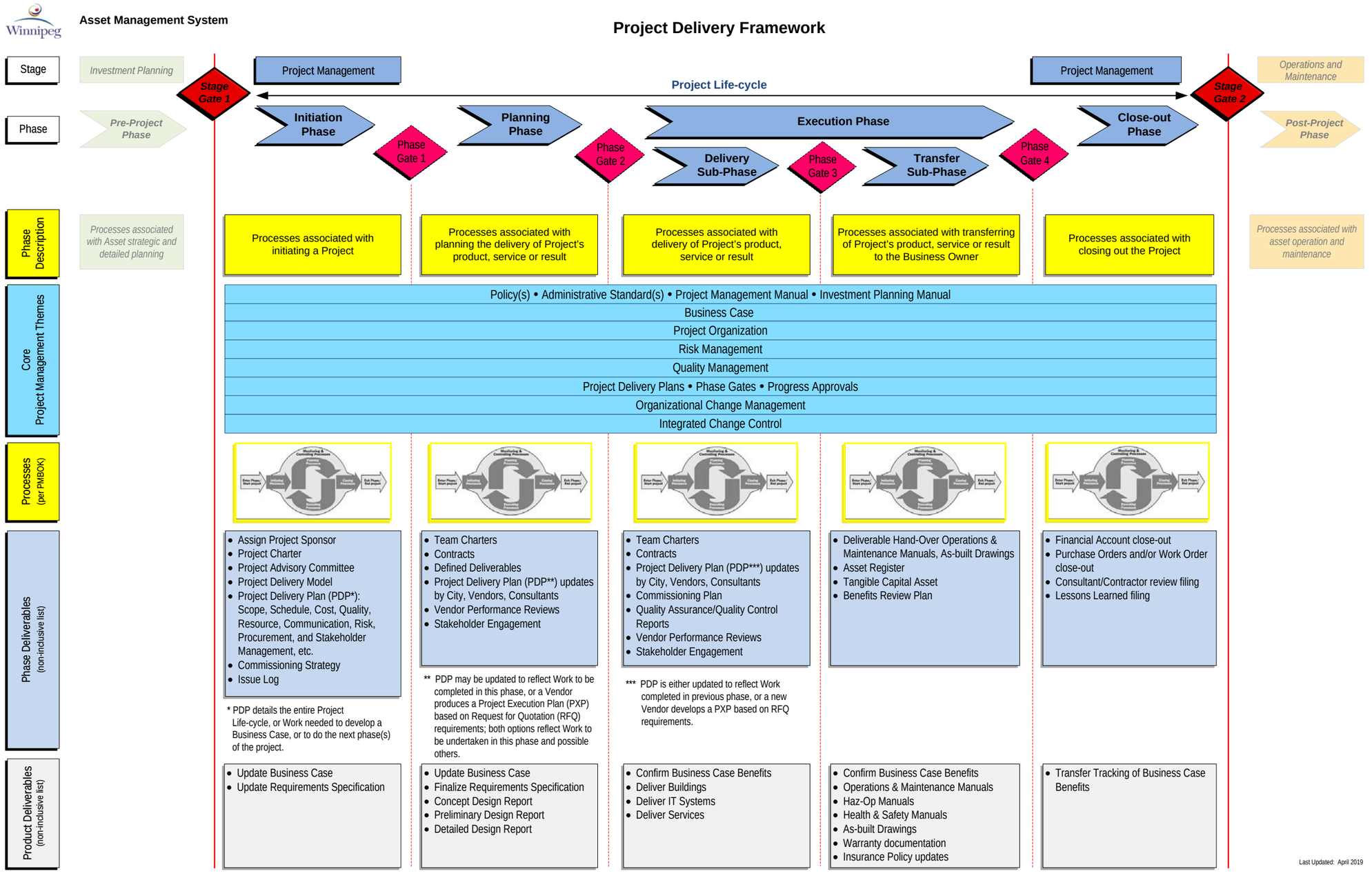
- **Develop Business Case** – Acquire information required to make the investment decision. For more information, refer to the Investment Planning Manual.
  - **Validate**: Assess whether the project has a valid Business Case to proceed.
  - **Update**: Update the Business Case with more detailed information 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)