Winnipeg
Audit Department
Service de vérification

Waverley West Arterial Roads Project Audit

December 2014

Leaders in building public trust in civic government

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MANDATE OF THE CITY AUDITOR

- The City Auditor is a statutory officer appointed by City Council under *The City of Winnipeg Charter*. The City Auditor is independent of the Public Service and reports directly to Executive Policy Committee, which serves as the City's Audit Committee.
- The City Auditor conducts examinations of the operations of the City and its affiliated bodies to assist Council in its governance role of ensuring the Public Service's accountability for the quality of stewardship over public funds and for the achievement of value for money in City operations.
- Once an audit report has been communicated to Council, it becomes a public document.

AUDIT BACKGROUND

- The Standing Policy Committee ("SPC") on Finance initiated a motion in its December 3, 2012 meeting that "the Waverley West Arterial Roads Project be referred to the City of Winnipeg Audit Department to be given priority for an Audit of the entire project thus far." This motion was made in the same meeting that a report was submitted by the Public Works Department identifying a potential $20 million (37%) shortfall in the originally approved $54.7 million capital budget for the Waverley West Arterial Roads Project ("WWARP" or "the Project").
- Council passed the committee's motion in its December 12, 2012 meeting. The audit was added to the City Auditor's updated audit plan for 2013, which was endorsed by Audit Committee.

AUDIT OBJECTIVES

- The original objectives of our audit were:
  - To determine the reasons for the reported potential $20 million budget shortfall for the Project by evaluating the reasonability of the original Project capital budget submission and evaluating the project management to date
  - To evaluate the reasonability of budget increases to date
  - To evaluate the cost reporting as of December 31, 2012
- After observing similar results to those in our 2008 *Capital Project Management Audit* (because the WWARP began shortly after the release of that audit) we extended our work to also review the current status of the City's capital project management guidance.

PROJECT RISK ANALYSIS

- When the costs of a project exceed its approved budget, there is a risk of assuming the cause of the overage is poor project management; however, this may not be the cause. There are several *potential* reasons for costs to exceed budget, including:
  - An approved budget that was too preliminary to predict the project costs with much accuracy
  - Circumstances arising that were beyond the Project Manager's control (for example changing needs, expectations, plans, or input costs)
  - Poor project management
- Our audit focused on determining which of these factors caused the Project's increased budget, as well as providing an overall evaluation of the project management to date.
- Individual audit area risk assessments are provided for each issue discussed. The assessments detail the residual risk for issues after considering the City's risk mitigation controls. Our risk assessment criteria are shown in **Appendix 1.**

SCOPE

- On December 12, 2012 Council adopted a motion that an audit be completed on the "entire project thus far" (see **Appendix 2**). The scope of this audit included an examination of Project activities and financial reporting from the conceptualization of principle elements of the Project until December 31, 2012. Financial information for periods beyond December 31, 2012 was not audited.
- Our construction quality control testing observations occurred during summer 2013.
- Our audit fieldwork was completed in September, 2013. As none of the Project phases had been closed by the completion of our fieldwork, we were unable to evaluate if the Project had met the "Closing Process Group" requirements of the PMBOK® Guide Project Management Standard.
- Our scope was limited by the Public Works Department not collecting and maintaining the quality control reports for constructed assets before receiving final project administration reports from its consultants. This prevented us from completing our evaluation of quality control management adequacy for the constructed assets to December 31, 2012.
- During the reporting phase of our audit (see **Appendix 3**) a revised draft of the Public Service's updated *Project Management Manual*, dated April 22, 2014, was received by the Public Service from its consultant. Our recommendations incorporate our review of the April 22, 2014 manual.

APPROACH AND CRITERIA

- We conducted our audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient appropriate evidence to provide a reasonable basis for our observations and conclusions, based on our audit objectives. We believe the evidence we have obtained provides a reasonable basis for our observations and conclusions.
- To gather sufficient appropriate evidence for our audit, we reviewed the City of Winnipeg's documented standards and guidance for capital budgeting and capital project management. We also researched commonly accepted industry standards and guidance for the same. We then conducted our fieldwork, which compared the Public Works Department's documentation and live processes for the Waverley West Arterial Roads Project to both the City's and industry standards and guidelines.
- The City's project management standards we used are:
    - "Manual of Project Administration Practice" (Draft)
    - *Administrative Directive No. FM-004: Capital Project Administration*
    - Council's *Materials Management Policy*
    - *Administrative Standard No. FM-002: Pursuant to the Materials Management Policy*
    - *General Conditions for Consulting Services*
    - *General Conditions for Construction*
    - *Standard Construction Specifications*
- Commonly accepted industry capital budgeting and cost estimation practices we used included:
    - Recommended Practices of the Government Finance Officers' Association (GFOA)
    - Recommended Practices of The Association for the Advancement of Cost Engineering (AACE)
    - Accounting principles of the Canadian Institute of Chartered Accountants (CICA)
- Commonly accepted project management standards we used included the Project Management Institute's:
    - *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) Fifth Edition*
    - *Construction Extension to the PMBOK® Guide Third Edition*
- We also reviewed the City's April 22, 2014 draft *Project Management Manual* to determine if it has sufficiently addressed the recommendations of our 2008 *Capital Project Management Audit* and the observations we had in this audit.
- **Appendix 3** provides a flowchart of the audit process.

CONCLUSIONS

The $20 million projected budget shortfall was the result of an inadequate budget and unanticipated scope changes for the Project.

- The 2010 Capital Budget estimate for the Project was too preliminary to accurately forecast the Project costs. This accounts for $15 million of the reported potential shortfall.
- The remaining $5 million was due to unanticipated scope changes requested by the Province of Manitoba at the corner of Kenaston Boulevard and Provincial Trunk Highway 100 ("the Perimeter") in 2012. The scope changes were subsequently cancelled through negotiation with the province, resulting in the final potential shortfall of $15 million detailed above.

The $54.7 million estimate for the Project was very preliminary, does not have enough supporting documentation to verify how or when it was created, and does not appear to be based on the most detailed information available at the time.

- The $54.7 million estimate was created for a project funding application to the Building Canada Fund, submitted in June 2009. The estimate was then included in the 2010 Capital Budget, adopted in December 2009. It is a "Class 5 estimate." The Capital Budget states that Class 5 estimates are based on 0% to 2% project definition and have a stated accuracy between -50% and +100% of the estimated amount.
- The fact that the original Project budget was a Class 5 estimate was not clearly disclosed on the capital project detail sheet in the 2010 Capital Budget. (Furthermore, the stated accuracy ranges for estimate classes in the Capital Budget are not based an appropriate AACE Recommended Practice.) Although Winnipeg is a leader in disclosing cost estimate classes in its Capital Budgets, improvements in the consistency and clarity of estimate class disclosures are required.
- While we did obtain documentation for the $54.7 million estimate, the documents were of rough-draft quality, and prevented us from determining where or when the documents originated, or what methodology was used to create the estimate. From the supporting documents made available to us, the methodology that produced the $54.7 million amount cannot be verified.
- Before the Building Canada Fund application was submitted, the Public Works Department had in its possession a credible, more detailed cost estimate of $62.5 million for the Project from one of the developers. Due to the lack of documentation for the $54.7 million estimate, we are also unable to conclude why this $62.5 million amount was not included in the Building Canada Fund application, rather than $54.7 million.
- The Public Service believes that the $54.7 million estimate was also created by one of the developers for the Building Canada Fund application; however, due to the lack of any formal documentation of such an arrangement, this cannot be verified.

Project management met almost all of the City's standards but did not meet PMBOK® standards in several areas.

- Project management met the City's project management standards except in the Risk Management processes. The exceptions included not completing a comprehensive risk management plan at the beginning of the Project, not establishing a Major Capital Project Steering Committee before December 31, 2012, and not submitting the Project to the SPC on Finance for review and comment, as required by *Administrative Directive No. FM-004: Capital Project Administration*.
- The Project met the PMBOK® Project Management Standard in six of fourteen relevant project management areas. The Project met the standard in Scope Management, Cost Management, Procurement Management, Safety Management, Financial Management, and Claims Management. We note, however, that the City's lack of formal written project management guidance was the only issue, in our opinion, that prevented the Project from meeting the standard in Time Management, Human Resource Management, Stakeholder Management, and Environmental Management; the Project activities conducted in these areas did meet the standard. The Project did not meet the PMBOK® standard in Integration Management, Quality Management, Communications Management, and Risk Management.
- Cost estimation is a part of the Project Cost Management area of the PMBOK® Project Management Standard. While the Project technically met both the PMBOK® and City's standards in this project management area, neither of these sets of standards dictate the level of quality that a budget must reach in order to be considered acceptable. Therefore, while cost estimation for the Project followed the prescribed process, lack of a quality estimate in the Cost Management area was still the cause of the projected $20 million shortfall.
- We found that improvements could be made to other functional areas of Project Management for the City; however, we do not believe that poor management of any other functional area of this Project contributed significantly to the projected shortfall.

The revised Project budget is reasonable, based on the stated accuracy range for a Class 5 estimate in the 2010 Capital Budget.

- The Capital Budget states Class 5 estimates have an accuracy ranging between -50% and +100% of the estimated cost.
- The Project's approved budget increases as of December 31, 2012 were $15 million (+27% of the 2010 Capital Budget). The budget increase is reasonable since it falls within the stated accuracy range of the original Class 5 estimate.
- The Audit Department determined that the December 31, 2012 project budget of $69.7 million is a Class 3 estimate and, therefore, total Project costs could still exceed the estimate. This was not stated in the 2013 Capital Budget.

Costs have been appropriately reported.

- The actual Project costs incurred of $20,505,550 as of December 31, 2012 were fairly presented to the SPC on Finance in the Public Works Department's "Waverley West Arterial Roads Project – Financial Status Report No. 2".[1]

The draft* Project Management Manual *developed through the Public Service's Asset Management Initiative significantly improves the Public Service's capital project management guidance.

- The Public Service started the Asset Management Initiative in 2010, which included the creation of the Infrastructure Planning Division of the Corporate Finance Department. This division's responsibilities include developing policies and procedures, in conjunction with other City departments, relating to capital project management.
- The Public Service informed us that the Asset Management Initiative has been a major undertaking for the City as a whole and has been developed as time and resources have allowed.
- As part of the Asset Management Initiative, the Public Service intends to revise its current *Administrative Directive No.* FM-004*: Capital Project Administration* to require a minimum of a Class 3 estimate for Major Capital Projects to commence the procurement of construction service for the projects, or to require Executive Policy approval in the event that there is not a Class 3 estimate.
- Another part of the initiative was to create a *Project Management Manual*, which is intended to provide comprehensive project management guidance to all project managers across the Public Service. The current draft of the *Project Management Manual* provides much more comprehensive guidance than the Public Service's 1992 draft "Manual of Project Administration Practice".
- We have made recommendations for revision to the April 22, 2014 draft *Project Management Manual* based on our audit of the WWARP. In our opinion, the recommended revisions will bring the manual into compliance with the PMBOK® Project Management Standard in the area of project management guidance.

[1] The City of Winnipeg. Standing Policy Committee on Finance Agenda. Item No. 3. 11 April 2013.

INDEPENDENCE

The team members selected for the audit did not have any conflicts of interest related to the audit's subject matter.

ACKNOWLEDGEMENT

The Audit Department wants to extend its appreciation to all of the stakeholders who participated in this audit and especially to the Public Works Department's staff for their time and cooperation.

The Audit Team

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December 2014
Date

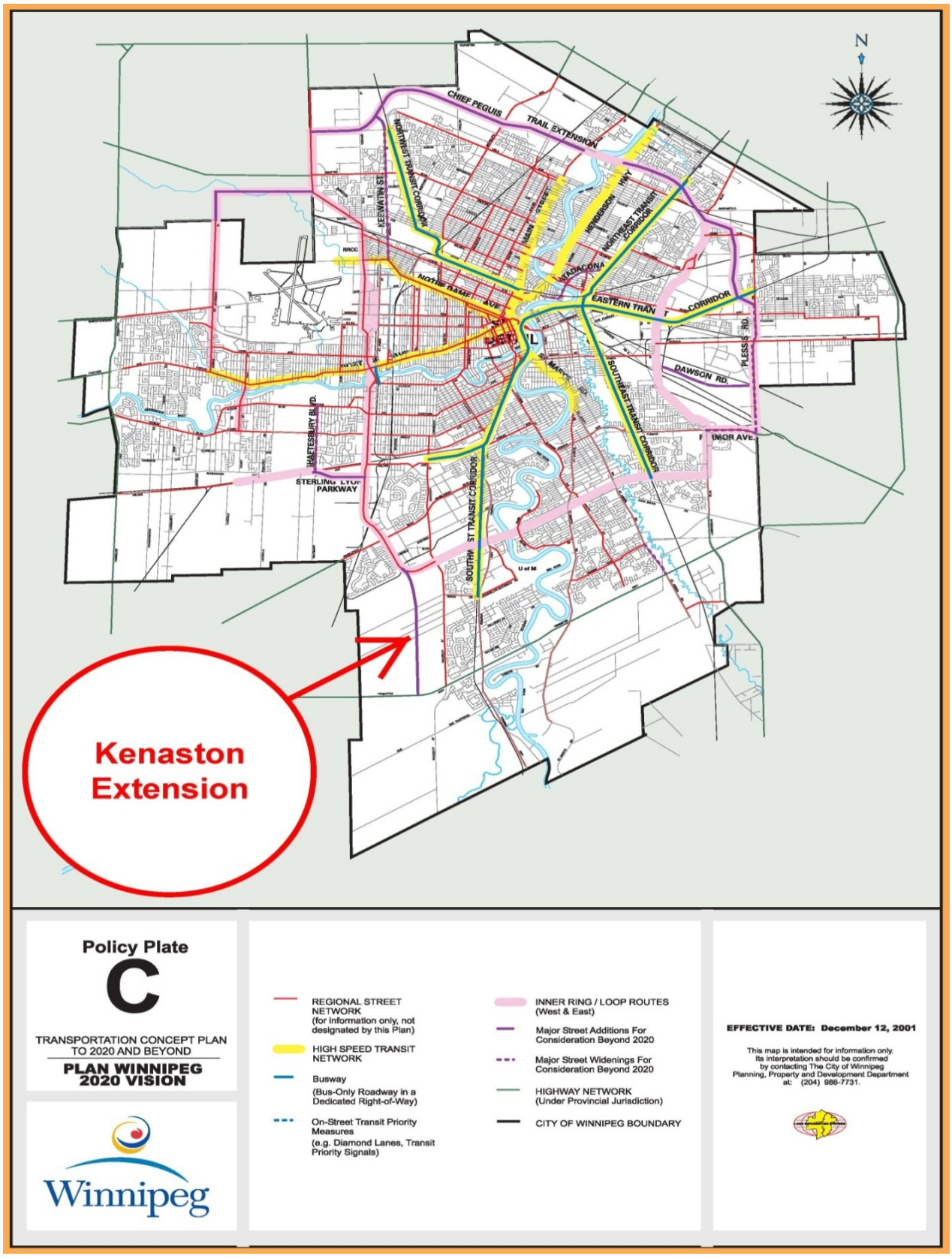
Project Background

1.1 History of the Project

- The conceptualization of the Project began when the City passed its December 2001 *Plan Winnipeg: 2020 Vision and Beyond* development plan. "Policy Plate C" (see next page) included an extension of Kenaston Boulevard from its intersection with Bishop Grandin Boulevard to Provincial Trunk Highway 100 ("the Perimeter") as a "major street addition for consideration beyond 2020".
- Media reports began surfacing in January 2003 that the Province of Manitoba and Ladco Ltd., the two largest land owners of the tract that the Kenaston extension would run through, were working together on a proposal for a Waverley West development.
- A request to amend *Plan Winnipeg: 2020 Vision and Beyond* was made by the developers, and the "Waverley West Area Structure Plan" By-law No. 10/2006 was passed on July 26, 2006, approving initiation of the development. The Area Structure Plan contained many of the components that would become what is now the Waverley West Arterial Roads Project ("WWARP" or "the Project").
- The roadway network is a vital part to the development of Waverley West. This network needed to be completed for the developers to be able to construct each planned neighborhood. The Area Structure Plan estimated the build out of the elements of the Project would be completed by 2021 (with the vast majority being completed by 2016).
- In June 2009, an application was made by the City (care of the Public Works Department) for the WWARP to receive funding under the Building Canada Fund, a part of the Government of Canada's "Economic Action Plan". An estimate of $54.7 million was submitted as part of the application.
- In September 2009, a tri-government announcement was made by the Government of Canada, the Province of Manitoba, and the City of Winnipeg for the start of the Project.
- A Project Manager was assigned to the WWARP in December 2009; the Director of Public Works had been in charge of project administration until that point.
- The Project was included in the 2010 Preliminary Capital Budget at an estimated total cost of $54.7 million, matching the estimate included in the Building Canada Fund application. The Capital Budget was adopted by Council on December 15, 2009.
- Construction began in August 2011 after an environmental screening of the Project was completed for the Government of Canada.
- In December 2012, the Public Works Department brought it to the attention of Standing Policy Committee ("SPC") on Finance that the Project faced a potential budget shortfall of $20 million (+37% of the 2010 Capital Budget estimate).[1] Following further analysis and discussion, a budget increase of $15 million was recommended to Council by the SPC on Finance. The Committee also moved that the Audit Department complete an audit of the Project to date. The motion for an audit was passed by Council on December 12, 2012 (see **Appendix 2**).
- The budget increase of $15 million was passed by Council in the 2013 Capital Budget, bringing the revised Project budget to $69.7 million.
- The completion deadline for the Project is November 30, 2015.

[1] The City of Winnipeg. Standing Policy Committee on Finance Agenda. Item No. 8. 3 December 2012.

Figure 1: The Beginnings of the WWARP in Winnipeg's Development Plan



1.2 Project Makeup

- The components of the Project are shown below:

Figure 2: WWARP Project Overview

1 Reconfiguration of Kenaston Blvd and Bishop Grandin Blvd intersection.

2 New four lane arterial roadway linking Kenaston Blvd/Bishop Grandin Blvd intersection with PTH 100 (south perimeter).

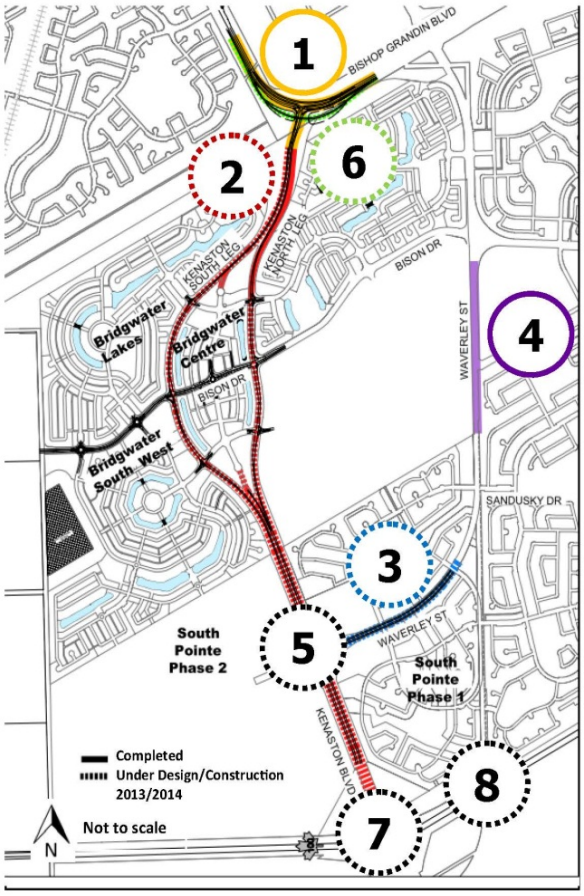
3 New four lane section of Waverley St that will align with the proposed Kenaston extension.

4 Addition of two new lanes and rehabilitation of two existing lanes of Waverley St from Sandusky Dr to Bison Dr.

5 New at-grade intersection at the realigned Waverley St and Kenaston Blvd intersection.

6 Grade-separated structure for southbound Kenaston Blvd to eastbound Bishop Grandin Blvd traffic using a fly-over structure.

7 New at-grade intersection at Kenaston Blvd and PTH 100.



8 Decommissioning of north access of existing at-grade signalized intersection at Waverley St and PTH 100.

~Source: Public Works Department website October 17, 2013

- The Project involves the extension of Kenaston Boulevard to the Perimeter, as well as the construction of a partial grade-separated interchange at Kenaston's intersection with Bishop Grandin Boulevard, and improvements and realignment of Waverley Street south of Bison Drive. Both Kenaston and Waverley will be upgraded to Major Arterial Road classification as defined by the Transportation Association of Canada (TAC).
- The Project is divided into three major "Parts". Part I includes component 1 and the solid red line for component 2 in the figure above. Part II includes components 3 and 4. Part III includes the dotted red line for component 2, as well as components 5 through 8.
- The Project also includes signage, pathways, land drainage sewers, and landscaping works lining the constructed roadways.

- The Project does not include any sanitation sewer or water works intersecting the project footprint.

1.4 Project Resources

- The Project is being managed by one Streets Project Engineer (Project Manager role) from the Engineering Division of the Public Works Department. The Project Manager has been assigned to the Project full-time since December 2009. The Project Manager is supported by a contracted Consultant Engineering Firm (Contract Administrator role) providing oversight of the design and administration of the overall project, and three other Consultant Engineering Firms (Contract Administrator roles) hired to design and directly oversee the construction of each major phase of the Project.
- The initial Project budget was $54.7 million. The revised budget is $69.7 million.
- The original and current financing for the Project is:

Contributing Party	Original Contribution	Percent	Revised Contribution	Percent
City of Winnipeg	$ 21,467,000	39%	$ 36,467,000	52%
Government of Canada	18,233,000	33%	18,233,000	26%
Province of Manitoba	15,000,000	28%	15,000,000	22%
Total	$ 54,700,000		$ 69,700,000	

1.5 Reporting

- The Project requires quarterly reporting to the SPC on Finance; the first report was delivered in December 2012 and covered the period from the Project start to September 30, 2012. The Public Works Department is also required to provide an annual audited financial statement for the Project to Infrastructure Canada to receive the eligible portion of the Building Canada Fund financial contribution.

Project Financial Analysis

2.1.1 Overview

- The capital budgeting process is how the City of Winnipeg chooses which capital projects it will invest in. Understanding the Capital Budget process is important to understanding the financial results that have occurred for the WWARP.

2.1.2 The Capital Budget

- *The City of Winnipeg Charter* requires that the City's capital projects be included in an annual Capital Budget approved by Council.[1]
- The City's annual Capital Budget is divided into three major sections:
  - A summary of all the proposed capital projects for the next six years
  - The detailed information for each individual project
  - A summary of the proposed projects categorized by their relevant service areas
- The timeline for the 2010 Capital Budget process is shown below:

Figure 3: Capital Budget Process Schedule for the WWARP

Month (2009)	Budget Procedure
May	Call Letter sent out to departments requesting draft budgets.
July	Draft departmental budget submission deadline.
July	Departmental draft budget presentations to EPC members.
July–August	Administrative compilation, review and analysis of draft budgets.
September–October	EPC made final decisions on draft capital budget.
November 16	EPC tabled Preliminary Capital Budget
Late November/ Early December	SPCs reviewed Preliminary budget and heard delegations.
December 3	EPC heard public delegations on Preliminary Capital Budget.
December 4	EPC tabled final recommendations for the Preliminary Capital Budget.
December 15	Council adopted Capital Budget.

~Source: The Financial Planning and Review Division of the Corporate Finance Department

2.1.3 Risk Tolerance and the Capital Budget

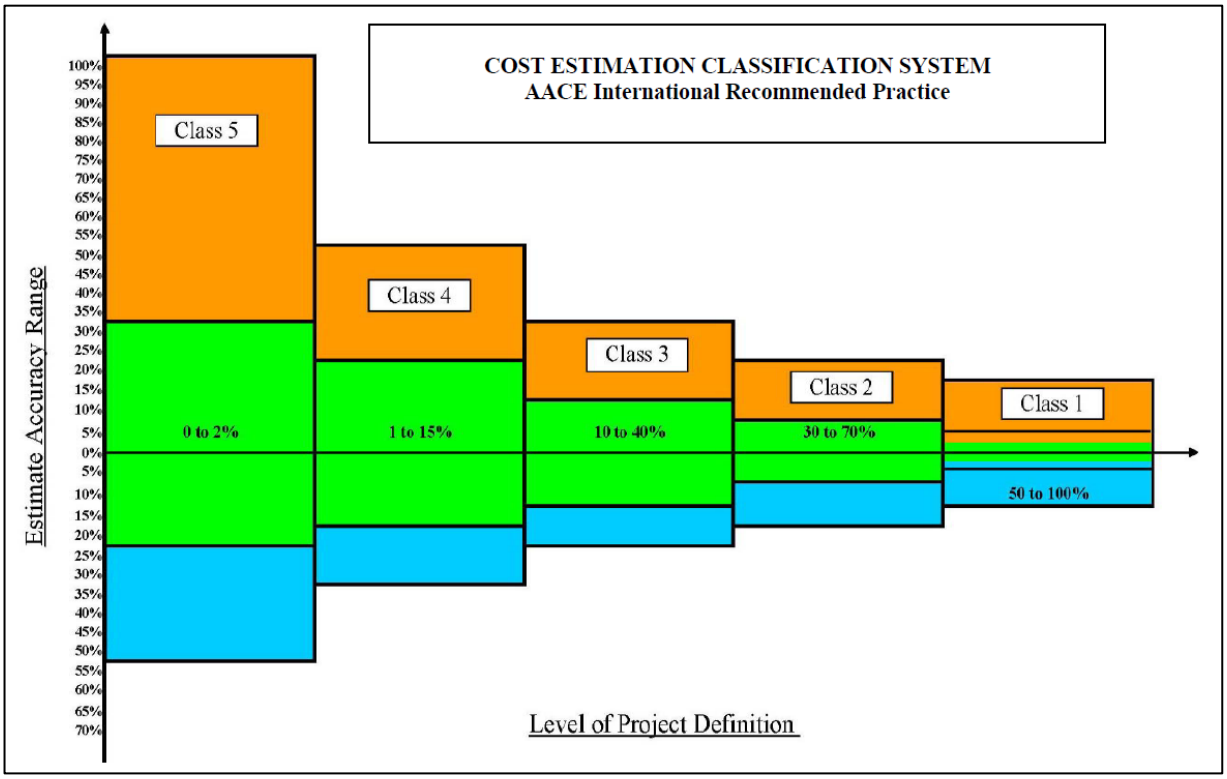
- To understand the Capital Budget, it is important to understand the following fundamental principles of budgeting:
  1. Budgets are **estimates** about future costs. The future is uncertain, as are budgets.
  2. The **expected accuracy** of any budget is directly related to the amount of work supporting the budget. The more defined a project is, the more accurate the budget is likely to be. Lesser defined estimates typically result in larger cost variances.
  3. Council's **risk tolerance** is the level of expected accuracy that must be reached for the budget to be approved. The current default risk tolerance for the Capital Budget is a Class 4 or Class 5 estimate. Appendix 2 of the Capital Budget states that a Class 4 estimate has project definition of 1% to 15% and an expected accuracy of -30% to +50% of a project's estimated cost, and Class 5 has project definition of 0% to 2% and an expected accuracy of -50% to +100%. All projects in the Capital Budget are Class 4 or Class 5, unless specifically noted in the Project Detail section.

[1] *The City of Winnipeg Charter*. Sections 284(2), 286 & 288(1). *Province of Manitoba: Laws website*. Web. 2 January 2013. Section 288(3) also allows for capital projects to be established through by-laws reallocating previous budget funds.

2.1.4 Winnipeg: A Leader in Capital Budget Estimates Disclosure

- Winnipeg began disclosing the classifications of each project cost estimate its 2010 Capital Budget. The classifications communicate the level of reliability that can be placed on each cost estimate. The classifications are based on The Association for the Advancement of Cost Engineering's ("AACE") Cost Estimation Classification System. The stated accuracies for the different classes are shown below:

Figure 4: Capital Budget Potential Cost Variances by Class



~Source: The City of Winnipeg's 2010 Capital Budget: Appendix 2.

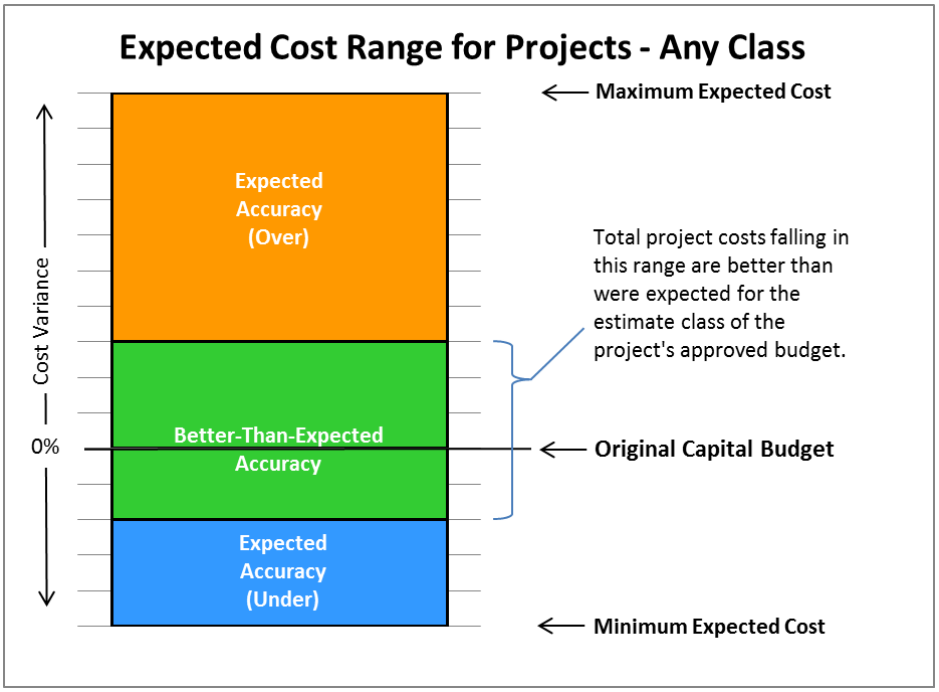
Notes: 1. Percentages below the 0% line on the "Estimate Accuracy Range" axis represent total project costs that finish under budget.

2. Percentage ranges in each class (e.g. "0 to 2%" in Class 5) represent the level to which key plans, designs, specifications and deliverables have been defined for a project.

- Cost Estimation Classification Systems, like the one used in Winnipeg's Capital Budget, have been developed by not-for-profit agencies in Canada and the United States over the past few decades.
- We reviewed the most recent online capital budgets of the Government of Canada, the provincial and territorial governments, and the 20 most populous urban centres across Canada for estimate class disclosures. The City of Winnipeg is the only government that discloses its project estimate classes in its Capital Budget. This information is valuable for decision making, and Winnipeg is a leader in this regard.

- Each estimate class has its own variance range that the actual costs of a project are expected to fall within. If the final costs of a project fall within the green portion of the range, the original cost estimate was actually more accurate than expected for that class of estimate. The figure below illustrates the expectations for any given class:

Figure 5: General Cost Expectations for a Class



~ Adapted by the Audit Department from Appendix 2 of the Capital Budget

- The typical uses for each class of estimate as defined by the AACE[1] are shown below:

Estimate Class	Typical Usage	Definition of Project
Class 5	Screening	0% to 2%
Class 4	Feasibility	1% to 15%
Class 3	Authorization Budget	10% to 40%
Class 2	Bid/Tender	30% to 75%
Class 1	Check Estimate	65% to 100%

- We draw attention to the fact that an "authorization budget"—such as Winnipeg's Capital Budget—is recommended to be supported by at least a Class 3 estimate by the AACE. The expected accuracy range for a Class 3 estimate can vary from industry to industry.
- Another item to note is that Winnipeg's capital budgeting process allows for any class of estimate to be included in the Capital Budget. Class 4 and Class 5 estimates are the default estimate levels for projects included in the Capital Budget, as shown in Figure 6.

[1] AACE International. *Recommended Practice No. 17R-97: Cost Estimate Classification System. Rev. November 29, 2011*. Morgantown: AACE International, 2011. 2. Print.

Figure 6: Capital Budget Estimate Classifications

> The Public Service uses the Association for the Advancement of Cost Engineering (AACE) International Classification system for capital budget estimate purposes for all non-scalable projects. Capital estimates for non-scalable projects contained in this budget document are supported by a class 4 or 5 estimate, unless specifically noted.

~Source: City of Winnipeg. 2013 Preliminary Capital Budget. Pages 2-i & 3-i. Note 3.

- Internal guidance for the capital budgeting process from the Corporate Finance Department states that projects submitted to the Capital Budget *should* be supported by a Class 3 estimate, but allows for lower class estimates to being included, as long as the estimate class has been disclosed to the Financial Planning and Review Division. Accepting Class 4 and 5 estimates in the Capital Budget as the normal levels means that the City has a higher risk tolerance than recommended by the AACE. The effects of this policy are discussed later in this Financial Analysis.
- In a properly functioning cost estimation system, some capital projects would be expected to finish over budget and some would be expected to finish under budget over the course of time. If, however, all projects consistently finished significantly over budget, or consistently finished significantly under budget, it would indicate systemic problems in the estimation system.
- The Public Service is not currently comparing the final results of the City's capital projects to the stated accuracy ranges in the Capital Budget to evaluate the reliability of the ranges. Due to the observations that we discuss in section 2.2 of our Financial Analysis, we did not include an evaluation of the overall reliability of the stated accuracy ranges in the scope of our audit.
- The Public Service has also informed us that past practice for capital budgeting was to include a relatively small amount of budget in years before projects got underway in order to have preliminary designs completed for projects. The Public Service has informed us that the preliminary design would be accompanied by a reasonable quality budget. This practice has become inconsistent in recent years, and budget estimates have more frequently been included in the Capital Budget before preliminary designs have been completed. Due to the project results being experienced on projects that are budgeted without preliminary designs, the practice of budgeting for preliminary designs before estimating the total construction costs has been reinstated in the most recent Capital Budgets.
- The remainder of this section focuses on:
    1. The overall methodology and support for the City's Annual Capital Budget
    2. The methodology and disclosures included in the WWARP's 2010 Capital Budget
    3. The methodology and basis of estimate for the December 31, 2012 revised Project budget

2.2 Expected Accuracy Ranges for Capital Project Budgets

Issue

- Are the expected accuracy ranges stated in the Capital Budget appropriate?

Conclusions

- We cannot conclude on whether the stated accuracy ranges in Appendix 2 of the Capital Budget are appropriate. The ranges were taken from an AACE recommended practice designed specifically for chemical manufacturing and processing industries. The AACE has not developed ranges specifically for roadway infrastructure projects.
- The City has an opportunity to develop its own expected accuracy ranges for projects based on actual experience and the AACE's recommended practices for designing Cost Estimate Classification Systems. The ranges should be based on sound analysis.

Analysis

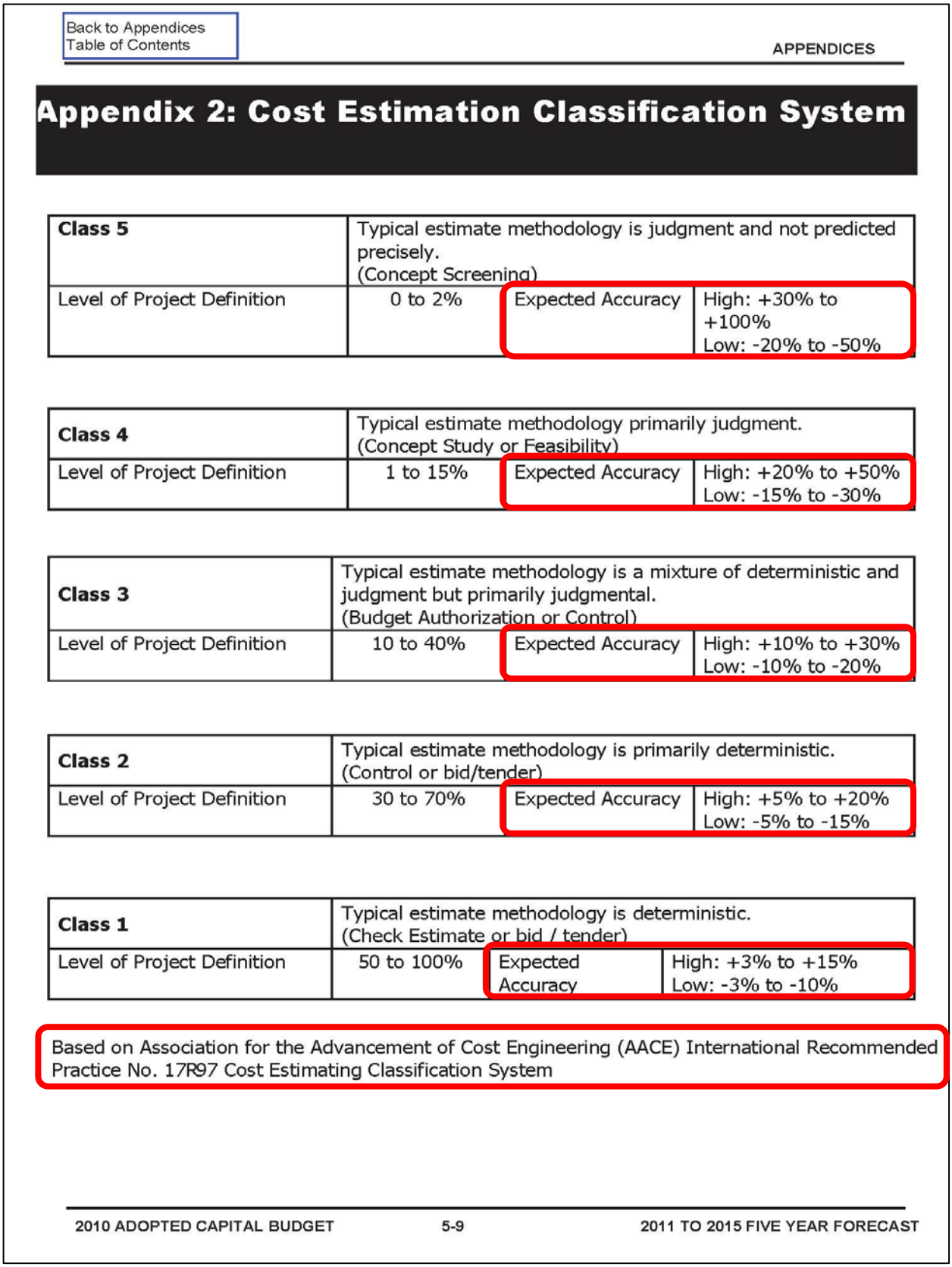
- Appendix 2 of the City's Annual Capital Budget states that the Cost Estimation Classification System for the budget is based on *AACE Recommended Practice No. 17R-97* (see page 21). However, the recommended practice cited does not contain any specific percentage ranges; it contains general guidance on developing accuracy ranges for projects. We believe the note in the Capital Budget is currently a miscitation.
- The accuracy ranges in Appendix 2 to the Capital Budget are from *AACE Recommended Practice No. 18R-97*, which is designed for chemical manufacturing and processing industries; the recommended practice states that it specifically does not address transportation infrastructure.
- The AACE does not have a recommended practice containing accuracy ranges that are specifically designed for roadway infrastructure projects; rather, these projects fall under the general guidance for developing accuracy ranges in *AACE Recommended Practice No. 17R-97*. This recommended practice does not contain specific accuracy ranges; rather, it provides a methodology for how to develop expected accuracy ranges for various types of projects.
- The ranges in the Capital Budget have not been developed by the City. For the City to develop its own ranges, management would need to determine how best to apply the AACE model to the City's capital projects. This creates an opportunity for the City to develop its own expected accuracy ranges. To gain assurance that the developed ranges are reliable, the Public Service should also develop a process of testing the final results of capital projects against the accuracy ranges developed.
- The City of Winnipeg is a leader in disclosing estimate classes and expected accuracy ranges in its Capital Budget, and can further demonstrate its leadership by developing its own expected accuracy ranges for capital projects using the AACE methodology.

RISK AREA	Information Resources	**ASSESSMENT**	High
BASIS	An unsupported basis for expected accuracy ranges for each estimate class may misinform decision makers about the accuracy of major capital project estimates included in the Capital Budget.		
RECOMMENDATION 1			
We recommend that the Infrastructure Planning Division of the Corporate Finance Department review and update Appendix 2 to the Capital Budget to reflect the City's actual experience for capital projects.			

MANAGEMENT RESPONSE
The Public Service agrees that the Cost Estimate Classification System needs to be updated. This recommendation has been completed and has been implemented. The Cost Estimate Classification System was revised in May 2014 to enhance understandability to end users and is in use in the 2015 Capital Budget. The City had developed a class of estimate system using AACE guidelines to provide information to stakeholders as to the expected level of accuracy of the cost estimate for a project. Its classification system was disclosed on an annual basis in Appendix 2 of the Capital Budget approved by Council. It has been a number of years since this system was developed and there have been advancements in the guidelines prescribed by the AACE, which are widely considered to be the industry standard. The City has reviewed its system and updated the estimate classes based on the latest guidelines from the AACE. While there have been some refinements made to the classification categories, the new classification system is not materially different than the previous system. As part of the City's accounting procedures, projects are closed when completed. At that time, project budget is compared to actual costs. Closed projects (budget to actual) are reported semi-annually on the Open Capital Projects and Programs report. The result of this closure process is that most projects are completed close to budget. Very few projects are closed with significant surpluses (unless the project was not undertaken for some reason). As well, very few projects are over budget and require an over-expenditure report to Council to authorize additional budget. Thus, actual experience would indicate that the current estimation system is functioning reasonably well. The Public Service will continue to monitor project results in the same manner as it has in the past and will make adjustments to the classification system should a there be a deviation from the current trend of most capital project being completed close to budget.

IMPLEMENTATION DATE	Implemented May 2014

Figure 8: Winnipeg's Capital Budget Cost Estimate Classification System Description



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APPENDICES

Appendix 2: Cost Estimation Classification System

Class 5	Typical estimate methodology is judgment and not predicted precisely. (Concept Screening)		
Level of Project Definition	0 to 2%	Expected Accuracy	High: +30% to +100% Low: -20% to -50%

Class 4	Typical estimate methodology primarily judgment. (Concept Study or Feasibility)		
Level of Project Definition	1 to 15%	Expected Accuracy	High: +20% to +50% Low: -15% to -30%

Class 3	Typical estimate methodology is a mixture of deterministic and judgment but primarily judgmental. (Budget Authorization or Control)		
Level of Project Definition	10 to 40%	Expected Accuracy	High: +10% to +30% Low: -10% to -20%

Class 2	Typical estimate methodology is primarily deterministic. (Control or bid/tender)		
Level of Project Definition	30 to 70%	Expected Accuracy	High: +5% to +20% Low: -5% to -15%

Class 1	Typical estimate methodology is deterministic. (Check Estimate or bid / tender)		
Level of Project Definition	50 to 100%	Expected Accuracy	High: +3% to +15% Low: -3% to -10%

Based on Association for the Advancement of Cost Engineering (AACE) International Recommended Practice No. 17R97 Cost Estimating Classification System

2010 ADOPTED CAPITAL BUDGET 5-9 2011 TO 2015 FIVE YEAR FORECAST

2.3 Class Disclosure in the Annual Capital Budget

Issue

- Does the Capital Budget sufficiently disclose project cost estimate classes?

Conclusions

- The Capital Budget does not sufficiently disclose the estimate classes for all projects.

Analysis

- The Public Service began disclosing project estimate classes in the 2010 Capital Budget. Winnipeg is a leader in this type of disclosure.
- Estimate class disclosure provides valuable information for decision makers, and the principle for the disclosure is simple: *riskier decisions require that the information considered be transparent so that more informed decisions can be made*. Currently, the City's disclosure practice actually provides less information for the most risky estimates than it does for lesser-risk estimates.
- Under the current practice, projects in the Capital Budget supported by Class 1, 2, or 3 estimates clearly show the estimate classes on their Project Detail sheets. However, projects supported by Class 4 or 5 estimates *do not* have the estimate class disclosed on their Project Detail sheets. These projects are instead covered by a default note contained in the forward to the Capital Project Summary section, and on the table of contents to the Capital Projects Listing by Department section, of the Capital Budget. The note states that all "non-scalable projects in [the Capital Budget] are supported by Class 4 or 5 estimates, unless specifically noted" (see Figure 6 page 18).
- This default disclosure prevents the reader from determining which specific class an estimate actually is; the actual class for the project estimate is never stated. The most a reader can determine, if the reader recognizes that a class has not been presented on the Project Detail sheet, is that the estimate could be either Class 4 or Class 5.
- Class 4 and 5 estimates are *much riskier* and *less rigorous* than Classes 1, 2 and 3 because the projects are far less defined when the budgets are created (see Figure 4 on page 16).
- Furthermore, the difference in accuracy ranges between Class 4 and Class 5 estimates can be tens of millions of dollars, especially for Major Capital Projects. We will use the minimum threshold for a Major Capital Project to illustrate this point. For a $10 million project (the minimum threshold for a Major Capital Project), a Class 5 estimate produces an accuracy range of $15 million (-50% to +100%, which is $5 million—$20 million). A Class 4 estimate on the same project, however, produces a range of $8 million (-30% to +50%, or $7 million—$15 million). In total, the Class 4 estimate reduces uncertainty in the final cost of the project by $7 million.[1] If we were to analyze the reduction of uncertainty between Class 4 and Class 5 on a project the size of the WWARP, the reduction of uncertainty would be $38.3 million.[2] Additional design work completed for higher class estimates leads to more complete estimates, and may incorporate costs not considered in Class 5 estimates. It is therefore reasonable that all classes be clearly disclosed in the Capital Budget to properly communicate the reliability of each estimate.

[1] $15,000,000 Class 5 range – $8,000,000 Class 4 range.
[2] $54,700,000(2 – 0.5) – $54,700,000(1.5 – 0.7)

- To get a sense of the total potential impact of using less than Cass 3 estimates in the 2013 Preliminary Capital Budget, we also reviewed the Project Detail sheets in it and noted the following:
    - None of the four Major Capital Projects in the budget disclose a class in their Project Detail sheets, meaning they are all supported by either a Class 4 or 5 estimate. These four projects comprised 23% of the total Capital Budget; therefore, class variations in these projects can have significant effects on the expected accuracy of the overall budget, as shown in our previous example.
    - Of the 161 total projects in the budget (not including scalable programs), 117 projects (comprising 55% of the total budget dollars) also do not disclose their class, meaning they are either Class 4 or 5 estimates.
- Class 3 estimates are recommended by the AACE as the minimum level of estimate for a project approval budget. The expected accuracy of a Class 3 budget is much greater than a Class 5 budget. However, there are costs associated with obtaining Class 3 estimates.
- The Public Works Department believes that the work to create Class 3 budgets for projects would cost about 25% of the total design fees for a project. This is not an "additional cost" of a project; it is part of the design work that must be completed for any project. It is a timing difference of when the work is completed for a project, and provides much more certain information for decision making than a Class 5 estimate. Therefore, there is a tradeoff in risks of either approving a project that is not supported by a Class 3 estimate, and risking that the project could exceed the budget by millions of dollars, or risking expending the funds to obtain a Class 3 estimate, and then not have the project approved. These risks must also be weighed against the risk of foregoing other levels of public funding due to the time it would take to produce a Class 3 estimate. (We found no evidence or documentation to support such a risk analysis for this project.)
- Using Public Works' methodology, a Class 3 estimate for the WWARP would have required $452,000 of the design fee to be incurred at the beginning of the Project. As stated above, this would have been a timing difference and the $452,000 would still have to be paid regardless as part of the overall design fees for the project. If budget variances such as the one experienced on the WWARP are considered unacceptable, Council will need to consider whether Class 4 and Class 5 estimates are appropriate for the Capital Budget. This consideration can also be limited to Major Capital Projects only.
- Due to the high levels of risk in Class 4 and Class 5 estimates, and the large potential variances between those two classes, we believe it is appropriate to present the specific estimate classes for these projects clearly in the Capital Budget.

RISK AREA	Financial Resources	**ASSESSMENT**	Critical
BASIS	When estimate classes are not disclosed in the Capital Budget, decision makers are not able to determine the expected accuracy for capital project estimates, and are less informed of the financial risks associated with projects in the Capital Budget.		
RECOMMENDATION 2			
We recommend that the Financial Planning and Review Division of the Corporate Finance Department ensure that the specific estimate class for each project is clearly disclosed in the Capital Budget.			

MANAGEMENT RESPONSE	
Beginning in the 2015 budget process, departments will be required to include the project class estimate on each capital detail sheet in the capital budget. The Financial Planning and Review Division of Corporate Finance will work with departments to ensure compliance with this process. Certain exceptions will apply, for example, capital program authorizations will not include a project class estimate as the programs are scalable.	
IMPLEMENTATION DATE	Implemented June 2014

2.4 Analysis of the Accuracy of the 2010 Project Budget

Issue

- Is the Project's revised budget within the stated accuracy range of the 2010 Capital Budget?

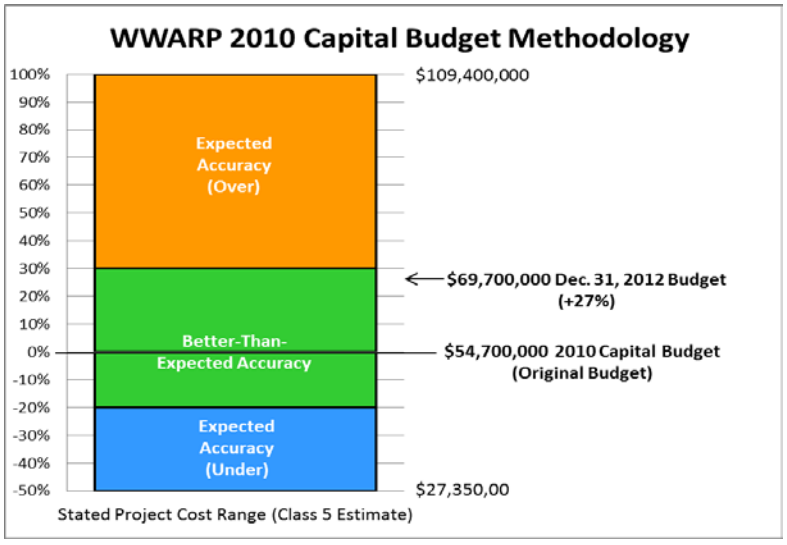
Conclusions

- The WWARP's revised estimate of $69.7 million is within the stated accuracy range for a Class 5 estimate from the 2010 Capital Budget.

Analysis

- The Director of Public Works informed the SPC on Finance at its December 3, 2012 meeting that the Project's 2010 Capital Budget estimate was a Class 5 estimate. According to Appendix 2 of the Capital Budget, Class 5 estimates have an expected accuracy of -50% to +100% of the estimate amount.
- We compared the support for the Project's 2010 Capital Budget estimate to the classification criteria in *AACE Recommended Practice No. 56R-08*.[1] In our opinion, the $54.7 million cost estimate was a Class 5 estimate, in all significant respects.
- Due to the fact that the expected accuracy ranges stated in the Capital Budget are based on a recommended practice that is not meant for transportation infrastructure, we reviewed whether the range for a Class 5 estimate in the Capital Budget would be appropriate for this analysis. We found that the same Class 5 range is recommended in *AACE Recommended Practice No. 47R-11*, which is designed for mining and mineral processing infrastructure projects. There is significant risk in building a mining operation, and we believe that the risk involved in that industry is sufficient to justify the use of the accuracy range provided for a Class 5 estimate in our analysis below.
- The Class 5 expected accuracy range as it applies to the WWARP's 2010 Capital Budget estimate is shown below:

Figure 9: WWARP Stated Accuracy Range



[1] AACE RP No. 56R-08 is designed for building and general construction projects, not for roadway infrastructure. Notwithstanding, the RP contains a lengthy list of estimate classification criteria common to many project types. Management believes that the criteria listed in the RP can be applied to municipal infrastructure projects, and that the RP is suitable for classifying the City's capital project cost estimates; we concur with this opinion.

RISK AREA	Financial Resources	ASSESSMENT	High
BASIS	The estimate class for the Project was not disclosed on the capital project detail sheet in the Capital Budget. The difference in stated accuracy ranges between class 4 and 5 estimates on a project of this size varies by millions of dollars.		
RECOMMENDATION			
No recommendations accompany this analysis.			

2.5 Supporting Work for the Project's 2010 Capital Budget

Issue

- Did the 2010 Capital Budget estimate for the Project have adequate support?

Conclusions

- Neither the City nor the Public Works Department have policies defining the appropriate level of support for a Capital Budget estimate. As a result, we cannot offer an opinion on adequacy of the support for the Project's 2010 Capital Budget estimate in relation to City standards.
- The support for the Project's 2010 Capital Budget estimate did not meet the criteria required for an authorization budget (Class 3) according to AACE Recommended Practices.

Analysis

- Our 2008 *Capital Project Management Audit* stated that cost estimation is an area that the City only superficially addresses in its project management processes. As the WWARP's budget was created within a half-year after that audit was released, we did not expect the budgeting process would have changed significantly for this Project.
- We reviewed the supporting documentation for $54.7 million estimate submitted in the Building Canada Fund application (which was also used in the 2010 Capital Budget) and could not determine how the costs were estimated or what they were based on. The Project Manager—who was assigned to the Project after the original budget was created—also could not reconcile how it was created. At its most granular level, the supporting documentation for the $54.7 million estimate breaks down the costs of the project to the nearest $100,000 into the six project components shown below:

Project Component	Estimated Cost
Waverley/Perimeter Intersection Closing	$ 200,000
Two (2) At-Grade Intersections	2,000,000
Waverley Twinning	2,500,000
Waverley Realignment/Extension	5,000,000
Kenaston Expressway	10,000,000
Kenaston/Bishop Fly-over & Road Works	35,000,000
Total	$ 54,700,000

- No further supporting documentation was available to verify how the costs of each component were determined.
- At the time this estimate was created, the Public Works Department had in its possession a letter from one of the Waverley West developers with an attached estimate prepared by the developer's engineering consultant. The letter was intended to help the City secure funding from other levels of government, and estimated the total costs of the Project at $62.5 million. The letter, while it did not contain calculation methodology including input prices into the Project, did have a much more detailed breakdown of the work required to go into the Project, and estimated costs for each component of the work. In our opinion, due to the supporting analysis attached to the letter, and the lack of support that can be furnished for the $54.7 million estimate, this independent estimate was more defined and, therefore, better information to base the Project budget on.

- We are unable to conclude whether the federal and provincial governments would have increased their funding to the Project if the estimated costs had been higher than $54.7 million. Based on the fact that the Government of Canada contributed exactly one third of the originally estimated project costs, we believe it is possible the federal government would have increased their funding, had they originally been provided a higher estimated cost. Given that the provincial government capped its funding portion at $15 million, it may be unlikely that the Province of Manitoba would have increased their funding for a higher estimated cost. Therefore, the possible impact of not using the amount estimated in the developer's letter is $2.6 million in additional funding that could have financed the Project.[1]
- This illustrates the requirement for policies and procedures guiding the level of required work to support a cost estimate for a project. It also illustrates the implications of allowing Class 4 and 5 estimates in the Capital Budget.
- The City follows the guidance of the Government Finance Officers' Association ("GFOA") to create and format Capital Budgets. While the GFOA's guidance does address the format and content of capital budgets, it does not address the level of minimum support that should be required for capital budget estimates in detail.
- *AACE Recommended Practice No. 34R-05: Basis of Estimates* is a well written guide for the work that should support project cost estimates. It states that a well prepared basis of estimate should "facilitate the review and validation of the cost estimate." We concur with this statement and it is our opinion that the recommended practice provides good guidance for budget support.
- The City is currently developing a formal *Project Management Manual* ("PMM") for departments to use in their capital project management processes. We observed that the April 22, 2014 draft of the manual does not contain guidance on the appropriate level of supporting documentation for Capital Budget estimate submissions.
- In April, 2014, the Infrastructure Planning Division also had a draft *Investment Planning Manual* detailing the capital project prioritization process for the City. The *Investment Planning Manual* gives guidance on the support required for Capital Budget submissions. These standards should be cross-referenced to the PMM, for Project Managers to understand the process.

RISK AREA	Information Resources	**ASSESSMENT**	High
BASIS	Supporting work affects the accuracy of an estimate. Increased accuracy of estimates may have a significant impact on funding agreements with partners.		
RECOMMENDATION			
A recommendation on this Cost Management issue is made at the end of the Project Management Analysis section of the report.			

[1] ($62,500,000 – $54,700,000) x 1/3 = $2,600,000

2.6 Current Project Budget

Issue

- Is the revised Project budget of $69.7 million reasonable and adequately supported?

Conclusions

- The Project budget of $69.7 million is a reasonably calculated Class 3 estimate.[1] As the estimate is Class 3, the total Project costs could still exceed $69.7 million. The fact that the revised Project budget was supported by a Class 3 estimate was not communicated in the Project Detail sheet in the 2013 Capital Budget.
- Due to the accuracy ranges communicated in the Capital Budget not being based on an appropriate AACE recommended practice, we cannot provide an expected accuracy range for the revised estimate.
- The revised budget of $69.7 million included in Financial Update #2 for the Project, and included in the 2013 Capital Budget, has appropriate supporting documentation overall. Our observations on the unsupported budget items are discussed below. The unsupported items are significant enough to communicate for information purposes, but not significant enough to consider changing the class of the estimate.
- The Public Service believes that some of the increase in cost estimation is attributable to a one year delay in the start date of the Project.

Analysis

- The Public Service reported a potential budget shortfall for the Project of $20 million to SPC on Finance on December 3, 2012. The report stated that the estimated costs for the cost of the fly-over structure had increased by $10 million, that there was a $5 million increase for additional work to be completed at the future intersection of Kenaston Boulevard and the Perimeter, and that an additional $5 million for delays in the start of the Project. We are unable to verify the validity of these claims due to lack of support for the creation of the original Project estimate and, therefore, having no basis of comparability between the two estimates.
- The class of estimate for the revised Project budget has not been disclosed in the Project Detail sheet in the 2013 Capital Budget.
- We compared the supporting documentation for the revised budget to the provisions of the estimate classification system published in *AACE Recommended Practice No. 56R-08*. In our opinion, the revised Project cost estimate detailed in the 2013 Capital Budget is a Class 3 estimate, in all significant respects.
- The AACE does not have a Recommended Practice that provides expected accuracy ranges for transportation infrastructure projects; therefore, a Class 3 expected accuracy range for the revised budget cannot be provided.

[1] An additional $7,873,360 was approved to be added to the Project budget by Council in its May 29, 2013 meeting, for a total budget of $77,573,360 (Minute No. 299). The additional cost increase is obligated to be paid by the Waverley West developers under their contracts, and does not change the City's estimated costs of $69.7 million. We have not audited this subsequent increase in the budget, and present it here only as additional information.

- The Project Manager provided us with a supporting breakdown for the budget that was included in Financial Update #1, which was reported to SPC on Finance on December 3, 2012. The revised budget included in Financial Update #2 was simply the budget from Financial Update #1 less $5 million for the intersection construction at Kenaston Boulevard and the Perimeter. While there was no updated budget breakdown to support this explanation, we believe the estimate is reasonable based on our review of the supporting documentation for Financial Update #1.
- We observed that $699,830 of budgeted items in aggregate did not have appropriate supporting documentation. These items included estimated payables for landscaping, traffic services and signals, and utilities for two sections of the Project that were substantially complete at the time of our fieldwork. The estimates were stated to be based on past experience but no calculation methodology was documented; therefore, we could not test the reasonability of the estimates. We believe this issue is significant enough to note, but not significant enough to change the class of the estimate. Cost estimate documentation is discussed further in our Project Management Analysis.
- We observed that the estimate for engineering overhead contained in the budget was overstated by about $906,000. This is discussed further in the next section of our report.

RISK AREA	Financial Resources	ASSESSMENT	High
BASIS	The residual financial risk in revised project budgets for major capital projects can remain in the millions of dollars.		
RECOMMENDATION			
Non-disclosure of the revised estimate class in the Capital Budget is addressed by Recommendation 2 in the report.			

2.7 Engineering Overhead Rate

Issue

- Is the engineering overhead rate for the Project budget reasonable?

Conclusions

- The standard engineering overhead rate used for budgeting capital projects tends to inflate the projected engineering costs as the project budget increases. The standard engineering overhead rate may not be suitable for Major Capital Projects.
- Based on our discussions with the Supervisor of Project Management, the engineering provision in the December 31, 2012 Project budget is likely overestimated by $906,000. *This overage only creates additional contingency in the Project budget, and has no effect on the actual capital and operating expenses of the Department.*

Analysis

- Under generally accepted accounting principles, "overhead costs" represent the costs of resources used by the City to provide services in general, but are not specifically attributable to any one activity or project. Examples of these costs can include supervisors' and administrative staff's salaries; building and vehicle amortization; and other office and operating expenses.
- The Engineering Division of the Public Works Department included an estimated 2.75% overhead rate on the costs of construction in the Project budget. The rate was based on a standard 3.5% overhead rate that is normally used for projects, but was reduced for this Project because it was believed the standard rate would be too high. None of the Division's staff were able to explain what the 2.75% was based on, or how or when the standard 3.5% rate was determined. The Manager of the Engineering Division agreed that the rate is meant to represent the Project Manager's time on the project, as well as supervisory and administrative staff time.
- The standardized rate for engineering overhead can be problematic when applied to Major Capital Projects (exceeding $10 million). The projects are not typically allocated more than one Project Manager regardless of project size; therefore, the *actual* overhead costs remain relatively flat no matter how large the project is. The *projected* overhead costs from the standardized overhead rate, however, continue to rise with the budget as the costs of construction increase. (This was partially recognized by the Engineering Division by the fact that the standard rate was reduced for this Project.)
- The 2013 Project budget has a $1.67 million provision for engineering overhead, based on the 2.75% overhead rate applied to the budgeted costs for construction. Based on our analysis, we believe this provision has been overestimated by $906,000.
- Errors in the overhead rate only affect the information that goes into the Capital Budget, and not the City's overall financial statements, as the actual overhead booked for the Division is capped at the level of the Division's salaries. The overhead budgeted also does not affect the funding agreement with the federal government because the Project Manager's time, and the overhead costs incurred by the City, are ineligible for reimbursement under the funding agreement.

RISK AREA	Financial Resources	ASSESSMENT	Moderate
BASIS	Some smaller capital projects may not be included in the Capital Budget due to overhead cost overestimation on major capital projects.		

RECOMMENDATION 3

We recommend that the Engineering Division of the Public Works Department develop and document a methodology for budgeting engineering overhead for major capital projects.

MANAGEMENT RESPONSE

The Public Service agrees with this recommendation.

The Department will undertake a review of current practices regarding engineering overhead recoveries from capital projects. We will review current capital project delivery practices, identify internal and external resources required for successful outcomes, and determine the associated costs and applicable recovery rate(s).

We will use the results of this analysis and develop a reasonable recovery mechanism based on current capital funding trends. Our goal is to produce a transparent recovery model that when required can be adjusted to meet changes in capital funding envelopes. We estimate that at a minimum, it will require 6 months to provide an initial recovery plan.

To be implemented to be in place for the 2016 Capital Budget process.

IMPLEMENTATION DATE	September 1, 2015

2. 8 Project Costs Reported to December 31, 2012 in Financial Update #2

Issue

Were the actual costs of the Project incurred to date fairly presented to the SPC on Finance as of December 31, 2012?

Conclusions

- In our opinion, the "Actual Costs" presented in Financial Update #2 for the Project fairly present the project expenses incurred to December 31, 2012, in all material respects.
- We also observed that the Finance & Administration Division of the Public Works Department had good controls over the monitoring, verification, and payment of expenses for the Project.

Analysis

- As part of our audit, we audited the "Actual Costs" of the Project reported to the SPC on Finance in Financial Update #2 as of December 31, 2012 (see next page).
- Our audit of the financial information was conducted in accordance with Canadian generally accepted auditing standards and, by extension, in accordance with generally accepted government auditing standards.

RISK AREA	Financial Resources	ASSESSMENT	Moderate
BASIS	Incorrect financial reporting misinforms decision makers, and can impact the quality of the decisions that are based on the financial information.		
RECOMMENDATION			
No recommendations accompany this analysis.			

Figure 11: Project Costs as of December 31, 2012

APPENDIX A: Financial Analysis – Waverley West Arterial Roads Project

APPENDIX A
WAVERLEY WEST ARTERIAL ROADS PROJECT
PUBLIC WORKS - ENGINEERING DIVISION
As of December 31, 2012

	Project Component	Capital Budget			Capital Expenditures Forecast					Surplus (Deficit)	Variance Last Report	Change in Variance
					Actual Costs				Total			
		Original	Council Approved Change	Revised	To December 31, 2012	2013	2014	2015	Forecast	From Revised Budget		
A	Professional Services	$5,700,000	$422,684	$6,122,684	$2,332,684	$2,000,000	$1,390,000	$400,000	$6,122,684	$0	($293,459)	$293,459
B	Construction Work	44,000,000	11,853,844	55,853,844	16,239,394	22,830,000	16,784,450	0	55,853,844	0	(16,398,397)	16,398,397
C	Utilities	2,000,000	2,879,811	4,879,811	1,088,811	2,191,000	1,500,000	100,000	4,879,811	0	(3,647,219)	3,647,219
D	Property	0	12,830	12,830	2,830	5,000	5,000	0	12,830	0	(14,030)	14,030
E	Overheads and Other	3,000,000	(169,169)	2,830,831	841,831	994,000	995,000	0	2,830,831	0	353,105	(353,105)
		$54,700,000	$15,000,000	$69,700,000	$20,505,550	$28,020,000	$20,674,450	$500,000	$69,700,000	$0	($20,000,000)	$20,000,000

Notes:

1. Original Budget included $47M for construction work, including overheads.
2. Property costs are construction easements for Manitoba Hydro corridor
3. The previous status report indicated a budget shortfall of up to $20 million, compared to the originally provided budget. This was addressed by an additional $9,303,000 in the 2013 Adopted Capital Budget and $5,697,000 in the 2014 - 2018 Capital Budget Forecast along with the Province of Manitoba's conclusion that $5,000,000 is not required for upgrades to the original project proposal.

~Source: Waverley West Arterial Roads Project – Financial Status Report No. 2 for the period ending December 31, 2012: Appendix A

Project Management Analysis

3.1.1 Overview

- Project Management is a continually evolving function at the City of Winnipeg. Historically, project management had largely been left to each department to develop and administer separately. In recent years, however, this approach has shifted to developing an organization-wide process for managing projects.
- The Audit Department reported our *Capital Project Management Audit* to Council in February 2009. A key finding of the audit was that the City of Winnipeg did not have comprehensive guidance for Project Managers in all relevant capital project management areas.
- In March 2010, Executive Policy Committee instructed the Public Service to report back with a plan for creating an asset management system for the City. From this instruction, the Public Service began the "Asset Management Initiative".

3.1.2 The Asset Management Initiative

- As directed by EPC, the Public Service started the Asset Management Initiative in 2010. Part of this initiative was to create a *Project Management Manual* intended to provide comprehensive project management guidance to all project managers across the Public Service.
- Integral to the Asset Management Initiative, the Public Service created the Infrastructure Planning Division of the Corporate Finance Department ("Infrastructure Planning Division") in 2012. The division's responsibilities include policy and procedural development in regards to capital project management and reporting, in conjunction with departments.
- The Public Service has informed us that the Asset Management Initiative has been a major undertaking for the City as a whole and has been developed as time and resources have allowed.
- The Public Service has also informed us that it intends to revise its current *Administrative Directive No.* FM-004*: Capital Project Administration* to require that Major Capital Projects have at least a Class 3 estimate in order to commence the procurement of construction service for the projects or, if it is in the City's best interests to begin construction without a Class 3 estimate, that Executive Policy Approval be required to begin construction.

3.1.2 How the Audit Department Evaluated Project Management for the WWARP

- The City's current project management tools and processes are found throughout numerous documents. The most comprehensive project management tool in place is the 1992 draft "Manual of Project Administration Practice". The *Project Management Manual* is intended to replace the 1992 draft "Manual of Project Administration Practice".
- Due to the fact that the Waverley West Arterial Roads Project began shortly after the release of our *Capital Project Management Audit*, the *Project Management Manual* was not yet available for use to evaluate the WWARP.
- The City's other project management tools, guidance, and requirements are found in the capital budgeting process, the procurement process, the *Administrative Directive No. FM-004*, and in other Council direction. While these documents deal with required reporting for capital projects and some of the procedures to be completed, they do not provide a comprehensive project management approach. Our analysis also evaluates whether the Project has met the City's project management policies and practices.

- A revised draft of the *Project Management Manual* was circulated to key stakeholders during our report writing phase. Our discussions and recommendations have taken into account the draft as it stands in the April 22, 2014 version. The draft has made significant progress towards the City having formal, comprehensive, project management guidance. The revised draft has addressed the recommendations for revision to the "Manual of Project Administration Practice" made in our 2008 *Capital Project Management Audit* with one exception for project communications. Our recommendations for revision on the current draft are provided at the end of this Project Management Analysis.
- In order to comprehensively evaluate the WWARP project management, we chose an independent, globally-accepted project management standard, as well as using the standards contained in the City's other guiding documents.
- The standard we chose was the Project Management Institute's ("PMI") *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – 5th Edition*, supplemented by the PMI's *Construction Extension to the PMBOK® Guide – 3rd Edition*.
- The PMI is a globally recognized project management standard-setting body whose project management standard—the PMBOK® Guide—has been officially recognized by both the American National Standards Association ("ANSI") and the International Standards Organization ("ISO").
- The PMBOK® Guide states that project management is "the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements."[1] Defining project management this way recognizes that both an organization's project management tools and the project manager's abilities are essential for a successful project. An experienced project manager who is not provided the proper tools to complete the job will result in a less efficient project, as would a lesser experienced project manager who is provided appropriate tools.
- The PMBOK® Guide and its construction project extension break down construction projects into fourteen functional knowledge areas:

Figure 12: PMBOK® Project Areas

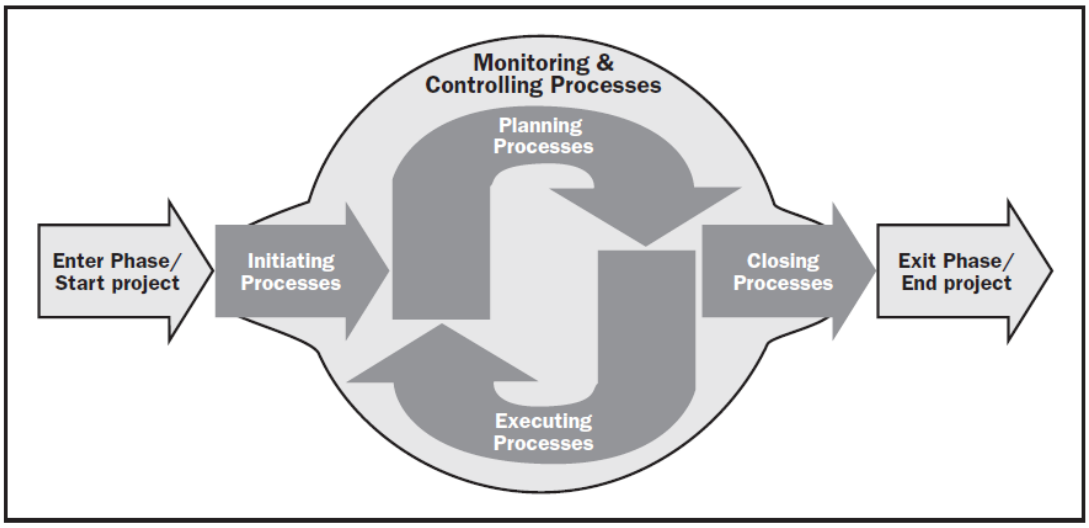
Project Management Knowledge Areas	
Integration Management	Human Resources Management
Scope Management	Communications Management
Time Management	Risk Management
Cost Management	Procurement Management
Quality Management	Stakeholder Management
Safety Management	Financial Management
Environment Management	Claims Management

~Source: PMBOK® Guide and Construction Extension

[1] Project Management Institute. *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Fifth Edition*. Newtown Square: Project Management Institute, Inc., 2013. 5. Print.

- Project managers must navigate each of these functional knowledge areas through the five process groups for each phase of a project: initiating, planning, executing, monitoring and controlling, and closing.

Figure 13: The Project Management Cycle



From: Project Management Institute (2013). *PMBOK® Guide – 5tn Edition*. 50. Print.
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- All of these processes must be integrated into a properly documented project file that will be stored for future use in training, asset maintenance, or future project development.
- As the Project and any of its parts was not yet completed at the time of our fieldwork, evaluation of the "Closing Processes" was not possible.

3.3.1 Observations and Recommendations

- While we did find areas that could be improved in project management and in the most recent draft of the *Project Management Manual*, our overall conclusion from our project management analysis was that the budget creation process was the primary reason for the increase in Project budget. This may seem inconsistent with our observations since we have concluded below that the Project has met the PMBOK® standards in both Cost Management and Financial Management functional areas. This is due to the fact that the PMBOK® requires organizations to have documented guidance that allows organizations to plan, execute, monitor, and close in both of these project areas —which the City has —but does not state the level of reliability that budgets should meet in order to obtain formal organizational approval. If an organization allows lesser developed budgets to be used for formal approval, it is possible for organizations to experience significant budget overages and still meet the PMBOK® standard. We have presented a summary of our conclusions on the management of the Project below. The detailed analysis of the project management is included in **Appendix 5**, and is presented in the order that the knowledge areas appear in the PMBOK® Guide:

Figure 14: Summary of Project Management Analysis

Project Functional Area	Meets City Standard(s)? Yes	Meets City Standard(s)? No	Meets PMBOK® Standard? Yes	Meets PMBOK® Standard? No
Integration Management	N/A	N/A		X
Scope Management	✓		✓	
Time Management	N/A	N/A		X*
Cost Management	✓		✓	
Quality Management	Not enough information			X
Human Resource Management	N/A	N/A		X*
Communications Management	✓			X
Risk Management		X		X
Procurement Management	✓		✓	
Stakeholder Management	N/A	N/A		X*
Safety Management	✓		✓	
Environmental Management	N/A	N/A		X*
Financial Management	✓		✓	
Claims Management	✓		✓	

"N/A" = The City does not have formal standards for this functional area.

*The standard is not met only because there is no formal guidance for the functional area.

3.3.2 The "Major Capital Projects" Threshold

- *Administrative Directive No. FM-004: Capital Project Administration* defines a Major Capital Project as any capital project with a budget in excess of $10 million. This threshold has remained constant since it was created in 1999.
- It is prudent to review the threshold periodically to ensure continued relevance after considering the ongoing effects of inflation. National and local construction indexes have increased since 1999 and the threshold for defining a major project may no longer be current. For comparison, the Province of Manitoba's *The Public-Private Partnerships Transparency and Accountability Act* defines a "major capital project" as a public work, or improvement to a public work, in excess of $20 million.[1]

RISK AREA	Business Process	RISK LEVEL	Moderate
BASIS	If the threshold for requiring additional project oversight is not adjusted for inflation, the City will continue to expend additional oversight resources on projects with lesser relative project risk over time.		
RECOMMENDATION 4			
We recommend that the Infrastructure Planning Division of the Corporate Finance Department reassess the threshold defining a "Major Capital Project" for capital project management processes under the CAO's delegated authority; and that it also submit the proposed threshold to Council for approval for processes under Council's authority.			

[1] The Province of Manitoba. *Bill 34: The Public-Private Partnerships Transparency and Accountability Act*. 2012. Section 1(1).

MANAGEMENT RESPONSE
The Public Service agrees with this recommendation. The current threshold for reporting to SPC Finance is $10 million and was a result of the 1999 City Auditor report on the Main Norwood Bridges. The threshold has not been adjusted for construction inflation since initial recommendation in 1999. In accordance with this recommendation, the Public Service proposes that the threshold be adjusted for construction inflation for Winnipeg for the period of 1999 to 2014. Further, that thereafter the threshold is adjusted automatically for construction inflation for Winnipeg (to the nearest million) on an annual basis and that the revised threshold is disclosed in the annual Capital Budget Book presented to Council for approval. Adjusting the Major Capital Project threshold as recommended by the City Auditor from 1999 to 2014 will result in a revised threshold amount of $20 million. The Public Service cannot make this adjustment without the concurrence of elected officials and will prepare and Administrative Report for approval by elected officials. Administrative Report to be forwarded to elected officials prior to June 30, 2015. Implementation will require concurrence of elected officials.

IMPLEMENTATION DATE	June 30, 2015

3.3.3 Further Revisions to the *Project Management Manual*

- The City's *Project Management Manual* is now in its second revised draft, and has made significant enhancements to previous capital project management guidance documents. It is important to finalize the guidance as well as approve it in a formal version to provide Project Managers with a unified source of guidance. With respect to the project management guidance, we have the following two recommendations.

RISK AREA	Business Process	**ASSESSMENT**	High
BASIS	The combined risks of not having comprehensive guidance for capital project management in all relevant project functional knowledge areas can affect the financial results of capital projects by millions of dollars.		
RECOMMENDATION 5			

We recommend that the Infrastructure Planning Division of the Corporate Finance Department make the following revisions to the draft Project Management Manual:

Project Integration Management

Project integration processes should be developed and documented, including:

- *establishing a process for improving the project management tools on an ongoing basis*
- *creating a formalized project file format with guidance on file structure and content*
- *creating processes for including regular updates for critical project performance measures through site meeting agendas and minutes*

Project Scope Management

Include reference to where the process for creating business cases for projects can be found in the Investment Planning Manual*.*

Project Cost Management and Project Financial Management

The Investment Planning Manual *criteria for the appropriate amount of supporting documentation and analysis for a project cost estimate should be referenced in the* Project Management Manual*.*

Project Human Resource Management

Guidance for competency planning should be developed and included in the Project Management Manual*.*

Project Communications Management

A process for obtaining required communications from project stakeholders should be developed and documented in the Project Management Manual*.*

(Continued next page)

Project Risk Management

A universal risk register to be considered on all capital projects risk assessments should be developed and referenced in the Project Management Manual*. The Council policy requirement for projects to be submitted to the Standing Policy Committee on Finance should also be documented in the* Project Management Manual.

Project Stakeholder Management

Property owners should be added to the listing of potential stakeholders in the Project Management Manual*.*

Project Environmental Management

Guidance for Project Environmental Management should be developed and included in the Project Management Manual, *in consultation with departments that manage capital projects.*

Project Claims Management

Guidance on the identification, quantification, and prevention of claims should be developed in consultation with the Risk Management Division and included in the Project Management Manual*.*

MANAGEMENT RESPONSE

The Public Service agrees with this recommendation.

The Public Service is in the process of finalizing the Investment Planning Manual and the Project Management Manual. These two manuals will address the items above and this recommendation can be considered implemented with the completion of these manuals.

The Public Service notes that to achieve ongoing compliance with these two manuals once finalized, it will require training and additional staffing resources (i.e. additional FTEs) in both the Infrastructure Planning division as well as in the departments responsible for delivering the projects.

Additional capital and operating budgets will also be required to implement an IT solution, which includes project financial reporting, dashboard reporting, schedule, risk assessment and document management.

The additional resourcing required to implement this recommendation will require the approval of elected officials.

Administrative report requesting the required resources will be forwarded to elected officials for approval prior to March 31, 2015.

IMPLEMENTATION DATE	March 31, 2015

RISK AREA	Business Process	ASSESSMENT	High
BASIS	Having a comprehensive capital project management system that is not integrated into the City's departments can affect the financial outcomes of capital projects by millions of dollars.		

RECOMMENDATION 6

We recommend that the Public Works Department integrate the processes embedded in the City's Investment Planning Manual *and* Project Management Manual *into its capital project management processes once the manuals have been formally adopted by the Public Service.*

MANAGEMENT RESPONSE

The Public Service agrees with this recommendation.

Full implementation of the Investment Planning Processes and Capital Project Management processes is not possible within existing resources of the department.

The Public Works Department would greatly benefit from the adoption of a formal Capital Project Management Office (PMO). A PMO would accelerate the consistent installation of more formal processes across the Public Works Department. A PMO would also act as a mentoring influence to some divisions that have not had the opportunity to participate in formal project management. The Public Works Department will require additional FTE positions to properly deliver this goal.

An Administrative Report requesting the additional resources required on a City wide basis to implement the City's Asset Management Manual and Project Management Manual is being prepared by the Public Service and requires approval by elected officials.

Administrative report requesting the required resources will be forwarded to elected officials for approval prior to March 31, 2015.

IMPLEMENTATION DATE	March 31, 2015

APPENDIX 1 – Risk Assessment Worksheet

Potential Impacts / Likelihood	Insignificant - None or minor change in services, project or processes - Very limited exposure of sensitive information - Very minor, non-permanent environmental damage - Financial impact < $100K	Minor - Minor change in achievement of service objectives - Limited exposure of sensitive information - Minor, non-permanent environmental damage - Financial impact $100K – $500K	Moderate - Moderate change in delivery of essential services - Exposure of limited amount of confidential information - Moderate environmental damage - Financial impact $500K – $1M	Major - Significant change in delivery of essential services - Exposure of significant amount of confidential information - Significant change in quality of life indicators - Major environmental damage - Financial impact $1M – $10M	Extreme - Unable to perform essential services for extended period Exposure of critical confidential information - Very significant change in quality of life indicators - Significant damage to environment - Financial impact >$10M
Almost certain (Excepted to occur unless circumstances change)	M	M	H	C	C
Likely (Probably occur in most circumstances)	M	M	H	C	C
Possible (Might occur under different circumstances)	L	M	M	H	H
Unlikely (Could occur if circumstances change)	L	L	M	H	H
Rare (May occur in exceptional circumstances)	L	L	M	M	M

Legend

C Critical risk:	Requires urgent action, monitor and review at least weekly by Senior Management and COO, inform CAO and Committee of Council
H High risk:	High impact, monitor and review at least quarterly by management, inform COO
M Moderate risk:	Monitor and review at least quarterly by management
L Low risk:	Review periodically, no explicit action required.

APPENDIX 2 – Council Motion for Audit of the WWARP

Minute No. 84
Report – Executive Policy Committee – December 5, 2012

Item No. 9 Waverley West Arterial Roads Project

COUNCIL DECISION:

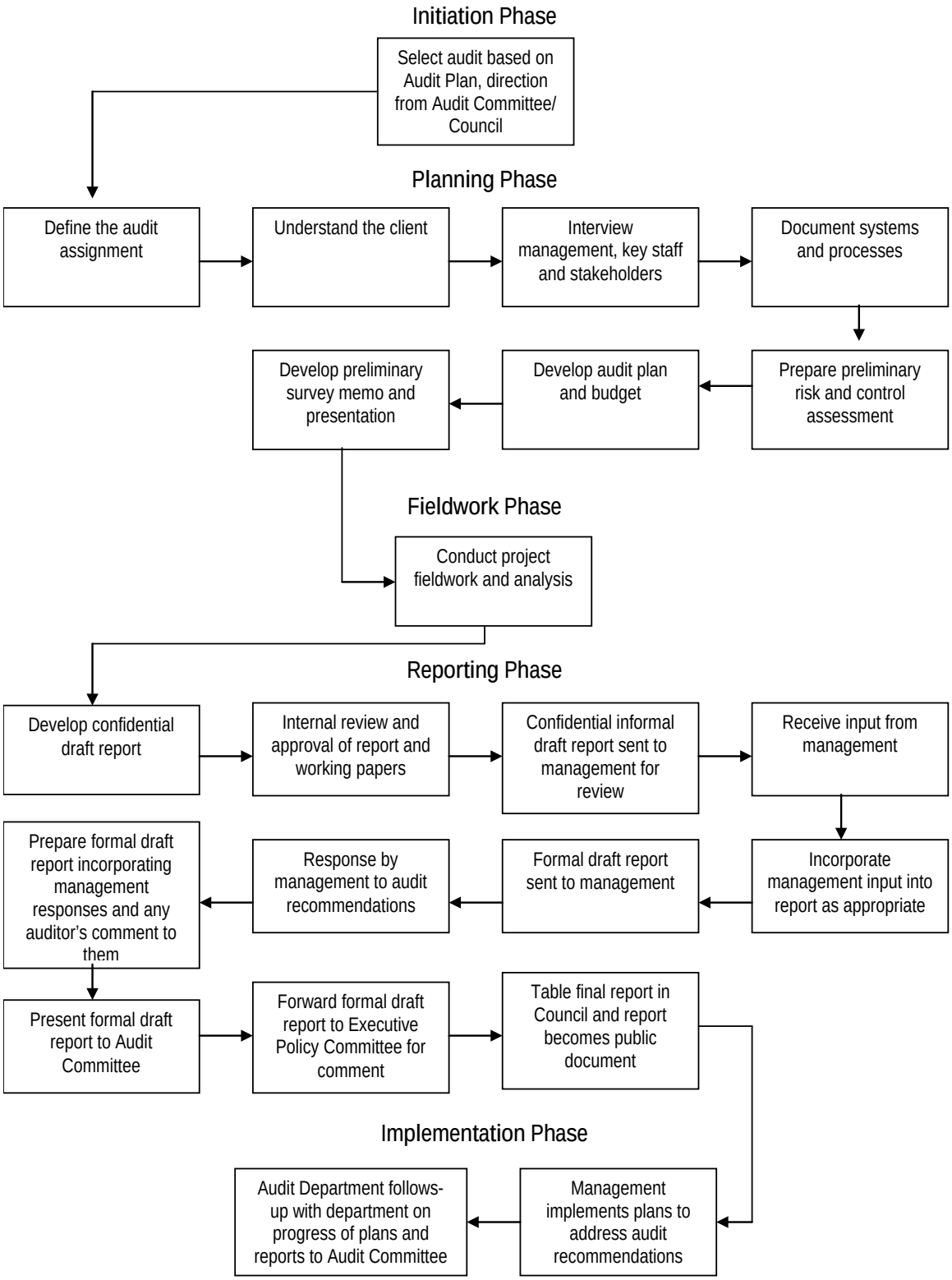
Council concurred in the recommendation of the Executive Policy Committee and adopted the following:

1. That the Waverley West Arterial Roads Project be referred to the City of Winnipeg Audit Department to be given priority for an Audit of the entire project thus far by the City Auditor.

2. That the Province of Manitoba be requested to fund the additional $5 million in the Kenaston and PTH100 intersection upgrades as the Perimeter Highway is the 100% responsibility of the provincial government.

3. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

APPENDIX 3 – Audit Process



APPENDIX 4 – Summary of Recommendations

Focus Area	Rec. #	Recommendation	Priority
Expected Accuracy Ranges for Capital Project Budgets	1	*We recommend that the Infrastructure Planning Division of the Corporate Finance Department review and update Appendix 2 to the Capital Budget to reflect the City's actual experience for capital projects.*	High
Class Disclosure in the Annual Capital Budget	2	*We recommend that the Financial Planning and Review Division of the Corporate Finance Department ensure that the specific estimate class for each project is clearly disclosed in the Capital Budget.*	Critical
Engineering Overhead Rate	3	*We recommend that the Engineering Division of the Public Works Department develop and document a methodology for budgeting engineering overhead for major capital projects.*	Moderate
Risk Management	4	*We recommend that the Infrastructure Planning Division of the Corporate Finance Department reassess the threshold defining a "Major Capital Project" for capital project management processes under the CAO's delegated authority; and that it also submit the proposed threshold to Council for approval for processes under Council's authority.*	Moderate
Project Management Guidance	5	*We recommend that the Infrastructure Planning Division of the Corporate Finance Department make the following revisions to the draft* Project Management Manual: *<u>Project Integration Management</u>* *Project integration processes should be developed and documented, including:* - *establishing a process for improving the project management tools on an ongoing basis* - *creating a formalized project file format with guidance on file structure and content* - *creating processes for including regular updates for critical project performance measures through site meeting agendas and minutes* *<u>Project Scope Management</u>* *Include reference to where the process for creating business cases for projects can be found in the* Investment Planning Manual*.*	High

APPENDIX 4 – Summary of Recommendations (Cont'd)

Focus Area	Rec. #	Recommendation	Priority
Project Management Guidance (continued)	5	*Project Cost Management and Project Financial Management* *The* Investment Planning Manual *criteria for the appropriate amount of supporting documentation and analysis for a project cost estimate should be referenced in the* Project Management Manual*.* *Project Human Resource Management* *Guidance for competency planning should be developed and included in the* Project Management Manual*.* *Project Communications Management* *A process for obtaining required communications from project stakeholders should be developed and documented in the* Project Management Manual*. The Council policy requirement for projects to be submitted to the Standing Policy Committee on Finance should also be documented in the* Project Management Manual. *Project Risk Management* *A universal risk register to be considered on all capital projects risk assessments should be developed and referenced in the* Project Management Manual*.* *Project Stakeholder Management* *Property owners should be added to the listing of potential stakeholders in the* Project Management Manual*.* *Project Environmental Management* *Guidance for Project Environmental Management should be developed and included in the* Project Management Manual, *in consultation with departments that manage capital projects.*	High

APPENDIX 4 – Summary of Recommendations (Cont'd)

Focus Area	Rec. #	Recommendation	Priority
Project Management Guidance (continued)	5	*Project Claims Management* *Guidance on the identification, quantification, and prevention of claims should be developed in consultation with the Risk Management Division and included in the* Project Management Manual*.*	High
Project Management	6	*We recommend that the Public Works Department integrate the processes embedded in the City's* Investment Planning Manual *and* Project Management Manual *into its capital project management processes once the manuals have been formally adopted by the Public Service.*	High

APPENDIX 5 – PMBOK® Analysis of the WWARP

A.5.1 Project Integration Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Project Integration Management standards?

Conclusions

- The City does not have formal standards for Project Integration Management. As such, we are unable to offer an opinion in relation to City standards in this project management area.
- The PMBOK® Guide Project Management Standard requires proper project definition, as well as forming and executing a comprehensive project management plan, and monitoring and controlling changes in project plans that occur during project execution. In our opinion, the Project has not met the requirements of the PMBOK® Guide's Project Integration Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Integration Management?

- Integration Management is an overarching project management area that involves formally defining projects, as well as the amalgamation and coordination of all project functional knowledge area plans into a single, comprehensive project management plan. Integration Management also involves having processes to update integrated areas when changes occur during project execution.
- File formatting is beyond the scope of the PMBOK® guidance; however, prudent project management practice requires all project elements to be properly organized in a logical and well-documented file structure.
- We observed that, while there were parts of project functional knowledge area plans in various Project documents, there was no comprehensive integrated project management plan for the Project. Furthermore, Project documents were not kept in one project file, but were kept in several different electronic and physical printout locations.
- The Department relies on Project Manager experience to produce successful projects. Around the start of this project, several experienced Project Managers retired, requiring that a less experienced Project Manager be assigned to the Project. Having standardized project management tools helps to train, guide and shorten the learning curve for managing major capital projects. It also facilitates project risk management by freeing up time to assess project risks.
- A key input for meeting the PMBOK® Project Management Standard is the City's project management tools and guidance for Project Integration Management. As the City did not have tools to guide the WWARP in this project management area, it does not meet the PMBOK® standard for Project Integration Management.

Project Management Plan File Structure and Tools

- To support the management of complex capital projects, an organization should have a formalized structure for project files, a file management system, standardized project management working papers, and formalized policies and procedures for project management activities and supervisory review activities.

- Project files are important for several reasons. A well-organized, up-to-date file provides a single location for:
    1. Important information for the Project Manager to complete the project
    2. Information for supervisory staff to review the Project Manager's work
    3. Technical information about the project deliverables for later asset maintenance
    4. Proper project file structure to train new Project Managers
- The Public Works Department does not have a standardized file structure for capital projects and had few standardized tools to help Project Managers manage their projects. There were some standardized forms for financial administration and project reporting, but most of the working papers we reviewed for the Project appeared to have been developed by the Project Manager for this specific project.
- We observed that not all of the documents that we needed to evaluate the project management were being kept in the electronic project management file. Subsequent requests were required for different project documents. These documents were kept in electronic files elsewhere on the Department's LAN, or in physical working paper binders for the Project in the Project Manager's office.
- We believe that the Project Manager's supervisors were involved in guiding and overseeing the project. However, other than supervisor names being included on reports to Council, we did not observe any other tangible evidence of supervisory review of project working papers.

Monitoring Project Plans

- Project meeting minutes are an essential element of project monitoring documentation. It's a key source to obtain project measures, such as the types and numbers of quality control tests performed, or potential incidents that could give rise to legal claims. The minutes provide valuable information for the project manager to perform project quality assurance on an ongoing basis, and at the end of the project.
- We found the minutes of site meetings to be helpful with our audit work, and an excellent source of documented stakeholder communications during project execution.
- Many of the meeting minute reports had standing items for important project functional areas, such as safety issues and quality control testing.
- Unfortunately, we observed that the notes for these issues normally lacked substance, continually including comments such as "Ongoing" or "No Issues".

Project Management File Retention

- Proper retention of project documents for major capital projects is critical to the Department. We learned that the Department regularly relies on its external consultants to retain important project information such as quality control test reports. We also learned that when the City has requested these documents at a later date for maintenance purposes, the information is sometimes no longer available due to the consultant's own file retention policies, or the City has been asked to provide a service fee to retrieve the documents. We believe this to be unnecessarily costly to the City as the information should be kept in the City's own project management documentation according to the City's Records Management By-law.[1] Further, not having the documents detailing the makeup of the roads projects can be very costly for future testing and analysis to maintain roads.

Project Management Software

- The current method for document transfers with external consultants either physically or by email is labour and time intensive. Project supervisors would like to have a centrally accessible software to allow for better filing and tracking of project documents, both internally and in coordination with its external consultants. The Infrastructure Planning Division is currently researching the feasibility of an appropriate capital project management software for the City.
- Commercial project management software can provide an organization system for files. However, the software is not useful if management has not developed procedures to state which information should be kept in the file, and what the file structure should be. In order to take full advantage of the benefits that project management software can offer, it is important for the Engineering Division to develop a standardized file format that can be integrated into the software package.

Project Integration Management Guidance

- The materials we reviewed that are being developed by the Infrastructure Planning Division address a number of the above noted areas. The April 22, 2014 draft PMM does specify many of the project elements that must be completed, but does not address project file format or management. The draft PMM also contains guidance on preparing a "lessons learned" report at the end of the project.

[1] *Records Management By-law No. 86/2010*. The City of Winnipeg. Section 70(3). Print.

A.5.2 Scope Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Scope Management standards?

Conclusions

- The City has formal standards for Project Scope Management. These standards are located in the City's *General Conditions of Construction*, and the Over-Expenditure Authorization Procedure. In our opinion, the Project has met the requirements of Scope Management policies in the City's project management standards from the Project's inception to December 31, 2012.
- The PMBOK® Guide's Project Management Standard requires the definition and planning of the Project's scope and work breakdown structure, as well as the monitoring and control of any changes in scope that occur during project execution. In our opinion, the Project has met the requirements of the PMBOK® Guide's Scope Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Scope Management?

- Scope management is the process of defining the objectives of the Project, creating a breakdown of the activities required to complete the Project, controlling any changes to the defined objectives and activities, and validating the end results of Project activities. It also includes reporting that occurs throughout the Project related to scope.
- The scope of the Project was defined and included in the application to the federal government for Project financing under the Building Canada Fund. The scope of the Project has remained consistent with its definition in that application.
- The Work Breakdown Structure is defined by Contract Administrators as they complete their detailed design work for each component of the Project. We observed that these had been completed.
- The Project had eleven Change Orders and three approved Scope Changes to December 31, 2012, all of which followed the proper approval process. The cumulative measurable effect of the Change Orders was an additional cost of $31,500. The work for the Scope Changes related to the planned length of the fly-over and future infrastructure planning. The Consultant anticipates that the Scope Changes will result in reduced construction costs for the fly-over structure of between $2 million and $4 million.
- Review of the mostly-completed construction to date has been made by the contracted overall Contract Administrator, and Certificates of Substantial Performance have been issued for Parts I and II of the Project in accordance with the *Builders' Liens Act* of Manitoba.

Scope Management Guidance

- The City's current formal guidance on scope definition and control is minimal; however, the guidance has been significantly enhanced in the City's April, 2014 draft *Investment Planning Manual*. Further, business case templates have been developed to accompany the manual. The templates require details about the need for the projects, the benefits the projects will create, and what will be created (or decommissioned). A companion instructional manual guides project sponsors on how to create a business case and has sufficient information to meet the PMBOK® Standard for Scope Definition, as long as it is also referenced in the PMM.

A.5.3 Time Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Time Management standards?

Conclusions

- The City does not have formal standards for Project Time Management. As such, we are unable to offer an opinion in relation to City standards in this project management area.
- The PMBOK® Guide's Project Management Standard requires the definition, sequencing and scheduling of project activities, as well as the monitoring and control of any changes in schedule that occur during the execution of the project. In our opinion, the Project has not met the requirements of the PMBOK® Guide's Time Management standard from the Project's inception to December 31, 2012.

Analysis

What is Project Time Management?

- Time management involves the sequencing and scheduling of project activities, as well as defining and planning the resources required for the activities.
- The agreement with the federal government for Building Canada Fund financing included an overall project deadline. The detailed design work from Contract Administrators included Project schedules that were geared toward meeting the Building Canada Fund deadline.
- A key input for meeting the PMBOK® Project Management Standard is the City's project management tools and guidance for Time Management. The Project does not meet the standard because the City does not currently have a formal project management manual, policies, or other standards to guide Project Time Management.

Time Management Guidance

- The April 22, 2014 draft PMM includes guidance on schedule development and change control. The guidance addresses task scheduling, sequencing, duration, and change control and resource planning for each project activity. If adopted in the current format, the draft PMM would meet the requirement for Project Time Management guidance in the PMBOK® Guide Project Management Standard.

A.5.4 Cost Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Cost Management standards?

Conclusions

- The City has formal standards for Project Cost Management. These standards are located in the City's Capital Budget process and *Administrative Directive No. FM-004: Capital Project Administration*. In our opinion, the Project has met the requirements for Cost Management in the City's project management standards from the Project's inception to December 31, 2012.
- The PMBOK® Guide's Project Management Standard requires a cost management plan be developed for projects, as well as monitoring and controlling any changes in the cost management plan that occur during project execution. In our opinion, other than the effects of the issues discussed in the Project Financial Analysis section of our report (specifically the lack of support for the original cost estimate), the Project has met the requirements of the PMBOK® Guide's Cost Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Cost Management?

- Cost Management involves the process of estimating the project cost, as well as developing a budget for authorization. It also includes monitoring and controlling project expenditures to ensure that only authorized costs are being incurred, and developing any required cost reports and subsequent cost estimates.
- The City does not currently have minimum standards for the quality of the cost estimate submitted for inclusion in the Capital Budget.
- A Class 5 estimate of the Project's cost was submitted for the City's 2010 Capital Budget. Revised figures, comprising a Class 3 estimate, were submitted for the City's 2013 Capital Budget.
- We observed properly documented authorization of the Project costs we audited as of December 31, 2012 in the Financial Performance Analysis section of this report.

Project Cost Management Guidance

- The April 22, 2014 draft PMM has guidance on budget roles and responsibility, how to revise a budget, issues that can arise in a budget, and budget control. If adopted in the current format, the draft PMM would meet the requirement for Project Cost Management guidance in the PMBOK® Guide Project Management Standard.

A.5.5 Quality Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Quality Management standards?

Conclusions

- The City has formal standards for Project Quality Management. These standards are located in the City's *Standard Construction Specifications*. Due to limitations in the information we were able to review, we were unable to confirm whether the Project complied with the City's standards. Therefore, we are unable to provide an opinion on whether the Project has met the requirements for Quality Management in the City's project management standards from the Project's inception to December 31, 2012.
- The PMBOK® Guide's Project Management Standard requires proper planning, execution and monitoring of quality and process improvement for project activities throughout the project execution. In our opinion, the Project has not met the requirements of the PMBOK® Guide's Quality Management standards from the Project's inception to December 31, 2012. Our observations are discussed below.

Analysis

What is Project Quality Management?

- Quality Management involves planning and executing the procedures that ensure that the deliverables for the project meet the quality requirements for the investment made. It also involves process improvement activities to ensure that future projects are delivered better.
- The PMBOK® Guide's Project Management Standard requires that a Quality Management Plan be created for projects. A Quality Management Plan details the types and amounts of quality control procedures that will be completed, as well as the level of assurance to be obtained to ensure acceptable quality for the overall project. In a construction project such as this, we would have expected to see a plan that laid out the relevant quality measures for design work, construction, and project administration. The Project does not have any such formalized plan.
- The Department almost wholly outsources the quality management function to Project Engineering Consultants (Contract Administrators) and Construction Contractors; it does not have a documented process in place to verify that the appropriate quality control has taken place. This is similar to the observations in our 2008 *Capital Project Management Audit*. Our recommendation at that time was that a formal quality management and control program be included in the revisions to the updates to the 1992 *Draft Manual of Project Administration Practice*.

Planning, Execution and Monitoring of Quality

- The City has formal standards relating to construction work Quality Management for capital projects. These standards are found in the City's *Standard Construction Specifications*. The *Standard Construction Specifications* give some quality measures relating to physical characteristics of construction work for projects.

- The *Standard Construction Specifications* do not discuss required frequency for quality control testing. We have been informed that frequency standards are included in the industry standards (such as ATSM and CSA standards). However, the Engineering Division of the Public Works Department does not maintain current copies of the industry standards, and was not able to provide us access to those standards. Further, the Public Works Department receives copies of all of the quality control test reports performed at the end of a project in a final report provided by its Contract Administrator; as the Project was not finished at the time of our fieldwork, the Department did not have readily accessible copies of the quality control reports to evaluate the sufficiency of quality control testing. Due to this limitation in the information available, we are unable to provide an opinion on whether the Project has met the requirements of Quality Management for construction in the City's project management standards from the Project's inception to December 31, 2012.
- Contract Administrators final project reports are required to include all of the quality control tests that have occurred in an appendix to the report. However, we were informed that no reconciliation and assurance work is typically completed on the reports to determine that an appropriate amount of quality control has been completed.
- We observed some construction quality control testing being completed for the Project during our fieldwork phase.
- The Public Works Department intermittently receives quality control testing reports from its Contract Administrators on all of its projects in the Engineering Division's Research and Standards Branch. These reports, however, are not reconciled for completeness in relation to a specific project, and are not forwarded Project Managers to maintain in project files.
- The Project Manager also receives minutes for weekly project site meetings where quality is a standing issue in the minutes. However, for the minutes we observed, the normal documentation for quality management was "Ongoing. No issues". Site meetings minutes are a perfect opportunity to record the numbers and types of tests that have occurred.

Process Improvement Activities

- The PMBOK® Guide Project Management Standard also requires that a process improvement protocol be in place to improve the quality of future projects. The Department does not have a documented process improvement protocol.

Quality Management Guidance

- The draft *Project Management Manual* clearly states that project quality is ultimately the responsibility of the Project Manager. The April 22, 2014 draft of the PMM gives Project Managers direction on how to create Quality Management Plans and how to carry them out. If adopted in the current format, the draft PMM would meet the requirement for Project Quality Management guidance in the PMBOK® Guide Project Management Standard.

A.5.6 Human Resource Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Human Resource Management standards?

Conclusions

- The City does not have formal standards for Project Human Resource Management. As such, we are unable to offer an opinion in relation to City standards in this project management area.
- The PMBOK® Guide's Project Management Standard requires proper planning, acquisition, development and monitoring of human resources for project activities throughout the project execution. In our opinion, the Project has not met the requirements of the PMBOK® Guide's Human Resource Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Human Resource Management?

- Human resource management involves the process of selecting, assigning, and training staff for a project to ensure that the project is carried out successfully. Having proper training materials for project staff is an important component of a successful project. We have addressed training materials in the Project Integration Management section of our report.
- We observed that the Project Manager had received project management training in courses designed to teach PMBOK® principles.
- The City does not have a formally approved *Project Management Manual* to train Project Managers on City standards for project management. Also, the Engineering Division of Public Works does not have a formalized project file structure to train Project Managers how project files should be kept in accordance with the Division's standards. Rather, the Engineering Division relies mostly on work experience for training. While we recognize that experience is an important part of training, we also consider comprehensive standards and file structure to be essential tools for training Project Managers on the project management process for City projects.
- A key input for meeting the PMBOK® Project Management Standard is the City's project management tools and guidance for Project Human Resource Management. As the City did not have tools to guide the WWARP in this project management area, it does not meet the PMBOK® standard for Project Human Resource Management.

Human Resource Management Guidance

- The April 22, 2014 draft PMM has guidance on human resource planning, acquisition and management. The planning guidance does not address taking inventory of the skills and competencies that will be required to complete the project to address the required project areas. Having a lack of qualified staff is addressed in the PMM's project execution section, stating that it will become a part of the risk management process. However, it may be too late at that point—as the risk has already been realized—and may cause larger than necessary inefficiencies if it is not dealt with in the planning stage.

A.5.7 Communications Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Communication Management standards?

Conclusions

- The City has formal standards for Project Communication Management. These standards are found in the City's capital budgeting process and in *Administrative Directive No. FM-004: Capital Project Administration*. In our opinion, the Project has met the City's Project Communication Management standards from the Project's inception to December 31, 2012.
- The PMBOK® Guide's Project Management Standard requires proper planning, transmittal and monitoring of communications for project activities throughout the Project execution. In our opinion, the Project has not met the requirements of the PMBOK® Guide's Project Communication Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Communications Management?

- Communications management involves the planning, collection, creation, storage and distribution of formal and informal communications to internal and external project stakeholders.

Formal Project Communications Plan

- The PMBOK® Guide Project Management Standard requires that a communication plan be developed for projects. The communication plan documents all of the required communications with stakeholders throughout the project. We recognize that the vast majority of communication in projects is informal and cannot be planned or scheduled at the outset of the project. However, more formal communications—such as status reports, audits, financial reports, and meeting minutes—are generally prescribed by project agreements and regulations, and can be formally planned. The Project Manager informed us that there is no documented collection area to keep track of deadlines for these reports, and that the process relies on the stakeholders reminding the City that these communications need to be made. Missing required communications can have significant impacts on stakeholder relationships, or other schedule and budgetary impacts. A communication plan for required communications is prudent to avoid these risks.
- The Project files had good evidence of regular communication in the form of construction site meeting minutes. The minutes kept many project functional areas, such as quality and safety, as regular standing items in the minutes. Minutes are an important communication tool to update the Project files and should be a requirement of service. Key Performance Measurements should also be a standing item in minutes, for regular progress updates.

Communication Management Guidance

- The April 22, 2014 draft PMM contains a section on communication planning. The section gives guidance on communicating project plans and results to Council and the Public. However, the guidance is for the distribution of information only, and does not take into consideration plans for information that is required to be *received* from project stakeholders, such as reports from project consultants. This was an issue that was also identified in our 2008 *Capital Project Management Audit*, and has not been addressed in the April 22, 2014 draft PMM.

A.5.8 Risk Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Risk Management standards?

Conclusions

- The City has formal standards for Project Risk Management. These standards are found in the City's *Administrative Directive No. FM-004: Capital Projects Administration*. In our opinion, the Project has not met the requirements of Risk Management in the City's project management standards from the Project's inception to December 31, 2012. Our observations are discussed below.
- The PMBOK® Guide's Project Management Standard requires proper planning and monitoring of risks for project activities throughout the project execution. In our opinion, the Project has not met the requirements of the PMBOK® Guide's Risk Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Risk Management?

- Risk Management involves the identification of risks affecting the successful completion of projects (examples include risks to budget, resources, quality, or timely completion), risk definition (both in financial and non-financial terms), and strategy formulation to mitigate the identified risks.
- The City has several processes in place to identify risks. These are discussed below.

Major Capital Projects Steering Committee

- *Administrative Directive No. FM-004: Capital Project Administration* requires a Major Capital Project Steering Committee to be created at the beginning of any capital project with a budget in excess of $10 million. The Steering Committee is a risk mitigation device to help to anticipate project risks and to resolve risks at levels that Project Managers may not be able to. A Steering Committee had not been created for the Project as of December 31, 2012.[1]
- The Public Service has informed us that they have added an appendix to the Capital Budget detailing the Major Capital Projects Steering Committees to create more accountability around their creation.

Major Capital Projects Review by SPC on Finance

- A December 16, 1999 Council policy requires that all capital projects in excess of $10 million be reviewed for comment and recommendation by the SPC on Finance prior to any bid solicitation (which we interpret to include single-source negotiations).[2] We found no evidence that any such review and commentary took place.
- It may be prudent to reassess this $10 million threshold for the effects of inflation since the policy was created.

[1] A Major Capital Projects Steering Committee was created for the WWARP on May 14, 2013.
[2] The City of Winnipeg. Council Minutes. Minute 207. 16 December 1999.

Risk Management Plan and Risk Register

- The PMBOK® Guide's Project Management Standard requires a comprehensive risk management plan to be created anticipating, assessing, describing, quantifying, and responding to the risks in all functional areas of a project. We observed documentation of a risk assessment meeting occurring on December 19, 2012 for Part III of the Project, but found no comprehensive plan.
- The PMBOK® Guide also requires a risk register to be developed for projects. A register was developed for Part III of the Project, but not for Parts I and II. Further, the current process for creating risk registers for projects considers each project in isolation; there is no process to compile risks in a universal risk register. A universal risk register would be a departmental level document that would compile common risks applicable to most projects in a department. Having a universal risk register allows for risk management improvements as risks found in some projects can be added to the universal risk register and allow for a more comprehensive risk analysis in future projects.
- One of the impacts experienced from not having a comprehensive risk assessment related to the risk of the Project extending onto property owned by other parties. Property lines do not appear to have been considered in the construction drawings for Part I of the Project. This oversight halted the construction of the east embankment for the fly-over for over eleven months when another property owner found the Construction Contractor working on its property. Since this construction was scheduled to commence at the beginning of this four year project, the delay did not significantly affect the Project's overall timing and budget. Had the activity been scheduled later in the Project, however, the delay could have been problematic due to the strict completion deadline in the Building Canada Fund financing agreement. Property ownership is a standard project risk that should have been anticipated through the consideration of a risk register.

Risk Management Guidance

- The April 22, 2014 draft PMM contains guidance on risk planning and management. If adopted in the current format, the draft PMM would meet the requirement for Project Risk Management guidance in the PMBOK® Guide Project Management Standard; however, the PMM does not discuss the requirement for projects to be submitted to the SPC on Finance for review and comment. (The Investment Planning Manual doesn't discuss it either.) This requirement should be documented in the PMM to communicate this responsibility to Project Managers and sponsors to avoid not meeting this requirement in future projects.

A.5.9 Procurement Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Procurement Management standards?

Conclusions

- The City has formal standards for Project Procurement Management. These standards are found in Council's *Materials Management Policy*, and in the City's *Administrative Standard No. FM-002: Pursuant to the Materials Management Policy*. In our opinion, the Project has met the requirements of Procurement Management in the City's project management standards from the Project's inception to December 31, 2012.
- The PMBOK® Guide's Project Management Standard requires proper planning, execution and monitoring of procurements for project activities throughout the project execution. In our opinion, the Project has met the requirements of the PMBOK® Guide's Procurement Management standards from the Project's inception to December 31, 2012.

Analysis

What is Procurement Management?

- Procurement Management involves the acquisition of the external resources necessary to complete the project.
- Three Contract Administrators were sole-sourced (one for Part I, one for Part II, and one to oversee the Contract Administration for the entire Project). One Contract Administrator was competitively bid for Part III of the Project. All Contract Administrator procurements were conducted in accordance with *Administrative Standard No. FM-002: Pursuant to the Materials Management Policy*.
- All construction contractors were competitively bid from the Project's inception to December 31, 2012, in accordance with *Administrative Standard No. FM-002: Pursuant to the Materials Management Policy*.

Procurement Management Guidance

- The April 22, 2014 draft PMM contains sections on procurement planning and control, with links to the Materials Management Division's procurement tools. The guidance in the draft, combined with the Procurement Management tools on the Materials Management Division's intranet site, provide sufficient guidance to meet the PMBOK® Project Management Standard for Procurement Management. If adopted in the current format, the draft PMM would meet the requirement for Project Cost Management guidance in the PMBOK® Guide Project Management Standard.

A.5.10 Stakeholder Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Stakeholder Management standards?

Conclusions

- The City does not have formal standards for Project Stakeholder Management. As such, we are unable to offer an opinion in relation to City standards in this project management area.
- The PMBOK® Guide's Project Management Standard requires proper identification of project stakeholders, as well as planning for and monitoring stakeholder needs throughout the project execution. In our opinion, the Project has not met the requirements of the PMBOK® Guide's Stakeholder Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Stakeholder Management?

- Stakeholder management involves the identification of project stakeholders and the consideration of their expectations with regards to the project.
- A key input for meeting the PMBOK® Project Management Standard is the City's project management tools and guidance for Stakeholder Management. As the City did not have tools to guide the WWARP in this project management area, it does not meet the PMBOK® standard for Stakeholder Management.
- We observed frequent communication between those with project oversight, the Public Works Department, project financers, contracted parties, and the public. However, one critical stakeholder consideration we had expected to be a standard component for every capital project was overlooked—property ownership.

Property Ownership Not Addressed in Stakeholder Management Process

- The PMBOK® Guide requires that projects have a stakeholder identification process, as well as a stakeholder management plan. One of the property owners where the project was to be located was identified as a stakeholder early on in the process; however, neither the City nor its consultants secured use of the property owner's land in a written agreement during the early stages of the project. This was due to the fact that neither the City nor the Contract Administrator identified that part of the east embankment for the fly-over structure would be constructed on the property owner's land. Construction briefly began for the east embankment but was halted by the property owner shortly after due to uncertainty in their future plans for the property. An agreement on the issue took an additional seven months to be reached, delaying completion of the structure for a full eleven months after its originally anticipated completion date. Resolution of the issue also strained the City's relationship with the property owner. Fortunately, this construction was scheduled to occur within the first year of the Project and did not extend the overall Project schedule or budget.

Stakeholder Management Guidance

- The April 22, 2014 draft PMM contains sections guiding stakeholder identification and management. The listings of potential stakeholders do not identify property owners, which was the cause of the delay in the Project described above, and is a common stakeholder group for projects.

A.5.11 Safety Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Safety Management standards?

Conclusions

- The City has formal standards for Project Safety Management. The procurement process requires Contractors to be COR™ certified with the Construction Safety Association of Manitoba, submit work safety plans to the City for projects, and to hold proper liability insurance to build constructed works for the City. In our opinion, the Project has met the requirements of Safety Management in the City's project management standards from the Project's inception to December 31, 2012.
- The PMBOK® Guide's Project Management Standard requires proper planning and monitoring of safety for project activities throughout the project execution. In our opinion, the Project has met the requirements of the PMBOK® Project Safety Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Safety Management?

- Safety Management involves the processes conducted to ensure that the project is conducted in a safe manner and produces a safe result.
- Only COR™ certified Contractors were hired to construct the Project from inception to December 31, 2012. The Contractors submitted work plans and site safety was a regular standing item in the site meeting minutes.
    - Site meeting minutes are an external consultant initiative. We observed that safety was a consistent minute item in the minutes that we reviewed for Parts I and II for the Project. The City's input into meeting agendas and minutes is discussed further in our Quality Management section.
- An external Contract Administrator was hired to perform administrative review of all contracts for the Project. Part of the Contract Administrator's responsibilities was to conduct safety audits of the constructed works completed for the Project. We reviewed the Contract Administrator's audit reports for Parts I and II of the Project. The Contract Administrator conducted its audits in accordance with the "Canadian Road Safety Audit Guide" and the "Canadian Guide to In-Service Road Safety Reviews". The audits were presented to the Public Works Department along with the Contract Administrator's observations and recommendations.

Safety Management Guidance

- The April 22, 2014 draft of the PMM contains guidance relating to contractor safety for capital projects. If adopted in the current format, the draft PMM would meet the requirement for Project Cost Management guidance in the PMBOK® Guide Project Management Standard.

A.5.12 Environmental Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Environmental Management standards?

Conclusions

- The City does not have formal standards for Project Environmental Management. As such, we are unable to offer an opinion in relation to City standards in this project management area.
- The PMBOK® Guide's Project Management Standard requires proper planning and monitoring of environmental issues for project activities throughout the project execution. In our opinion, the Project has not met the requirements of the PMBOK® Guide's Environmental Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Environmental Management?

- Environmental Management involves the processes conducted to ensure that the Project is completed with due regard for the physical environment affected by the Project.
- The federal government required an Environmental Screening to be completed for the Project as part of the requirements for funding under the Building Canada Fund. Part of the assessment was for the City to complete an Environmental Protection Plan ("EPP") for the Project. The EPP, which was approved by Transport Canada, assessed the environmental risks of the Project as not significant, and set a number of mitigation strategies for minimizing the environmental impact. As the environmental risks were assessed as not significant in the EPP, evaluating whether the Project was in compliance with the EPP was not a part of this audit.
- A key input for meeting the PMBOK® Project Management Standard is the City's project management tools and guidance for Environmental Management. As the City did not have tools to guide the WWARP in this project management area, it does not meet the PMBOK® standard for Environmental Management.

Effects of the Environmental Management Process

- The Project was anticipated to begin construction in 2010, but was not able to begin until August 2011, pending the results of the Environmental Screening. The fact that an assessment would need to be completed was not anticipated and caused some delays in getting the Project started. Had Environmental Management guidelines been included in the City's project management guidance, the potential for an environmental assessment could have been anticipated, which may have reduced the lag due to the assessment.

Environmental Management Guidance

- The April 22, 2014 draft of the PMM does not contain guidance on the Environmental Management planning, performance or control.

A.5.13 Financial Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Financial Management standards?

Conclusions

- The City has formal standards for Project Financial Management. These standards are found in the City's Capital Budget process, as well as in *Administrative Directive FM-004: Capital Projects Administration*. In our opinion, except for the effects of the issues discussed in the Project Financial Analysis section of our report, the Project has met the requirements of Financial Management in the City's project management standards from the Project's inception to December 31, 2012.
- The PMBOK® Guide's Project Management Standard requires the proper planning, authority setting, recording and reporting of financial information for the project. In our opinion, except for the effects of the issues discussed in the Project Financial Analysis section of our report, the Project has met the requirements of the PMBOK® Guide's Financial Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Financial Management?

- Financial Management, as differentiated from Cost Management, involves the acquisition of the financing required to complete the project, and the financial reporting process.
- We observed that the Public Works Department had submitted financial reporting for the Project to the federal government in accordance with the financing agreement under the Building Canada Fund. We observed that revised financial projections were reported to the SPC on Finance during the first Project Update in December 2012, when more detailed costing information became available for the Project.

Financial Management Guidance

- The April 22, 2014 draft PMM does not contain guidance on the supporting work that project cost estimates require to be included in the Capital Budget. These cost estimates are also used in financing proposals to other levels of government. However, guidance on cost estimate support is found in the April, 2014 draft *Investment Planning Manual*. If the guidance in *Investment Planning Manual* was referenced in the PMM, the draft PMM would meet the requirement for Project Financial Management guidance in the PMBOK® Guide Project Management Standard.

A.5.14 Claims Management

Issue

- Did the WWARP meet the City's and the PMBOK® Guide's Claims Management standards?

Conclusions

- The City has informal standards for Project Claims Management. The procedures for Claims Management processes are included in the City's 1992 draft *Manual of Project Administration Practice*. In our opinion, the Project has met the requirements of Claims Management in the City's project management standards from the Project's inception to December 31, 2012.
- The PMBOK® Guide's Project Management Standard requires procedures for the identification, quantification, prevention, and resolution of project claims, as well as the monitoring and control of any changes that occur during the execution of the project. In our opinion, the Project has met the requirements of the PMBOK® Guide's Claims Management standards from the Project's inception to December 31, 2012.

Analysis

What is Project Claims Management?

- Claims management involves the identification, quantification, prevention and resolution of legal claims arising from disputes during the project period. These disputes can be between the contracting parties involved in the completion of a project, or by citizens who suffer damage due to the activities of a project.
- We observed two small claims initiated by citizens relating to the WWARP that were handled by the Corporate Finance Department's Risk Management Division. These claims were deemed to be the responsibility of the Construction Contractor that was building the associated work and were handled by the Construction Contractor.

Claims Process Guidance

- The April 22, 2014 draft PMM contains guidance on the types of insurance to be included in bids and agreements, and whom to contact in the event of a claim, but does not contain guidance on claims identification, what information should be gathered to facilitate and expedite the claims process, or the strategies to be used to prevent claims.