



Waste Services IIS Infrastructure Planning and Design

Composite - Capital Funding Request

City Operations | Waste Services

City of Edmonton

Capital Profile: CPP# CM-81-0005

Project Number: CP# / OP# Various

Project Owner: Ellen Tian

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Version #: 5.0

Date published: October 12, 2018

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Change History

Version #	Date	Author	Description
1.0	7/20/2018	Natasha Singh	Version submitted for Team Lead, General Supervisor and Working Group review
2.0	8/1/2018	Natasha Singh	Revised version submitted for Director review
3.0	8/15/2018	Natasha Singh	Revised version submitted for Branch Manager Review
4.0	9/11/2018	Natasha Singh	Revised version submitted for Branch Manager and Utility Advisor Review
5.0	10/05/2018	Natasha Singh	Revised version submitted to Business Partner Review

Document Approval

SUBMITTED BY:

Version #	Submitter Name	Title	Submission Date
5.0	Stephanie Zhang	Team Lead Business Strategy Planning & Performance	10/12/2018

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Version #	Reviewer Name and Title	Signature	Signing Date
5.0	Ryan Kos, General Supervisor, Business Strategy Planning & Performance		10/12/2018
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5.0	Keith Knoblauch Operational Controller Business Financial Analytics		10/12/2018

APPROVED BY:

Version #	Approver Name and Title	Signature	Signing Date
5.0	Ellen Tian, Director Technical Services		10/12/2018
5.0	Michael Labrecque, Branch Manager Waste Services		10/12/2018

1. Executive Summary

1.1. IIS Project Development and Delivery Model (PDDM) composite renewal

The composite profile CM-81-0005 supports the preliminary planning and design work completed by Integrated Infrastructure Services (IIS) Infrastructure Planning and Design Branch for Waste Services capital projects. The approach followed for the preliminary planning and design work is consistent with Administration' implementation of the Project Development & Delivery Model (PDDM) as well as the Capital Project Governance Policy C591¹ that was approved by the Council in April 2017. The outcome of this profile is to provide Council with better information regarding the scope, schedule and budget of the proposed capital projects prior to full funding of the project.

Adherence to both the PDDM process as well as Policy C591 will ensure that sufficient information is prepared in advance of the Capital budget process to support informed investment decisions, provide adequate resources for planning and design to ensure appropriate level of planning and design is incorporated into budget submissions and provide an overall framework to guide the management of the Waste Services' capital projects.

As PDDM has previously been adopted by Council, this capital funding request establishes funding prioritization for Waste Services projects anticipated to enter the project planning stage within a checkpoint system with strategic controls on budget and schedule. The PDDM approach is a gated process for capital projects to ensure that projects are properly developed before they are funded for delivery.

While approval for funding in this profile is required to establish the initial 2019 - 2022 capital budget and projected utility rate increases over the 4 year period, approved funding for this profile does not indicate final budget or funding for any specific capital project.

This profile seeks funding for the planning and design work completed by IIS for Waste Services projects for 2019-2022 budget cycle. The four year capital projection for this profile is approximately \$9.3 million. A high level list of projects and estimated budget allocations is listed in Appendix A.

2. Background

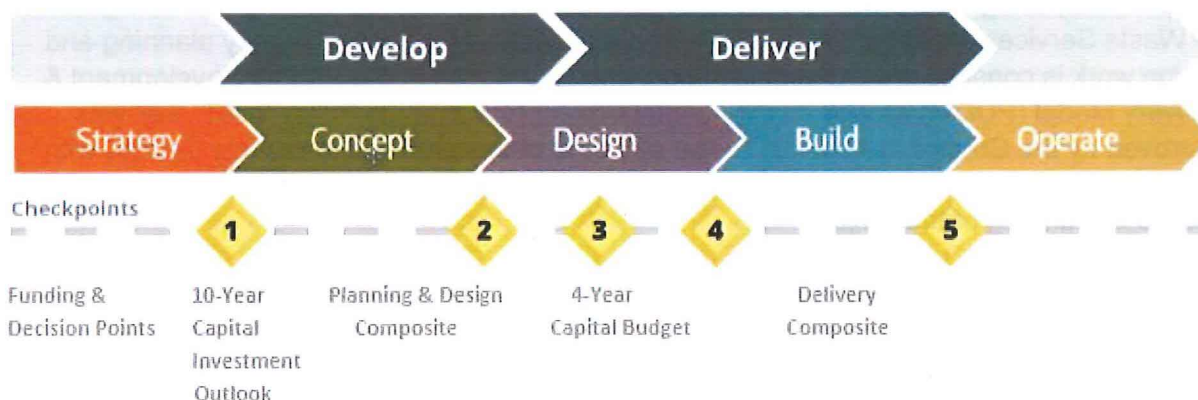
In 2016, the Integrated Infrastructure Services (IIS) Transformation program developed the PDDM which was endorsed by Council in 2017. The PDDM is a framework to manage all capital infrastructure projects and represents the best practices in project management from the industry and comparable municipalities. It aims to achieve the following outcomes²:

¹ <https://www.edmonton.ca/documents/PoliciesDirectives/C591.pdf>

² Integrated Infrastructure Services report CR_4120

- (1) Better information to make capital investment decisions
- (2) Improved project schedule and budget estimates through increased level of design to ensure realistic expectations are set prior to project tendering and construction
- (3) Systematic evaluation of projects against the initial project business case and scope

The PDDM flow chart is as below:



IIS delivers Waste Services capital projects using the PDDM process.

2.1. Problem / Opportunity

The current council directed approach will assist Waste Services in the management of capital projects in alignment with the PDDM process. The PDDM process offers a gated system where budget for comprehensive planning and design can be released in advance and once complete, decisions can be made regarding investments pertaining to the delivery of the projects rather than releasing the project budget as a whole upfront, as was prior practice. Without the additional details from a comprehensive planning and design process, the project estimates contained high value contingencies and the accuracy of the schedule and budget estimates varied significantly. Following the PDDM process will mitigate this risk and improve project and budget management practices for Waste Services. Projects included in this composite profile will address a number of Waste Services business needs such as the renewal of assets that have reached the end of their useful life, mitigation and elimination of safety and environmental risks and the need and opportunity for growth and continuous improvement.

2.2. Current Situation

Waste Services started utilizing the PDDM model under the direction of Council in 2017. Under this, funding for the project design and planning will be released to IIS prior to the delivery of the project to ensure on time and budget completion of the capital projects for Waste Services. Waste Services will continue to follow this process in the future.

3. Initiative Description

3.1. Initiative Description

This capital profile supports preliminary planning and design work on Waste Services infrastructure capital projects prior to budget approval. This approach is consistent with Administration's implementation of the PDDM as well as the Capital Governance Policy that was approved by Council in 2017.

Funding in the profile will be used to support preliminary planning and design work for Waste Services capital initiatives planned for delivery between 2019 and 2026. These projects include, but not limited to:

- Edmonton Compost Facility (ECF) mid and long term renewal (organics processing)
- Material Recovery Facility (MRF) renewal - interim solutions
- Edmonton Waste Management Centre (EWMC) site security audit upgrades,
- EWMC site civil servicing
- Refuse Derived Fuel (RDF) facility enhancement
- Compost Cure Site resurfacing
- Residual Transfer Station (RTS) Building Replacement and Upgrade and
- Other Waste Services planning and design projects considered for the 2023-2026 budget cycle

The projects listed above were identified by a Project Intake Request Form (PIRF), which was submitted by the project managers to Waste Services, indicating the project scope, justifications, schedules, risks and estimates. Appendix A provides further detail on the Waste Services PIRF process and outlines key criteria. Projects were then evaluated, ranked and prioritized based on the strategic and operational criteria set by the Waste Services. As the project costs used for requesting and evaluating the projects are estimates, they will be reviewed and validated in the early part of the budget period to assess the alignment with the long term asset strategic framework and plan that are being developed by Waste Services. The description of projects under this profile for 2019-2022 budget cycle is attached in Appendix B.

3.2. Urgency of Need

To adhere with the PDDM approach, preliminary planning and design should be completed on projects prior to the project's budget being approved in its entirety. This composite profile funds this work for Waste Services, so Administration can provide Utility Committee with better information regarding the scope, schedule and budget prior to approving and funding the entire project.

3.3. Anticipated Outcomes

In alignment with the PDDM approach, Waste Services will realize the achievement of branch goals through working with Integrated Infrastructure Services to effectively manage the planning

and design of capital projects. Effective asset management will ensure that Waste Services has the resources to achieve its objectives by aligning its vision, mission and strategic plan with daily activities to achieve its goals. Waste Services envisions the following outcomes:

Outcome /Deliverables
Better information to make capital investment decisions: through a structured and integrated process, administration will ensure that projects identified as priorities by Waste Services receive robust evaluation of alternatives and scope identification. Through the PDDM process, project maturity is regularly assessed to ensure that projects are ready to advance to the next stage of development.
Improved project schedule and budget estimates based on enhanced design details. Early investment of capital design resources allows sufficient lead time allocated on planning of the projects, thus decreasing the possibility of project scope and budget changes. Completing design work early in a project lifecycle allows the greatest ability to impact overall project outcomes.
Reliable facilities and infrastructure that enable sustainable waste management in a cost effective manner
High levels of customer service delivered in both an efficient and effective way through leading-edge waste processing facilities that use current and emergent technology to enable high rates of diversion of waste from landfill
Facilities that can be operated in a safe manner, protecting employees, customers and contractors

3.4. Scope

Scope of this Capital Funding Request includes the concept and schematic design of the PDDM approach which includes Checkpoint 1 (Project initiation), Checkpoint 2 (Authorization for Design Expenditure) and Checkpoint 3 (Approval for Capital Budget) documentation and review for all Capital projects being managed by IIS on behalf of Waste Services.

Checkpoint 1: Projects are reviewed for readiness to begin design process and approve funding for concept planning. This stage includes assessment of the project for maturity, appropriate definition of scope and priority.³

Checkpoint 2: This checkpoint is to establish readiness of the project to complete the Concept Phase and begin to develop the project to an appropriate level of maturity to request capital funding. Once concept planning is complete, the project will be evaluated for priority to receive

³ Source: <https://sites.google.com/a/edmonton.ca/pmrg/pddm/checkpoint-1>

additional design funding for Development Design. Project must be at an appropriate maturity level and the scope must be confirmed.⁴

Checkpoint 3: This checkpoint is to verify the project has reached an appropriate level of maturity to request capital funding. Projects will be taken to a level of design that will yield more reliable estimates before being put forward for prioritization and inclusion in the Capital Budget. The project must be developed enough to move forward and the scope must be reviewed⁵

3.5. Out of Scope

Project delivery phase of the PDDM is out of the scope for this Capital Funding Request. This includes work after Checkpoint 3 is completed, Checkpoint 4 (Authorization for Construction expenditure) and Checkpoint 5 (Authorization for closeout) of the PDDM.

3.6. Critical Success Factors

Critical success factors include:

- Efficient, consistent and accurate communication between Waste Services and IIS
- Regular check-ins with IIS to ensure projects continue to meet the budget, scope and schedule requirements
- Regular check-ins with the Waste Services Branch Leadership team to ensure alignment with the branch asset management strategy
- Accurate and sufficient data and cost analysis to support high level budget estimate and informed decision making

4. Strategic Alignment

Waste Services is committed to advancing Council's vision and goals. Council's Strategic Plan and the Corporate Business Plan will provide a blueprint to coordinate activities and efforts between the goals and the corporation to make an impact towards achieving the vision. As these are developed, Waste Services will work collaboratively to ensure the strategic direction of the Branch is in alignment with that of the department, corporation, Council and citizens. This profile aligns with the following new strategic goals of the City of Edmonton.

Healthy City	Urban Places	Regional Prosperity	Climate Resilience
Edmonton is a neighbourly city with	Edmonton neighbourhoods are	Edmonton grows prosperity for our	Edmonton is a city transitioning to a low-

⁴ Source: <https://sites.google.com/a/edmonton.ca/pmrg/pddm/checkpoint-2>

⁵ Source: <https://sites.google.com/a/edmonton.ca/pmrg/pddm/checkpoint-3>

community and personal wellness that embodies and promotes equity for all Edmontonians.	more vibrant as density increases, where people and businesses thrive and where housing and mobility options are plentiful.	Metro Region by driving innovation, competitiveness and relevance for our businesses at the local and global level.	carbon future, has clean air and water and is adapting to a changing climate.
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In addition to this overarching corporate alignment structure, individual projects approved within this composite profile will align with the City of Edmonton’s Waste Management Policy C527 and Waste Management Utility Fiscal Policy C558A as well as the Capital Project Governance Policy C591. This profile also aligns with Waste Services integrated 25-year strategic outlook that will help to ensure Edmontonians receive maximum economic and environmental benefits while minimizing the cost increases of managing solid waste.

5. Context Analysis

Requested funding for project planning and design work for capital projects is consistent with Administration's implementation of the Project Development & Delivery Model as well as the Capital Governance Policy approved by Council in 2016.

6. Organizational Change Impact

Waste Management Services staff, reporting through Technical Services section, work closely with the Integrated Infrastructure Services Department to plan and design capital projects. This Capital Funding Request represents the continuation of current business practice, so no additional organizational change impact is expected.

6.1. Stakeholder Impact

The table below identifies the stakeholders and the potential impacts for the option recommended by Waste Services.

Stakeholder Requirement
<i>Stakeholder 1: City of Edmonton Waste Services Branch (primary internal)</i>
1. Well defined and consistent process in alignment with rest of the City

<ol style="list-style-type: none"> Enhanced consultation, recommendation and approval for Planning and Design checkpoints for Waste Projects managed by IIS as part of a project team
<p>Stakeholder 2: Integrated Infrastructure Services (<i>primary internal</i>)</p>
<ol style="list-style-type: none"> Enhanced Project Management for approved Capital projects utilizing input from Waste Services. Improved process for capital funding for projects in composite profile for Waste Services
<p>Stakeholder 3: City Council (<i>primary internal</i>)</p>
<ol style="list-style-type: none"> Increased transparency, accuracy, reliability of project schedule and budget estimates Ability to provide political direction and have access to accurate project information
<p>Stakeholder 4: City of Edmonton public (<i>secondary external</i>)</p>
<ol style="list-style-type: none"> Maintenance of stable/low utility rate through the effective delivery of capital projects Minimal disruption to service levels through delivery process.

6.2. Business and Operational Impact

The table below identifies the business and operational impacts for continue to following PDDM model as recommended by Waste Services.

Business & Operational Impact & Description
<p>Waste Services (<i>primary internal</i>)</p> <ul style="list-style-type: none"> More upfront planning required from Waste Services allocated resources for completing Checkpoint 1 requirements and supporting Checkpoint 2 and Checkpoint 3 documents preparation
<p>Integrated Infrastructure Services (<i>primary internal</i>)</p> <ul style="list-style-type: none"> More upfront planning required from the allocated resources to support Checkpoint 1 transition and complete the conceptual and schematic design, as well as Checkpoint 2 and Checkpoint 3 documents preparation

7. Cost Benefits

7.1. Tangible Benefits

The following tangible benefits are expected to be realized by following this approach:

- Accurate information to make better capital investment decisions
- More accurate project budget and schedule estimate at checkpoint 3 for decision making
- Increased adherence to budget and schedule estimates
- Improved efficiency in project management
- Increased accuracy of forecasting capital expenditure thus allowing for more certainty in utility rates

7.2. Intangible Benefits

The following intangible benefits will be realized by following the new approach:

- Allow for early investment in design to support detailed business cases
- Structured process to evaluate project readiness, scope and prioritization
- Allow for better opportunities to make major changes in project scope if problems are identified during the early planning and design phases
- Increased project accountability
- Increased project awareness and controls
- Closer integration of City departments

7.3. Costs

REQUEST	2019	2020	2021	2022	TOTAL PROFILE BUDGET
Budget Request <i>(note: funded by Utility Pool)</i>	\$5,473,000	\$1,610,000	\$1,800,000	\$400,000	\$9,283,000

The list of projects under this profile for 2019-2022 budget cycle is attached in Appendix B.

7.4. Assumptions

- Projects in this composite profile have allocated budget amounts that are based on high level estimates. The actual costs of the approved capital projects in this composite profile may vary once preliminary planning stage is completed by IIS.
- All of the proposed projects in this composite profile have been prioritized based on the

approval of Waste Services proposed program changes that are pending decision of Utility Committee and City Council.

8. Resourcing

Early investment in design by IIS will require reallocation of capital funding to planning and design efforts prior to project-specific approval from Waste Services. There is no expected additional resourcing impact on Waste Services FTE.

9. Key Risk(s) and Mitigation Strategy

RISK(S)	IMPACT	MITIGATION STRATEGY
Extended project planning time required due to additional inter-departmental coordination	Medium	<ul style="list-style-type: none"> Clarify and implement mutual expectations between IIS and Waste Services Work with IIS to fast track projects requiring Alberta Environment and Parks approval to meet the regulatory timelines
Projects scope may change and a revised preliminary planning and design plan is required to ensure project deliverables are met	Medium	<ul style="list-style-type: none"> Rework the scope and design to fit the intended outcome Enhanced project communication between IIS and Waste Services Increased collaboration and shared decision making between IIS and Waste Services.
Scope is not fully developed during Strategy phase and requirements are not fully developed for Planning & Design or Delivery phases	Medium	<ul style="list-style-type: none"> Scope is revisited during Planning & Design phase to ensure that all requirements are understood and documented. Requirements that are missed in Planning & Design phase would likely have a severe or higher impact during delivery
Capital project may not get approved after spending resources on concept planning and design	Low	<ul style="list-style-type: none"> Re-work the scope and designs to fit Councils expectations or cancel the project based on Council's decision

Projects may not proceed or may be delayed due to other Branch priorities	Low	<ul style="list-style-type: none"> ● Keep project team updated on branch priorities ● Constantly checking the branch strategy and project alignment with the Branch goals ● Change of project schedule and deliverables
Projects may be cancelled if the project planning and design does not meet the intended outcome	Low	<ul style="list-style-type: none"> ● Rework the scope and design to fit the intended outcome ● Enhanced project communication between IIS and Waste Services ● Increased collaboration and shared decision making between IIS and Waste Services

10. Conclusion and Recommendations

10.1. Conclusion

This Capital Funding Request evaluated the overall capital budget for preliminary planning and design work completed by Integrated Infrastructure Services (IIS) Infrastructure Planning and Design Branch for Waste Services for the budget period 2019-2022. Funds are required for planning and design to adhere with the Project Development and Delivery Model, improve project schedule adherence and improve budget estimates through increased level of design. A capital budget of approximately \$9.3 million is required for the preliminary planning and design for various projects in Waste Services composite profile in the next 4 years.

10.2. Recommendations

Waste Services is recommending to continue following the PDDM proposed by IIS and release funds for project planning and design phase for all capital projects managed by IIS. This will lead to better information to make capital investment decisions, and improved project schedule and budget estimates before full budget approval is received.

10.3. Project Responsibility and Accountability

The Project Sponsor and budget owner for all approved capital projects in this composite profile is the Branch Manager of Waste Services. The overall capital program is managed by the Director of Technical Services. Individual projects are led by Project Managers that report to the

General Supervisors of Technical Services.

11. Implementation Approach

IIS will complete the planning and design phase for the respective projects listed in Appendix B for Waste Services. The respective project managers from Waste Services and IIS will be responsible for accurate spending of these funds and timely completion of the projects. The estimated completion of the planning and design phase for the projects for 2019-2022 budget cycle is four years. This profile also requests funding for projects that will be delivered in 2023-2026 budget cycle. The planning and design for all the listed projects will be completed by 2022.

12. Review and Approval Process

The following review and approval process was followed for this Capital Funding Request:

Review Step	Reviewer
Review 1	Team Lead of Business Integration, General Supervisor of Business Integration and General Supervisor of Technical Services
Review 2	Operational Controller for Waste Services, Director of Business Integration, Director of Technical Services, IIS Supervisor for Waste Services and Branch Manager Waste Services
Review 3	Deputy City Manager
Review 4	Communications
Review 5	City Manager & Utility Advisor
Review 6	Utility Committee report presented

13. Appendices

Appendix A: Waste Services Internal Project Intake Request Process (PIRF)

Appendix B: Waste Services Planning and Design Project Description- 2019-2022 Projects

Appendix C: Financial Analysis Summary (Waste Services Planning and Design composite profile)

Appendix A: Waste Services Internal Project Intake Request Form Process (PIRF)

The following list outlines the PIRF process:

1. Business needs are identified for all branch areas and a Project Intake Request Form (PIRF) is created for each proposed project for planning and design or delivery within budget cycle years (2019-2022)
2. Each PIRF is categorized as one of the following: High Priority Major Projects, Operational Efficiency Improvements, and Asset Management (Renewal).
3. Projects for each category is then evaluated based on defined strategic and operational criteria and assigned a score.
4. Projects are then prioritized within each category based on criteria score.
5. Budget is allocated to each category, with each category being assigned a percentage of the total budget:
 - a. 92.5% to High priority Major Projects, 2.5% to Operational Efficiency Improvements, and 5% to Asset Management (Renewal)
6. Projects are recommended based on prioritization with budget estimates.
7. Waste Services Leadership Team will review and approve the final list. Waste Services Leadership Team can adjust the project list according to the Branch priority.

The following table shows a sample scoring criteria for projects within the PIRF process

Strategic Criteria (50 pts)				Operational Criteria (50 pts)				
Legislated, Mandated, or Required by Law (20)	Health and Safety (15)	Energy and Climate (5)	Council Mandate (10)	Project Coordination (10)	Organization Impact (10)	Change in Demand (10)	Level of Service (10)	Strategic Risk (10)

Appendix B: Waste Services Planning and Design Project Description-2019-2022 Projects:

Profile Name	Profile #	Project Name	Project Description
Waste Services Project Planning & Design (IIS Managed)	CM-81-005	19-33-2045 Organics Processing	Project will deal with the repair or replacement to the ECF as well as the expansion of the Organic Processing Facility (OPF) tip floor to accommodate direct delivery of Source Separated Organics (SSO) program.
		19-33-2046 EWMC Site Civil Servicing	Project supports the development of an integrated master plan for the EWMC site, including items such as stormwater, groundwater, roads, parking lots, working areas and underground utilities among other and will be further aligned with existing plans such as groundwater diversion plan, and leachate management plan.
		22-33-2020 Material Recovery Facility Renewal (MRF)	A long term strategy is under development for the Materials Recovery Facility (MRF). This project will support the planning and design of the recommended option stemming from this long term strategy.
		EWMC Site Security Upgrade	Project supports upgrading EWMC site security to meet the corporate standards and includes but is not limited to replacing existing camera systems, installing new and replacing old fencing, increased signage, replacing existing card access system to the site and buildings and addressing some site access points.
		Compost Cure Site resurfacing	Project supports the renewal of the existing cure site. The current site is approaching the end of its lifecycle and major maintenance and/or repair work needs to be done with regard to the site liner and site drainage.
		RDF Enhancement	Project supports the installation of a second pre-shredder and an alternative RDF offloading system to deliver processed RDF material to Waste Services clients.
		Waste Services Planning & Design (Note 1)	These includes multiple initiatives that require planning and design for the new projects delivered in 2023-2026 budget cycle.
		RTS Building Replacement & Upgrade	Projects support the upgrade and replacement of aging RTS buildings and will include development of new customer drop off areas for household hazardous waste, E-waste, refrigerators etc.

Note 1: These funds ensure there is budget available to start planning/investigating potential capital initiatives in the next budget cycles in anticipation of new projects.

Appendix C: Costs - Financial Analysis Summary (Waste Services Planning and Design Composite Profile):

Waste Services Vehicle & Equipment (2019-2022)	ALTERNATIVE 1- Follow PDDM model
Total Capital Cost	(\$9,283,000)
Total Revenues	\$0
Total Operating and Maintenance Costs	\$0
Total Lease Costs	\$0
Project Net Inflows (Outflows)	(\$9,283,000)
WACC Discount Rate	5.41%
Net Present Value	(\$8,064,654)

Note: Planning and Design costs have been added to the PDDM Delivery Capital Funding Request costs for revenue requirement calculation purposes in order to demonstrate the full project spending. Please refer to Appendix C of the Waste Services PDDM Delivery Capital Funding Request for the resulting analysis.