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Nunavut Housing Corporation

Review of Nunavut Housing Trust

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Executive Summary

Introduction

Subsequent to the presentation of the ten-year Inuit Housing Action plan, and the failed Kelowna accord, the federal government announced the Northern Housing Trust initiative, from which, the Nunavut Housing Corporation (NHC) received $200 million to be used to construct new housing in Nunavut. This key investment, known as the Nunavut Housing Trust (NHT), was to be used to build about 725 new public housing units in 25 Nunavut communities. The last portion of this funding from the Government of Nunavut was disbursed in the spring of 2009. In the fall of 2009, the new management of NHC initiated a detailed internal review to assess the funds remaining as compared to the budget needed to complete the construction work (Forecast). The review identified a significant shortfall in funding, which was then presented to Nunavut Cabinet.

In response, Cabinet issued a directive to NHC to engage a qualified and suitable professional accounting firm to conduct a thorough review of all NHT project related expenditures from April 1, 2006 to February 28, 2010. This review was to also include a review of the NHT forecast to completion, the original budget process, as well as controls and reporting that have been subsequently established. Related findings were to be presented to The Government of Nunavut Department of Finance by August 15, 2010.

The contract to honour the Cabinet directive was awarded to Deloitte on June 3, 2010. This report addresses Deloitte's review of the:

- forecast to completion and provide comments on the reasonableness of the assumptions and methodology used in preparing the forecast;
- original budget process and provide comment on some of the factors that may have contributed to a shortfall in funding; and,
- controls and reporting that have subsequently been established or planned and provide comment and recommendations as to how to improve the project management, budgeting, forecasting, monitoring, and reporting process.

Deloitte also conducted a separate Canadian Institute of Chartered Accountants (CICA) Handbook Section 5805 audit report relating to the NHT housing project related expenditures from April 1, 2006 to February 28, 2010. Our audit report has been issued under separate cover to management of NHC.

Findings

Our report notes strengths, opportunities for improvement, and inherent risks and challenges faced by NHC in its processes and makes recommendations to support NHC in evolving and further enhancing their approach:

Strengths

- The spreadsheets supporting the Forecast are mechanically accurate and the "bottom up" and "top down" approach using incurred costs as a basis for the Forecast together with contract sums and estimates for the work still to complete approach is directionally correct;
- The original budgeted per unit cost was broken down into the more relevant and variable cost components; namely, materials (including marshalling and freight), lot (including site work), foundations, and labour; and,
- NHC is proactively taking actions to improve controls and reporting in its processes. Specifically, they are modifying the way in which: budgets are recorded, change orders are approved, contracts are tendered, project expenditures are forecasted, and variances tracked.

Opportunities for Improvement

Forecast: Details regarding the assumptions and calculations used within the Forecast were not available and there were inconsistent understandings of the Districts' mandate when producing their figures. The Forecast was significantly influenced by the proficiency and knowledge of individual estimators from each District and their understanding of the scope of work to be included within their forecast. To finalize the Forecast, NHC held conference calls with District Directors and Technical Managers to confirm what was required and identify potential shortfalls. Nonetheless, it is likely that the Forecast may not accurately represent the scope of work required to complete the project and that demands will be made on the contingency included in the Forecast.

Budget: Our review found that the original budget was prepared in isolation by the Directorate Office and documented standards, guidelines, and assumptions for the original NHT budget could not be found. At the time of program initiation, the NHC was under the time pressure to develop a delivery strategy to address multiple and complex priorities. This likely led to an inability to adequately document the guidelines and assumptions used in developing the original budget. Other factors which contributed to the funding shortfall included: inadequate stakeholder input and challenge of assumptions, insufficient communication of the budget, an accounting system incapable of accurately tracking construction projects which span several years, and a lack of regular review of the budget and budget variances.

Controls procedures: NHC is in the process of establishing procedures and controls for its project management, budgeting, forecasting, monitoring, and reporting processes. At the time of our review, we observed a significant number of controls in the design phase and not fully implemented. As such, we could not complete an assessment of control design and implementation. We provided recommendations to NHC to address the control gaps we identified in our review, and in many cases, NHC has already initiated the necessary action to address these identified control gaps. In the future, as controls are fully designed and implemented and the processes formally established, NHC should consider conducting additional control testing in order to provide assurance on the operating effectiveness of these new controls.

Inherent Risks and Challenges

Our review also noted systemic challenges and inherent risks which are continually faced by NHC. If these risks are not adequately mitigated by management, they may continue to inhibit NHCs ability to fulfill its mandate to provide affordable housing. Key risks identified include:

- NHC must continually balance the political and social aspects of allocation and prioritization of housing units with the economical and cost considerations of construction in remote locations;
- There is limited staff capacity at the Directorate, Headquarters and within the District Offices to implement many of its planned processes. In addition, there is limited staff who have the required skills and competencies to implement many of its planned processes;
- NHC's decentralized organizational structure may not be appropriate to enable the achievement of its objectives. NHC's processes and responsibilities are currently decentralized among its different office locations, all of which are geographically separated;
- The Government of Nunavut information technology infrastructure used by NHC may not effectively support the needs of NHC or its processes, impacting NHC's ability to achieve its business objectives; and,
- Limitations in NHC's accounting system and its general ledger structure such as the inability to track multi-year projects and easily export data into useful financial/operational reports make it difficult to effectively review performance.

1. Introduction

Background

The Nunavut Housing Corporation (NHC) is a public agency established to create, coordinate, and administer housing programs that provide Nunavummiut with fair access to a range of affordable housing options. NHC reports to the Legislative Assembly through the responsible Minister. Its mandate is to create, coordinate, and administer housing programs that provide families and individuals in Nunavut with fair access to a range of affordable housing options.

NHC's headquarters are in Arviat, and its directorate is located in Iqaluit. Its housing programs are delivered in 25 communities, under agreements with community partners: local housing associations, authorities, and hamlets. The delivery of services to the 25 communities is supported by three Corporation district offices: Cape Dorset for the Baffin (Qikiqtaaluk) Region, Arviat for the Kivalliq Region, and Cambridge Bay for the Kitikmeot Region.

Nunavut faces unique housing challenges, with a northern climate, a geographic area encompassing one fifth of Canada's landmass, and a scattered population of around 30,000 residents who live in 25 remote communities accessible only by air or sea. Public housing units, which are managed by the NHC, account for more than 50 percent of all dwellings in Nunavut.

Subsequent to the presentation of the ten year Inuit Housing Action plan, and the failed Kelowna accord, the federal government announced the Northern Housing Trust initiative, of which, the Nunavut Housing Corporation (NHC) received $200 million to be used to construct new housing in Nunavut. This investment was to be used to build about 725 new public housing units in the 25 Nunavut communities. The funding was provided under the program name Nunavut Housing Trust (NHT).

The funding was provided from the federal government to the Government of Nunavut upon initiation of the NHT program and then accessed by NHC via appropriations over the course of four years, while the actual construction would take place over the course of the five year period from 2006/07 to 2010/11.

The original budget was established as $275,000 per unit and a commitment was made to build 725 units for a total of $199.375 million.

The last portion of funding from the Government of Nunavut was received in the spring of 2009. In the fall of 2009, the new management of NHC began reviewing the funds remaining as compared to the actual construction work left to complete the remaining housing units. A detailed internal review was conducted and an estimated cost to complete the construction of the remaining housing units ("forecast to completion") was developed based on actual performance to date. The review identified a significant shortfall in funding, which was then presented to Cabinet.

In response, Cabinet issued a directive to NHC to engage a qualified and suitable professional accounting firm to conduct a thorough review of all Nunavut Housing Trust project related expenditures for the program to date, from April 1, 2006 up to February 28, 2010. This review was to also include an examination of:

- the estimated amount forecast by NHC to be to required to complete the housing construction;
- the original budget process used in creating the estimate for housing construction; as well as,
- controls and reporting that have been subsequently been established by NHC management.

Related findings were to be presented to The Government of Nunavut Department of Finance by August 15, 2010.

It should also be noted that a separate Canadian Institute of Chartered Accountants (CICA) Handbook Section 5805 audit report relating to the NHT housing project related expenditures from April 1, 2006 to February 28, 2010 was conducted by Deloitte. This audit report has been issued under separate cover to management of the NHC.

Purpose

This purpose of this report is to provide NHC with an independent assessment of the reasonableness and adequacy of the estimated cost to complete the construction of the remaining housing units ("forecast to completion"), the original budget process used in estimating the initial amount required for housing construction, as well as controls and reporting that have been subsequently been established or are planned by NHC. This report provides observations based on the review procedures performed and recommendations to address key improvement opportunity areas identified. Specifically excluded from the scope of the review was the verification of the accuracy of the allocations between the various NHT projects.

The structure of this report consists of four sections in which observations and recommendations are reported:

- **Inherent Risks to NHC Processes** – As part of this review, Deloitte observed systemic challenges and inherent risks and that have been faced by NHC since the inception of the Northern Housing Trust initiative. These risks, if unaddressed, may provide considerable challenge to NHC in implementing its planned controls and fulfilling its mandate to provide affordable housing;
- **Review of Forecast to Completion** - An amount forecast to be required to complete the housing construction was developed by NHC and a detailed internal review was conducted by NHC which indicated a significant shortfall in funding. Deloitte reviewed the process used to develop the amount forecast to complete the housing construction and provides observations on the reasonableness of the assumptions and methodology used in preparing the forecast;
- **Review of Original Budget Process** - An original budget was prepared at program initiation in 2006. Deloitte reviewed the original budget process and provides observations on factors which may have contributed to the budget shortfall; and,
- **Review of Revised Processes** - Controls and reporting on the forecast and budget have subsequently been established by NHC management. Deloitte reviewed these revised controls and reporting process and provides recommendations on how to improve the project management, budgeting, forecasting, monitoring, and reporting process.

Scope

The scope for this review included: the original budgeting process used in 2006 during the NHT program initiation; the process followed by NHC to develop the amount forecast to be required to complete the housing construction; and, the established and planned processes for budgeting, project management, forecasting, monitoring, and reporting.

Approach and Methodology

Principal activities and review techniques used in each of the tasks are listed below. Where required, additional details on specifics of the approach and methodology used are provided in each section of the report:

- **Documentation review** – reviewed relevant documentation, including main documents which described the process, forecasts, spreadsheets, etc.;
- **Interviews** – conducted interviews with relevant NHC staff who are involved in the process, at Headquarters, Directorate & Corporate and Districts Offices, to gain a further understanding and gather related insights and perspectives; and,

- **Analysis** - based on interview results, documentation review, and analysis of the process, strengths and opportunities for improvement were developed.

A full list of documentation reviewed and interviewees is included in the Appendices.

Limitations and Restrictions

This report should be used by NHC primarily to identify areas for improvement to processes and controls if additional funding is provided for future similar housing construction projects. Due to the limited availability of supporting documentation in certain instances (e.g. original budget process), some observations in this report are made based solely on interviews with staff that had knowledge of the process.

Our work does not constitute an audit as defined by the Canadian Institute of Chartered Accountants. Consequently, said work, and the resulting report, does not constitute an auditor's opinion. Further, our work cannot be used to provide assurance that it revealed all errors, omissions, or irregularities.

We do not express an opinion or any other form of assurance on the financial forecast or assumptions being reviewed. Further, since this financial forecast is based on assumptions regarding future events, actual results will vary from the information presented and the variations may be material.

This report has been based on information, documents and explanations that have been provided to us and therefore the validity of our conclusions rely on the integrity of such information. Should any of the information provided to us not be factual or correct, or should we be asked to consider different information or assumptions, our conclusions as set out in this report could be significantly different.

We reserve the right, but will be under no obligation, to review this report, and if we consider it necessary, to revise this report in light of any information which becomes known to us after the date of this Report.

2. Inherent Risks and Challenges

Introduction

It is well documented and widely understood that the Nunavut Housing Corporation (NHC) operates in remote and often challenging environment. Some of these challenges to the construction process are documented in Section 2 of this report. In addition, during the course of the review, systemic challenges and inherent risks were observed that provided considerable challenge to NHC in implementing its housing construction initiative. These inherent risks, if left unaddressed or not adequately mitigated by management, will likely continue to adversely impact NHC its achieving its mandate to provide affordable housing.

In this section, key inherent risks are described in the areas of people, process, and technology which should be investigated, assessed and managed by NHC. These inherent risks should also be referenced when reviewing observations made in this report, as many of these inherent risks had a direct impact on the gap / deficiency observed. NHC's ability to implement some of the recommendations made in this report will be contingent on NHC's ability to address these inherent risks and challenges.

People

Capacity Risk

Insufficient capacity may impact NHC's ability to achieve its objectives. There is limited staff capacity to implement many of its planned processes. As noted by the Office of the Auditor General (OAG), managing its own programs has been a significant challenge for the NHC, with close to a quarter of its positions still remaining vacant. In addition, it currently takes close to a year to recruit new staff to NHC. NHC originally planned for community partners to manage the construction of new units; however, in many communities, NHC District Office staff have had to act as general contractors, which has added to the workload of staff who were already overworked. This has led to deficiencies in records and file management and contract administration. The NHC needs to review its organization and develop a long-term approach that clearly describes how it intends to carry out its responsibilities with the human and financial resources it has available.

Competency Gap Risk

Insufficient competencies may impact NHC's ability to achieve its objectives. There is limited staff who have the required skills and competencies to implement many of its planned processes. In addition, inappropriate, ineffective or untimely training and development practices could also impact NHC's ability to develop required skills within the organization. The primary training risk is the training of financial staff within the delivery partners such as the Local Housing Organizations (LHOs). Many LHOs don't always have the necessary competencies and/or training to fully understand the most important elements of the financial process and often use simple financial systems.

Process

Organizational Structure Risk

There is risk that NHC's decentralized organizational structure is not appropriate to enable the achievement of its objectives. NHC's organizational structure is currently decentralized among its different office locations, all of which are geographically separated. NHC's headquarters is in Arviat, its Directorate is located in Iqaluit, and it also has three remote District Offices. As such, organizational and process functions which typically are located in the same office location are separated between NHC office locations. For example, the Executive Director, Corporate Services / CFO is currently located in Iqaluit while the remainder of the accounting function - Corporate Comptroller, Budget and Planning

Officer, Manager of Financial Services, etc. - are located at the NHC headquarters in Arviat. As well, the Purchasing Agent is in Arviat, while the Technical Director is in Iqaluit.

In addition, over time the District Offices have assumed the role of general contractors and there is now a misalignment between their actual role and perceived role in the delivery strategy. LHO's have also assumed responsibilities beyond their expected role; this, along with NHC's decentralized organizational structure will make it more difficult to implement the planned review, verification, approval, and oversight controls. NHC should consider the challenges associated with its decentralized organizational structure in the context of its planned processes.

Socio-Political Risk

Balancing and adjusting to changing social or political factors could impact NHC's ability to achieve its objectives. NHC must continually balance the political and social aspects of allocation and prioritization of housing units with the economical and cost considerations of construction in remote locations. For example, a vast majority of people in Nunavut prefer single-family units, which are the least economical housing units. NHC is likely to face constant political pressure to construct housing in all Districts / communities, even when it does not make the most economic sense.

Separation of Duties Risk

Due to its decentralized organizational structure and limited capacity, some staff are required to prepare and review their own analysis and work in the forecasting and reporting processes. Processes should be properly reviewed and separated in order to reduce the risks associated with a process being compromised either maliciously or through human error. NHC should consider alternative methods to create greater separation of duties in its forecasting, analysis, and reporting processes.

Technology

Information Technology Infrastructure Risk

The Government of Nunavut information technology infrastructure does not effectively support the needs of the organization or its processes, impacting NHC's ability to achieve its business objectives. The intranet network used to support NHC processes is considered inadequate and the organization has developed alternative, labour-intensive, and sometimes unreliable solutions and work-arounds to overcome network deficiencies (e.g. file sharing, scanning documents).

System Support / Information for Decision Making Risk

Unavailability of relevant or accurate accounting information when needed could adversely affect decision-making and, ultimately, the ability of NHC to achieve its objectives. The review observed that there are limitations in the existing financial software such as its general ledger structure; inability to track multi-year projects; and inability to easily export data into useful reports which make it difficult to easily and readily review financial/operational performance. NHC should consider the acquisition of additional software packages or solutions which improve the availability of data and information for both reporting and decision-making purposes.

3. Review of Amount Forecasted to Completion

Background

The program is in its final year and intends to be completed by March 31, 2011. A forecast to completion of the estimated amount required to complete the remaining housing units of the NHT project (the "Forecast") was developed by NHC as at February 28, 2010. Based on this Forecast and an internal review, NHC determined that there will be a significant shortfall in funding to complete the project. NHC management advised that the Forecast was developed based on signed contracts and incurred costs, as well as historical costs and trends. A summary of the total costs incurred and the total costs forecasted to completion as at February 28, 2010 is shown in Table 2.1.

Table 2.1: Summary of Forecast as at February 28, 2010

Description	$ Millions
Cost incurred for completed units (309[1] units)	107.2
Cost incurred for non-completed units (417 units)	102.1
Total cost incurred as at February 28, 2010	209.3
Estimate to complete remaining 417 units	47.5
Forecast for 726[2] units	**256.8**
Additional items (Purchased unit, MAP/Quit claims and other housing unit costs allocated to the NHT Project)	4.3
Forecast Total Project Cost at Completion (excluding contingency allowance)	**261.1**
Contingency Allowance	**6.2**

Source: NHT Construction Costs Audit Recap v2 spreadsheet and NHT Summary Report – V4

Based on the Forecast, NHC has calculated a funding shortfall of $60 million to complete the construction of housing units. This shortfall has been calculated as follows in Table 2.2:

Table 2.2: Calculation of Funding Shortfall

Description	$ Millions
Original Funding Amount (including $7.3. million of interest earned)	207.3
Less: Forecast total cost to complete project (excluding contingency allowance)	261.1
Net shortfall (before contingency allowance)	53.8
Plus general contingency allowance	6.2
Funding Shortfall	**60.0**

Source: NHT Summary Report – V4

[1] According to NHT Summary Report - V4, as at Feb 28, 2010, a total of 319 of the 726 planned units had been completed and occupied; however, the NHT Construction Costs Audit Recap v2 spreadsheet (the "Forecast Spreadsheet") provided by NHT only details 309 units completed yet includes identical financial information as the NHT Summary Report. NHC advised that 319 is the correct figure, as 10 additional units had been completed in Iqaluit, but the Forecast Spreadsheet had not been updated.

[2] The documentation provided variously refers to both 725 and 726 units to be constructed. NHC management advised that the initial plan was 725 but that it was later increased to 726..

Due to the nature and location of the work, there were several inherent challenges associated with the development of an accurate forecast for the NHT program. Some of the challenges noted during the review included:

- **Varied locations throughout Nunavut** - The project has a number of work sites in diverse geographical locations throughout Nunavut. Locations have differing community size, resource availability and access issues all of which impact the difficulty of undertaking and managing construction projects of this nature;
- **Lack of historic cost data** - NHC had not previously performed a project of this scope and scale and therefore there was a lack of historic cost data available to provide a basis for estimating likely project costs;
- **Limited construction season** - Due to the extreme weather experienced in Nunavut during the winter months, there is a limited time during the year when construction activities can be performed;
- **Labour/contractor availability, retention and productivity** - These factors are more challenging than an equivalent project in the south due to the combined impact of weather, location, access, accommodation, available facilities, pay rates, working practices and other similar issues;
- **Material logistics and shipment** - Due to access and weather issues and a lack of local suppliers, for most communities, only one (1) main shipment of material is delivered from the south per year. This presents challenges in ensuring all required material reach the right destination at the right time;
- **Storage and protection of materials** – Due to the isolated and diverse project locations, secure and weather protected storage is not available or is impractical at many project sites. As such, material shipments may remain outside near the project site exposed to weather, theft and other potential loss;
- **Ability to replace missing, damaged or stolen material** - The diverse and remote locations of the project sites makes replacement of material challenging due to the time and cost that may be required to procure and transport replacement material;
- **Continuity of management/supervision** - Areas of the north generally have significant turnover in management and supervision personnel. As such, factors such as accountability, continuity and historic knowledge of the project and processes tend be an issue.

The impact of the above issues on the Forecast differs depending on the location of the construction site. For example, some locations have local material resources available to address shortfalls in supplied materials, thereby minimizing additional costs due to material issues. Other locations have no local resources, thus issues with materials may delay and disrupt work for several weeks while additional material is sourced and delivered to the site, incurring significant additional costs. Such differences make assessing potential costs to complete at differing construction sites challenging unless previous experience at that site can be leveraged.

Approach

The approach used to review the Forecast and provide comments on the reasonableness of the assumptions and methodology used in preparing the Forecast consisted of the following steps:

1. Assessing mechanical accuracy of Forecast (i.e. checking the formulae, algorithms and calculations used within the Forecast, testing for arithmetic and internal consistency); and,
2. Assessing reasonableness of the amounts and supporting assumptions used in the Forecast (i.e. reviewing supporting documentation and conducting interviews of key personnel to assess the reasonableness of cost figures and supporting assumptions used in the Forecast).

Mechanical Accuracy

In performing an assessment of the Forecast's mechanical accuracy, proprietary Deloitte software was used to identify how the Forecast was constructed in terms of:

- The number of inputs required;

- The types of cells within each spreadsheet included in the Forecast (i.e. labels, numbers, formulae, numeric formulae);
- How many times a formula has been copied; and
- How the various cells and formulae link.

This software allows us to assess the Forecast for consistency and application of formulae and assists us in identifying areas within the Forecast that may require further review in terms of the mechanical accuracy.

Reasonableness of Amounts and Supporting Assumptions

In performing an assessment of the reasonableness of amounts and supporting assumptions used in the Forecast, Deloitte carried out the following steps:

- Reviewed background information and reports on the NHT program;
- Analyzed the Forecast structure and interviewed the participants involved in the development of the Forecast to assess the Forecast methodology;
- Analyzed the forecasts and status report spreadsheets prepared by individual Districts.
- Reviewed the sample labour contract made available, and conducted a sample review of incurred labour costs used to calculate the remaining amount for each labour contract;
- Analyzed the labour change order log prepared for completed Baffin district housing units;
- Reviewed the historical Inuit content by community and calculation of Nunavummi Nangminiqaqtunik Ikajuuti (**NNI**) bonuses (for using a certain percentage of Inuit labour) to assess the reasonableness of the forecast NNI; and,
- Performed an analysis to assess the reasonableness of the various cost components of the Forecast by comparing the cost of completed units (where possible) with units to be completed.

Findings

This section provides observations and recommendations on the Forecast. Based on the review of the documentation provided and the results of interviews with stakeholders involved in the development of the Forecast, the following strengths, observations and opportunities for improvement were noted and recommendations developed.

The strengths are listed first, followed by general observations on the structure of the Forecast, and opportunities for improvement and recommendations.

Strengths

- Based on Deloitte's review, the spreadsheets supporting the Forecast are mechanically accurate. The review, however, was limited to the formulae used to calculate the total incurred costs to date and forecasted costs by property as the supporting calculations and schedules were not linked to the Forecast. These amounts were manually copied into the Forecast spreadsheet and were therefore considered as part of the accuracy review.
- The Forecast employs a "bottom up" and "top down" approach using incurred costs as a basis for the Forecast together with contract sums and estimates for the work still to complete. NHC management advised that the costs calculated for the work to complete were adjusted to reflect previous performance. Thus, at a high level, the methodology used to develop the Forecast appears reasonable given the diverse nature of the locations and factors impacting the project work; however, no documentation is available to support or explain the detailed methodology or adjustments used to develop the Forecast costs. It is therefore challenging to independently assess or evaluate what has been included within the figures presented or if these figures and adjustments appear reasonable.

General Observations on the Forecast Structure

The Forecast is made up of individual forecasts for each property being developed. A "property" refers to a dwelling type that may contain one or more self contained living units (e.g. a five-plex is one property with five living units). The process to develop the Forecast included participation from the three Regions/Districts of Nunavut: Baffin, Kivalliq and Kitikmeot. NHC management advised that they reviewed and challenged the estimates provided by the Districts to arrive at the final Forecast; however, this forecasting process was not documented.

As noted above, the spreadsheets supporting the Forecast are mechanically accurate; however, the supporting schedules did not always agree to the amounts included in the Forecast. NHC management advised that the Forecast included reconciling adjustments made to correct for errors in the supporting schedules; however, these adjustments and errors were not documented.

The estimated costs to complete the remaining housing units are broken down between labour, foundation, material (which could also include labour) and NNI bonuses. A summary by District and cost category is shown below:

Table 2.3: Summary of Forecast (in $millions)

	Incurred Costs (Feb 28, 2010)		Forecasted Costs (417 Remaining Units)				Total
	Completed Units (309 units + 25[3] other units)	Non-Completed Units (417)	Labour	Foundation	Material	NNI	
Baffin	48.8	55.6	20.6	0.5	1.2	0.0	**126.7**
Kivalliq	31.7	25.2	13.8	0.0	1.8	1.2	**73.6**
Kitikmeot	28.4	19.6	8.5	0.0	0.0	0.0	**56.5**
Other[4]	4.3						**4.3**
Total	**113.1**	**100.5**	**42.9**	**0.5**	**3.0**	**1.2**	**261.1**

Source: NHT Construction Costs Audit Recap v2 spreadsheet and NHT Summary Report – V4

The Forecast total of $261.1 million does not include a $6.2 million contingency allowance estimated by NHC.

General observations made on each of the categories of forecasted costs to complete the remaining housing units are as follows:

Labour:

- As at February 28, 2010, the construction for many of the properties had been tendered out to third party contractors, except where a contractor could not be found. In these cases, the Local Housing Organization (**LHO**) is acting as the contractor; however, the LHOs operate without a written contract with NHC and are responsible to assemble and pay the labour which is then charged back to NHT. It is noted that LHOs are primarily responsible to administer properties, collect rent, check people in and out of the units, and perform maintenance functions. They were not set up to act as contractors and, therefore, generally lacked the structure and experience to coordinate construction of multiple properties.
- For properties being constructed by third-party contractors, the labour forecast is based on the specific property's labour contract value less costs incurred to date. For properties being constructed by LHOs, NHC management and District staff advised that the labour forecast is based on estimated costs to complete (based on historical costs of each LHO) and the percentage of completion for the property. Approximately half of the properties (56 out of the 108 properties to be completed) are being constructed by a third-party contractor and the remaining are being constructed by LHOs (i.e. 46

[3] The Forecast also includes incurred costs relating to 25 other housing units which were initially non-NHT initiatives. NHC management advised that NHT funds were used to cover certain costs of these other units when it originally appeared that there would be a surplus from the NHT.

properties) or have not been awarded (6 properties). Most of the LHO managed constructions are located in the Baffin District.

Foundation:

- These costs are to complete the foundation (i.e. installing steel piles) for each property which includes both labour and material components. Only 5 properties located in the Baffin region (Iqaluit, Pond Inlet and Grise Fiord) require foundation work to be completed.

Materials:

- Materials originally anticipated to be required to complete the remaining properties have been purchased. As such, the forecasted material cost represents additional materials that may have to be procured to replace missing items due to supply errors, theft, damaged items, and appropriation of items for use on a different property. The Technical Managers for each District advised that materials shortages have been experienced to date for almost 100% of the housing units.
- Theft is a major issue as the material is not supervised once it is shipped onto the shores of the various communities. To reduce theft, the crates containing materials remain sealed until the materials are required for use; however, this can create delays as the contractors do not know in advance if materials are missing from the original shipment.
- Historically, contractors who were short of materials due to damage, theft, etc. would often appropriate the materials they needed from crates/containers of materials intended for other properties. Procurement delays occurred as such actions were not tracked and replacement materials were not always ordered on a timely basis.
- District staff advised that this category also includes allowances for additional labour cost that could result from missing materials. The breakdown between materials and labour is not provided in the Forecast and does not appear to be available based on interviews with District staff. They also advised that these material forecasts were based on historical costs and the District technical managers' best estimates. It should be noted that the forecast prepared by the Kitikmeot District did not include any forecasted material costs, even though the District representatives verbally advised us that an additional amount (equal to approximately 10% of total costs) should be added.

Nunavummi Nangminiqaqtunik Ikajuuti:

- The NNI bonuses are additional amounts paid to contractors for using a certain percentage of Inuit labour. These are estimated based on the region and contractor. Only the Kivalliq District has forecasted NNI payments as the other two Districts don't foresee having sufficient Inuit content in the workforce to qualify for the bonus.

Opportunities for Improvement

Upon analysis and interviews with stakeholders, opportunities for improvement were noted in the following areas:

Increase Comparability and Consistency

The Forecast is based upon data supplied by different Districts within Nunavut. The review found that Districts had differing views as to the scope of work required to be included in the Forecast. As such, the figures supplied by each District and included in the Forecast contain differing elements and assumptions, and are therefore not directly comparable to each other. For example, two Districts made allowances for additional materials anticipated to be required in their District forecasts while one did not. The District that did not include an allowance knew there would need to be an additional allowance to its District forecast for material shortfalls but did not submit the information at the time the Forecast was prepared. As such, the Forecast is unlikely to include all potential costs to complete the project in all Districts. NHC management advised that this shortfall in allowance for additional materials was taken into account in setting the contingency allowance, but the review was unable to verify this statement as no breakdown of the contingency was available.

Where contracts have been tendered and/or awarded, the labour costs to complete (included in the Forecast) are based on fixed price lump sum contracts; however, labour costs for such contracts will be impacted if the work is subject to material shortages and/or change orders. Historically, such shortages and changes were noted to have an impact on labour costs. In some cases, change orders increased contract labour costs by as much as 38% for a single contract, with an average increase of approximately 10% for all the units completed in the Baffin District up to the date of the Forecast. The average increase of contract labour costs for units completed in the Kivalliq District appears to be approximately 12% based on the information provided[5].

Based on discussions with District staff, some Forecast figures include an assessment of the likely impact on labour costs of material issues and changes based on historical experiences, while others do not. No documentation was made available to support what has been assessed or included in the figures used to develop the Forecast.

Recommendations

1. A consistent approach should be taken in the preparation of a forecast. In particular, each District should have a defined and documented scope of work to be included in the forecast.
2. Allowance should be made by all Districts for the anticipated cost of additional material requirements and potential additional labour costs due to delay in material or changes to the contracted scope of work.

Improve Accuracy of Data

Several concerns were found during the review regarding the accuracy of the data used to develop the Forecast. These issues included:

- As noted above, the documentation provided variously refers to both 725 and 726 units to be constructed. NHC advised that 726 is the correct figure. In addition, the NHT Summary Report - V4 shows a total of 319 of the 726 planned units had been completed and occupied; however, the NHT Construction Costs Audit Recap v2 spreadsheet provided by NHT only details 309 units completed. An additional 10 units were subsequently identified as completed in Iqaluit which were not included in management's analysis;
- The labour costs used to develop the Forecast do not reconcile to the Lump Sum Contract and associated Change Order information provided by NHC. The differences identified in the review were as high as $323,000 for a project in Cape Dorset. NHC Management advised that these differences were due to inaccurate general ledger coding;
- NHC provided actual costs updated to June 30, 2010. Analysis of these updated costs show properties, which were identified as complete in the February 28, 2010 Forecast, and for which no additional monies or adjustments were included in the Forecast, now have incurred "adjustments" ranging from additions of approximately $98,000 to deductions of approximately $200,000 per property, with an average addition per living unit of approximately $6,563 and an average deduction per living unit of approximately $16,617;
- The updated costs as at June 30, 2010 included significantly higher NNI bonus costs than the Forecast. The majority of the payments seem to be for properties that were complete which had low or no additional NNI payments forecasted;
- During discussions with NHC management and District staff, concerns were raised regarding potential miscoding of payments and costs. Costs incorrectly coded to the project, or not coded to the project, impact the accuracy of the Forecast; and,
- One district identified further issues in the accuracy of the incurred costs used in the Forecast, in that certain costs incurred (but not yet billed) by the LHO prior to the Forecast date were not included in the

[5] Change order information was provided for the Baffin and Kivalliq Districts, but not the Kitikmeot District. This information could not be reconciled to the Forecast (as discussed under the section titled "Improve Accuracy of Data"). In addition, the Kivalliq information included costs for a unit not completed at the date of the Forecast, but which could not be specifically identified.

Forecast. Based on Deloitte's understanding of the method of calculation utilized to forecast LHO performed work, the Forecast is understated by the unbilled amount.

Recommendations

3. The figures reported on the Forecast and supporting schedules should be accurate and consistent .
4. Construction projects should be monitored to identify that work performed on the construction project is correctly billed to it on a timely basis.

Document Basis of Calculations and Assumptions

The review found inadequate supporting documentation which explained the basis for Forecast calculations and assumptions. Specifically, key issues observed included:

- The Forecast lacks appropriate supporting documentation that supports or explains the detailed methodology, adjustments and assumptions used to develop the figures included in the Forecast. It is therefore challenging to assess or evaluate what has been included within the figures presented, or if these figures, adjustments and assumptions appear reasonable;
- The cost figures included in the Forecast for individual properties appear to be based on assumptions and calculations developed separately by each District. These assumptions and calculations are not documented thereby preventing independent validation and review;
- The basis for the calculation of the 'forecast labour to complete', in cases where the work will be performed by an LHO, is unclear. It is understood that the productivity of LHO labour varies significantly between offices, and while NHC management advised that the Forecast had been based on historical performance of the LHO's, Deloitte was unable to verify these statements;
- NHC management advised that NNI bonuses were estimated based on the historical NNI content for each contractor. The payable NNI bonus is 1% of the total labour content of the contract for each 1% of the amount by which Inuit employment exceeds the mandatory requirement, to a maximum of 25% bonus of total labour costs. Based on the sample labour contract reviewed, the mandatory requirement for Inuit content is 60%. Support for these calculations was not provided. Based on historical Inuit content by community, the estimates seem directionally correct with communities with higher Inuit content projecting higher NNI bonus; however, Deloitte's test calculations for NNI bonus (based on Deloitte's understanding of the policy), resulted in significantly higher estimates than the ones included in the Forecast. For example:
  - The historical Inuit content for Arviat has been 97% for the period 2007 to 2009. As such, contractors should receive the maximum 25% (97% - 60% = 37%) of the total contract value as an NNI bonus. The NNI bonus for a five-plex in Arviat should be approximately $200,000 based on the average labour cost of $800,000 per property. This estimate is significantly higher than the current forecast of $90,000;
- It could not be determined if previous cost trends and percentage of work complete had been considered on a consistent basis in the development of the Forecast. While there appears to be issues surrounding the accuracy and consistency of the percentage of work complete based on the additional costs added to "completed" units after the fact, the percentage complete, in conjunction with previous cost trends, can provide a valuable metric in identifying potential future cost trends on remaining work;
- There did not appear to be any inclusion in the Forecast for outstanding claims or disputes. NHC management advised of at least one instance where a Contractor defaulted on the performance of a contract which is likely to lead to legal proceedings and potential additional costs. NHC management does not believe that it has any material risk in this area as any additional costs incurred would be covered by holdbacks, bonding and the contingency allowance. In Deloitte's experience, such claims and disputes incur unrecoverable costs which typically lead to higher overall project costs.
- There was no indication in the Forecast that escalation or de-escalation had been considered in the Forecast. Escalation and de-escalation refers to the change in the cost of items over a period of time, in this case the rates used to develop the Forecast. While general inflation forms part of escalation, other factors including labour availability and cost, material cost and availability of work also impact escalation. As such escalation can be significantly greater, or lesser than general inflation. Escalation

can have a significant impact on forecasts, particularly on multi-year projects. NHC management confirmed that escalation was not specifically factored into the Forecast since it is NHC's intention to complete the housing units in the fall of 2010. NHC management also advised that the risk of a potential shortfall would be covered by the contingency allowance. As noted above, the breakdown of contingency is undocumented.

Recommendations

5. The Forecast should have sufficient supporting documentation to show what is included within it and how it has been calculated. In particular the supporting documentation should show how historical data has been used to develop the Forecast. Ideally, the supporting documentation and relevant calculation should be part of the Forecast workbook and assumptions linked to these supporting schedules. This would clarify the forecasting process and facilitate any future assumption changes.
6. The Forecast should be reviewed and revised as necessary on a regular basis with a minimum period of one (1) month suggested. As part of the regular review, the Forecast should be tracked against actual performance and cost, and project risk and contingency should be reviewed.
7. The Forecast should indicate that escalation or de-escalation has been considered, and that an allowance be included if appropriate.

Usage of Historical Costs Analysis and Average Unit Rates

Attempts during the review to perform a historical cost analysis to compare historical costs with forecasted costs to complete were inconclusive, given the limited number of reported completed properties and the lack of detailed information. A limited high level comparison of historic costs against Forecast costs was conducted by Deloitte. Analysis of the average cost of a housing unit per property type is shown in Table 2.4 below (only common types of properties were considered).

Table 2.4: Comparison of Historic Actual Average Unit Costs vs. Average Unit Costs in Forecast

Property Type	Actual Average Cost per Unit (Calculated Based on Reported cost of 309 units in NHT Construction Costs Audit Recapv2 spreadsheet)	Calculated Average Cost to Complete per Unit included in Forecast to Complete
Five-Plex (i.e five units)	$344,915	$343,234
Four-Plex	-	$405,375
Duplex	$390,698	$369,079
Single Family Dwelling (**SFD**)	-	$493,152

Source: Based on NHT Construction Costs Audit Recapv2 spreadsheet

The review found that historic data on the completed cost of a property is only available for five-plex and duplex building types.

Should the average historic cost of five-plex and duplex units be accurate for units still to be completed, Table 2.5 below shows the potential additional cost to the Forecast.

Table 2.5 – Analysis of Potential Additional Cost to Five-Plex and Duplex Properties Based on Average Historic Cost of Completed Units across all Communities

Property Type	Historic Average Cost per Unit (Calculated Based on Reported cost of 309 units)	Average Cost to Complete per Unit used in Forecast	Variance per Unit	Number of Units remaining to complete	Potential additional cost based on historic cost
Five-Plex	$344,915	$343,234	$1,681	270	$453,870
Duplex	$390,698	$369,079	$21,619	32	$691,808
Total					**$1,145,678**

Source: Based on NHT Construction Costs Audit Recap v2 spreadsheet and Table 2.4

Recommendations

8. Historical data and performance to date (by community if available) should be used to determine trends on existing budgets or contracts. These trends should be utilized in the Forecast methodology to arrive at anticipated cost adjustments.

Assess Calculation of Contingency

Based on the *NHT Summary Report v4* and discussions with NHC management, a contingency of approximately $6.2 million is available to the project based on current funding approval. This contingency represents approximately 2% of the total Forecast of $261.1M[6] or approximately 13% of the $47.5M[7] forecasted cost that remained to be spent.

Contingency is typically identified as an allowance, developed as part of a risk management process, to be used to pay for cost and schedule impacts of risk items (often referred to as "known-unknowns") that arise during the project. The amount of contingency included on a project is dependent both on estimate accuracy and the degree of cost certainty required on the project, i.e. the required probability that the cost estimate (including contingency) will not be exceeded. In a project of this nature, contingency typically includes both project specific and systemic contingency. Project specific contingency allows for particular risk items identified in respect of a specific project as part of the risk management process while systemic contingency is an allowance for commonly encountered events/risks.

NHC management advised that the contingency available to the NHT project is not based on any specific calculation of potential shortfalls related to risk assessments (such as anticipated material shortages or labour cost overages by property/community/ District). Thus, there is no breakdown of contingency components. NHC should be in better position to provide more accurate estimates and more detailed risk assessments to develop contingency allowances for future projects following the completion of these housing units.

Recommendations

9. Potential risks associated with the project should be identified, assessed and listed. Identified risks should be ranked in terms of likelihood of occurrence and impact on the project if they occur. If appropriate as a mitigation strategy for a risk, a contingency should be included in the Forecast to address the risk if it occurs.
10. The calculation of contingency should be shown. Contingency should address any project specific risks identified as well as systemic contingency.

[6] See Table 2.1
[7] See Table 2.1

Conclusion

Details regarding the assumptions and calculations used within the Forecast were not available and there were inconsistent understandings of the Districts' mandate when producing their figures.

Based on the above observations, the Forecast was significantly influenced by the proficiency and knowledge of individual estimators from each District and their understanding of the scope of work to be included within their forecast. In that the Districts had differing understanding of their mandate when producing their figures, it is likely that the Forecast will not accurately represent the scope of work required to complete the project and that demands will be made on the contingency included in the Forecast.

NHC have indicated that they consider financial performance per unit has improved over time. Based on Deloitte's review and given the issues surrounding accuracy of reported data, it is not clear that such improvements are consistent and therefore may present issues if relied on. As noted above in Table 2.5, a potential for additional costs of approximately $1.1M exists in relation to the five-plex and duplex units if no improvement is realized.

In addition, NHC supplied an update of cost to June 30, 2010 which allowed limited assessment of performance to date against the Forecast. The review found that units previously identified in February 2010 as complete had further costs allocated to them in the updated spreadsheet on spending to June 2010. If the average additional cost of $6,563, identified in the June 2010 update, is applied to the remaining 417[8] units to be completed, an additional cost in excess of that Forecast of approximately $2.7M[9] would be required. Conversely if the average deduction of $16,617 is applied to the remaining units, a saving of $6.9M[10] would result. Based on interviews, it appears that most Districts consider they will incur additional costs rather than savings against forecasted amounts. This appears supported by indications that NNI claims will be substantially above those forecasted.

Should both the $1.1M and $2.7M potential additional costs identified above be incurred, this will amount to $3.8M, which is approximately two thirds of the $6.2M contingency available to fund such potential increases. NHC management believes some of these potential additional costs overlap, thus the total potential additional costs will be less.

[8] Based on 726 units less 309 completed as shown in NHT Construction Costs Audit Recapv2 spreadsheet

[9] Based on the "NHT Spending to June 2010" cost update, the average additional cost to units identified as complete in the Forecast is $6,563 per unit. Applied to the 417 units still to be completed, this average gives an additional cost of approximately $2.7M.

[10] Based on the "NHT Spending to June 2010" cost update, the average deduction cost to units identified as complete in the Forecast is $16,617 per unit. Applied to the 417 units still to be completed this average gives a saving of approximately $6.9M.

4. Review of Original Budget

Background

The original budget developed in 2006 was based on an estimated per unit cost of $275,000 based on construction components costs at that time. In February 2010, NHC conducted a detailed review of expenditures and determined the actual average cost for each of the constructions components and the variances from the budgeted amounts as shown below in Table 3.1:

Table 3.1: Comparison Actual Average Unit Costs vs. Budget Unit Costs

Component	Actual	Budget	Variance
Material (includes also marshalling and freight)	$ 148,000	$ 132,000	$ 16,000
Labour	$ 181,000	$ 105,000	$ 76,000
Lot / Site Work	$ 14,000	$ 20,000	$ (6,000)
Foundations	$ 11,000	$ 18,000	$ (7,000)
Total	$ 354,000	$ 275,000	$ 79,000

The actual average cost per unit was approximately $79,000 more than originally budgeted.

Approach

As no documentation on the original budget process was available, the approach used to review the original budget process and provide comment on some of the factors that may have contributed to a shortfall in funding included interviews with NHC staff members who had some knowledge on with the process or were with the NHC at the time the original NHT budget was prepared. Few staff remain who were with NHC when the original budget was prepared.

Findings

This section provides observations and recommendations on the original budget process. Based on interviews with stakeholders and review of documentation provided, the following strengths and opportunities for improvement were noted and recommendations developed.

The strengths are listed first, followed by opportunities for improvement and recommendations.

Strengths

- Original budgeted per unit cost was broken down into the more relevant and variable cost components; namely, material, marshalling, freight, labour, lot, site work and foundation.

Opportunities for Improvement

Upon analysis and interviews with stakeholders, opportunities for improvement were noted in the following areas:

Clearly Define Budget Process, Standards and Guidelines

A budgeting process should be standardized, documented, and communicated and intensively deployed throughout the organization in line with overall strategies and plans. Budget guidelines, including process, timelines, standard cost assumptions, rules, and data templates should also be defined, and updated and shared across the organization on a real-time basis.

Deloitte's review found that documented standards and guidelines for the original NHT budget process did not exist. As such, information obtained for this report on the original budget process was gathered primarily from NHC staff members who had some knowledge with the process or were with the NHC at the time the original NHT budget was prepared.

At the time of program initiation, the NHC was under the pressure of time and tasked with the development of a delivery strategy to address multiple and complex priorities - building the highest possible number of units, maximizing the number of Inuit and northerners in the trades, and enhancing the capacity of local construction companies in communities. Many issues early in the program arose as a consequence of an extremely tight time frame from the timing of the federal funding allocation. Ideally, defining the budgeting process would have included a comprehensive analysis, plan and strategy and the development of guidelines and standards for the budget process. None of this was possible given the timing of the announcement on funding. The rapid expansion of the program forced the organization to function at levels challenging their existing capacity. This was the first time that the budgeting process was implemented on such a larger scale in terms of the number of housing units being constructed. As such, limited capacity and time pressures likely led to an inability to adequately document the guidelines and assumptions used in developing the original budget.

As noted by the OAG, the level of construction planned under the delivery strategy was unprecedented in Nunavut. The NHC was already short-staffed and the NHC faced a significant challenge in carrying out the strategy, even with the additional staff positions authorized for the strategy.

Recommendations

11. To ensure accuracy, completeness and consistency in budget assumptions in preparing future housing construction budgets, instructions and/or guidance should be developed.

Gather Stakeholder Input, Challenge and Clearly Document Assumptions

Budgets should be developed using a "top-down, bottom-up" approach. There is typically a combination of both top-down targets for key drivers (i.e. financial and operational) and bottom-up input integrated seamlessly together in line with the overall strategies and plans. A rigorous budget process should also incorporate both internal strategic targets and external benchmarks and high-level economic forecasts. Scenario/what if analyses should be used to analyze and challenge budget assumptions and ensure that the budget modeling is realistic. Finally, a budget should be effectively challenged and then approved by the Executive team and the Board of Directors (i.e. NHC Corporate Executive Council).

Deloitte's review found that the original budget was prepared in isolation by the Directorate Office and documented assumptions for the original NHT budget could not be identified. As such, information obtained for this report on original budget assumptions was gathered primarily from NHC staff who had some knowledge with the process or were with the NHC at the time the original NHT budget was prepared. Interviewees consistently noted that there was limited opportunity to clarify and challenge the assumptions used in the original NHT budget.

Key issues noted by interviewees related to inadequate stakeholder input and challenge of assumptions which helped contribute to the funding shortfall included:

- No documented assumptions were found which demonstrated how the original budget figures for materials, labour, lot/site work and foundations were originally calculated and therefore the original assumptions could not be reviewed or revised;
- The original budget was developed in isolation by the Directorate and the definition of assumptions did not include the involvement of key District stakeholders who could provide input on reasonability, regional differences and potential cost pressures;
- The original budget was established primarily by extrapolating historic financial costs prior to 2006/07, when housing construction was performed on a much smaller scale (i.e. 10's of units per year instead of 100's per year) and did not include any estimated increases for inflation over the duration of the five year program;

- The original budget assumed the same type of multiplex unit (i.e. five-plex structure) would be constructed for the life of the program and did not consider that over time, there would be increased construction of single family dwellings in place of multiplexes. Single family dwellings would not benefit from the same cost efficiencies as a multiplex units and therefore, these single family units have a higher per unit cost;
- The scope of the NHT includes three Districts and 25 distinct communities, the majority of which are very remote locations and pose logistical challenges in delivering materials. No assumptions were factored into the original budget that adequately considered the remoteness of some communities and the increased cost of shipping materials or acquiring labour to complete housing construction projects in those communities;
- The delivery strategy did not plan for known risks, such as lack of interest in construction work among contractors and poor attendance of workers on some construction sites. As a result, the construction schedule for the first years suffered delays;
- Some theft and damages have occurred in materials and it is very common that there are materials shortages in the goods which are shipped. Occasionally, design errors will require change orders to the project. These unplanned and additional cost variances were not factored into the original budget assumptions;
- The original labour estimate assumed that local trades would be used and did not adequately considered the limited supply of labour and factor in associated travel costs for contractors and trades who came from outside the Nunavut region to complete the work (e.g. travel and locations costs for trades coming from the southern provinces). In addition, the original labour estimate did not adequately factor the impact the increased demand (and associated cost) would have on an already scarce construction labour supply; and,
- The original budget assumptions assumed that contractors and trades would be readily available. In many communities, however, it became necessary for the LHO to play the lead role and become the general contractor, working directly with the sub-trades and labour. Memorandum of understandings (MOUs) between NHC and LHOs are not established to formally specify roles and responsibilities associated with housing construction; the LHO performs the construction function without a written contract with NHC. The LHOs arrange for the labour and charges these labour costs (i.e. payroll) to NHC; however, the LHOs do not always invoice on an accurate and timely basis. As a result, the LHO delivery model has proved more complex than originally anticipated and NHC analysis has shown that this has led to higher labour costs than was originally budgeted.

Recommendations

12. Historic costs and past experiences learned from the current construction process should be incorporated by NHC into a set of formal, documented, assumptions and standard costs which adequately reflect District/regional variances and can be used as a starting point in future budgeting activities.
13. NHC should ensure adequate stakeholder input (i.e. District Offices, communities, and LHOs) is sought in developing future budgets and ensure adequate review and challenge is provided on any costing and inflationary assumptions used.

Communicate and Conduct Regular Review of Budget Variances

A budget should be communicated, reviewed and monitored on a regular, periodic basis, and the budget should be used to influence short-term business management and decision making. Regular improvements in the budgeting process are expected and should be completed in a timely manner.

Deloitte's review found that the budget was not regularly communicated to Districts Offices and there was no documented, formal review of the budget or the variances between budgeted and actual expenditures by management. As such, the original budget does not appear to have been modified or used effectively in decision making. Information obtained for this report on the communication and review of the original budget was gathered primarily from NHC staff who had some knowledge with the process or were with the NHC during this time period. Interviewees consistently noted that there was inadequate communication and review of the budget over the program's life-cycle.

Issues noted by interviewees related to inadequate communication and review of the budget which helped contribute to the funding shortfall included:

- Regular updates on budget, actual expenditures, and remaining budget allocation were not regularly communicated to District Offices. As a result, District Offices, who are responsible for tendering and managing labour construction contracts, were entering into contracts without knowing their current budget allocation and therefore, were not aware if the tendered bids they received were even affordable within their remaining budgets;
- The existing financial accounting system used by NHC does not adequately allow for the tracking of construction projects which span across several years. As such, NHC management could not readily and easily determine how much capital had been expended to date on a particular project and how much budget remained for that project, factoring in amounts forecast to completion; and,
- The original budget was not regularly reviewed and variances to the budget were not regularly monitored and investigated in order to make updates to the forecast and revise the budget accordingly.

Recommendations

14. NHC should establish a formal process and approach to regularly review the budget against targets and reasons and recommended solutions should be developed for any variances.

Conclusion

Deloitte's review found that the original budget was prepared in isolation by the Directorate Office and documented standards, guidelines, and assumptions for the original NHT budget could not be identified. At the time of program initiation, the NHC was under the pressure of time and tasked with the development of a delivery strategy to address multiple and complex priorities. As such, limited capacity and time pressures likely led to an inability to adequately document the guidelines and assumptions used in developing the original budget. Other factors which helped contribute to the funding shortfall included inadequate stakeholder input and challenge of assumptions, insufficient communication of the budget, limitations in the accounting system in tracking of construction projects which span several years, and a lack of regular review of the budget and budget variances.

5. Review of Planned Process

Background

NHC anticipates receiving future additional funding to continue with its implementation of its mandate to provide affordable housing and is proactively taking steps to design and implement controls which will ensure a more robust and effective project management control framework. As a result of the funding shortfall, NHC is in the process of establishing procedures and controls for its project management, budgeting, forecasting, monitoring, and reporting processes. Deloitte was engaged by NHC to provide comment and recommendations as to how NHC could improve the project management, budgeting, forecasting, monitoring, and reporting processes.

At the time of this review, a significant number of controls were observed by the review team to be in the design phase and not fully implemented. As such, a complete assessment of control design and implementation was not feasible. Where controls had been designed and/or implemented by NHC, analysis was conducted to assess the control design and/or implementation. Key gaps identified in either control design and/or implementation are reported in this section as opportunities for improvement. In many cases, NHC has already initiated the necessary action to address these identified control gaps.

In the future, as controls are fully design and implemented and the processes formally established, NHC should consider conducting additional control testing in order to provide assurance on the operating effectiveness of these new controls.

During the control framework documentation and analysis of control gaps, inherent risks faced by NHC were also identified. These inherent risks are described further in this section for NHC consideration and discussion. To improve NHC's chances of successfully in achieving its process improvement objectives, NHC should assess the potential impact and likelihood of these inherent risks and develop mitigating strategies or actions for risks were there is considered a higher risk exposure. As reported by the OAG in 2008, a lack of risk identification and assessment could hinder the NHC's ability to monitor activities carried out under the strategy and proactively identify, plan and managed other potential problems.

Approach

The approach used to review controls and reporting that NHC has established included documentation review, interviews and an assessment of control design and the examination of supporting documentation for controls which have already been implemented by NHC.

Findings

This section provides observations and recommendations on the planned processes. Based on interviews with stakeholders and review of documentation provided, the following strengths and opportunities for improvement were noted and recommendations developed.

The strengths are listed first, followed by opportunities for improvement and recommendations.

Strengths

- NHC is proactively taking actions to improve controls and reporting in its processes, specifically, making modifications to how budgets are recorded, how change orders are approved, how contracts are tendered, and how project expenditures are forecasted and variances tracked.

Opportunities for Improvement

Upon analysis and interviews with stakeholders, opportunities for improvement were noted in the following areas:

Additional Guidance Required to Ensure Accuracy, Completeness and Consistency

A key step in preparing the Cabinet and or Financial Management Board (FMB) submission is to provide accurate, complete and consistent information from several different contributors, both in the Districts, Headquarters, and Directorate. Given the relatively high turnover experienced by NHC, it is important that the instructions or guidance on the forecasting process for construction projects be clearly documented to sustain corporate knowledge. These instructions should include documented assumptions and provided guidance on key inputs, such as standard costs, as well as roles and responsibilities.

Without documented guidance or instructions, there is an increased risk that information used for decision-making is not complete and NHC will not be able to prepare accurate and complete housing construction project submissions to Cabinet or the FMB.

Recommendation

(Refer to recommendation #11) - To ensure accuracy, completeness and consistency in budget assumptions in preparing future housing construction budgets, instructions and/or guidance should be developed.

Documented Evidence of Performance of Control Activity

A number of control activities, templates, approval control sheets, etc. are planned by NHC. As NHC implements its revised processes for project management, budgeting, forecasting, monitoring, and reporting it will be critical to ensure that the performance of key control activities is adequately documented, in particular, critical controls such as verification, review, approval, and reconciliation.

When there is no documented evidence of a control activity being performed, the operating effectiveness of the control cannot be properly tested.

Recommendation

15. NHC should establish necessary procedures required to consistently evidence the performance of control activities in its revised processes.

Improved System Controls in Accounting System

The existing financial accounting system used by NHC currently does not have the functionality to prevent housing construction commitments from being exceeded. Deloitte's review noted that within the financial accounting system, commitments and expenditures can be made in excess of budgeted amounts, thus allowing cost overruns to occur. NHC currently uses a manual control to protect against budgets being overcommitted. An automated preventative control in the financial accounting system would provide greater assurance against budgets being overcommitted. Due to limitations in the existing financial accounting system and general ledger structure, NHC is unable to input more detailed budgets by cost type (i.e. labour, material, etc). NHC intends to implement an automated budgetary system control called 'commitments' in its financial accounting system by September 2010. This will allow the tracking of invoices relative to the contract value, and will not allow processing of invoices that exceed the established commitment (i.e. contract value).

Recommendation

16. To ensure future construction budgets are not exceeded, NHC should implement automated budget availability controls in its financial accounting system.

Formally Document Requirements of Delivery Partners

The NHT program is delivered by community-based partners, according to agreements that outline the roles and responsibilities of both NHC and the community partner. Partners include LHOs, a housing authority in Iqaluit, and three hamlets that deliver the housing program. Each community partner has a board of directors or an equivalent. They also have management and staff who are responsible for

housing services and day-to-day delivery of public housing activities in their community. Memorandum of Understanding (MOU) between the LHOs and NHC have not been established to detail the role of the LHO in housing construction projects. Over time, LHOs have assumed the role of contractor in communities where no contractor bids were tendered or accepted by NHC and have assumed responsibility for the additional workforce needed to build and manage the project.

Without a formal contract or written documentation of roles and responsibilities of its delivery partners, NHC has reduced control or influence on the process and a reduced ability to manage costs. The lack of a formal contract could also lead to losses and liabilities if misunderstandings or conflicts were to occur.

Recommendation

17. NHC should formally clarify the roles and responsibilities of its delivery partners involved in building new housing units, including the source and amount of funding to be provided.

Establish a Standardized Labour Contract

District Offices are responsible for tendering and managing labour contracts within their respective Districts. Over time, these labour contracts have been adapted and modified by the Districts such that there are now some inconsistencies in the wording used in the contracts. To assist in streamlining and standardizing program delivery, NHC intends to implement a standard contract with consistent wording and terms and conditions which will be approved by the President when the value exceeds the District Director's signing authority.

Without adequate controls on how standard contract terms and conditions are amended, there is increased risk of NHC entering into legal agreements which may adversely impact NHC.

Recommendation

18. NHC should develop a standard labour contract with approved terms and conditions which is consistently applied and entered into with all contracted suppliers.

Define Required Financial/Operational Reporting Templates

Deloitte's review noted control gaps in the areas of performance and variance reporting and improvements are still required to existing management reports to allow NHC to better track its expenditure performance against budget and forecast to completion. NHC is in the process of modifying existing reports, for example the "Capital Budgeting Spending Report" (CBSR), and developing new templates to allow for improved financial/operational reporting and management commentary on variances in project expenditures and fixed and contingency costs. Currently, many of these performance and variance reports and templates are labour intensive and developed manually from a combination of reports and data is exported from NHC's financial accounting system and Microsoft Excel. Efforts are currently underway by NHC to simplify the development of reporting templates and reports and through the purchase of a third-party reporting tool which will be used to provide reporting. NHC management noted that they do not have in-house IT support and delays are anticipated in acquiring possible reporting tools.

Recommendation

19. NHC should continue to refine and develop financial/operational reporting templates which will provide the necessary information to allow management to adequately track performance and report on variances. Alternatively, NHC should conduct a feasibility/ cost analysis of whether its current accounting software and IT support can be augmented and/or developed internally to allow for improved reporting and more efficient and effective reporting process.

Conclusion

NHC is in the process of establishing procedures and controls for its project management, budgeting, forecasting, monitoring, and reporting processes. At the time of Deloitte's review, a significant number of controls were observed by the review team to be in the design phase and not fully implemented. As such, a complete assessment of control design and implementation was not feasible. Recommendations were provided to NHC to address control gaps identified in the review and in many cases, NHC has already initiated the necessary action to address these identified control gaps. In the future, as controls are fully designed and implemented and the processes formally established, NHC should consider conducting additional control testing in order to provide assurance on the operating effectiveness of these new controls.

6. Summary

This section summarizes the opportunities for improvement and recommendations made for NHC to consider.

Opportunity Areas	Recommendations
Comparability and Consistency	1. A consistent approach should be taken in the preparation of a forecast. In particular, each District should have a defined and documented scope of work to be included in the forecast. 2. Allowance should be made by all Districts for the anticipated cost of additional material requirements and potential additional labour costs due to delay in material or changes to the contracted scope of work.
Accuracy of Data	3. The figures reported on the Forecast and supporting schedules should be accurate and consistent. 4. Construction projects should be monitored to identify that work performed on the construction project is correctly billed to it on a timely basis.
Basis of Calculations and Assumptions	5. The Forecast should have sufficient supporting documentation to show what is included within it and how it has been calculated. In particular the supporting documentation should show how historical data has been used to develop the Forecast. Ideally, the supporting documentation and relevant calculation should be part of the Forecast workbook and assumptions linked to these supporting schedules. This would clarify the forecasting process and facilitate any future assumption changes. 6. The Forecast should be reviewed and revised as necessary on a regular basis with a minimum period of one (1) month suggested. As part of the regular review, the Forecast should be tracked against actual performance and cost and project risk and contingency should be reviewed. 7. The Forecast should indicate that escalation or de-escalation has been considered, and that an allowance be included, if appropriate.
Historical Cost Analysis	8. Historical data and performance to date (by community if available) should be used to determine trends on existing budgets or contracts. These trends should be utilized in the Forecast methodology to arrive at anticipated cost adjustments.
Assess Calculation of Contingency	9. Potential risks associated with the project should be identified, assessed and listed. Identified risks should be ranked in terms of likelihood of occurrence and impact on the project if they occur. If appropriate as a mitigation strategy for a risk, a contingency should be included in the Forecast to address the risk if it occurs. 10. The calculation of contingency should be shown. Contingency should address any project specific risks identified as well as systemic contingency.
Budget Guidance Instructions	11. To ensure accuracy, completeness and consistency in budget assumptions in preparing future housing construction budgets, instructions and/or guidance should be developed.
Budget Input and Assumptions	12. Historic costs and past experiences learned from the current construction process should be incorporated by NHC into a set of formal, documented, assumptions and standard costs which adequately reflect District/regional variances and can be used as a starting point in future budgeting activities. 13. NHC should ensure adequate stakeholder input (i.e. District Offices, communities, and LHOs) is sought in developing future budgets and ensure adequate review and challenge is provided on any costing and inflationary assumptions used.
Communicate and Review Budget	14. NHC should establish a formal process and approach to regularly review the budget against targets and reasons and recommended solutions should be developed for any

Opportunity Areas	Recommendations
	variances
Documented Evidence of Control Performance	15. NHC should establish necessary procedures required to consistently evidence the performance of control activities in its revised processes.
System Controls in Accounting System	16. To ensure future construction budgets are not exceeded, NHC should implement automated budget availability controls in its financial accounting system.
Document Requirements of Partners	17. NHC should formally clarify the roles and responsibilities of each party involved in building new housing units, including the source and amount of funding to be provided.
Standardized labour Contract	18. NHC should develop a standard labour contract with approved terms and conditions which is consistently applied and entered into with all contracted suppliers.
Define Required Financial/Operational Reporting Templates	19. NHC should continue to refine and develop financial/operational reporting templates which will provide the necessary information to allow management to adequately track performance and report on variances. Alternative, NHC should conduct a feasibility/cost analysis of whether its current accounting software and IT support can be augmented and/or developed internally to allow for improved reporting and more efficient and effective reporting processes.

Appendix A – Interviews

In conducting this review, the following people were interviewed:

- Executive Director, Corporate Services / CFO;
- Financial Systems Admin/DB Analyst;
- Baffin District
  - District Director;
  - Manager Community Development, Technical;
  - District Comptroller;
- Kivalliq District
  - District Director;
  - Manager Community Development, Technical;
  - Technical Officer Manager / Inspector;
- Kitikmeot District
  - District Director; and,
  - Manager, Community Development, Technical, Kitikmeot District

Appendix B – Documents Reviewed

In conducting this review, the following relevant documents were referenced:

- "Review of Delivery Strategy Implementation" and the "Supplementary Report: Update to the 2008 Housing Trust Review" prepared by Aarluk Consulting Inc.;
- Auditor General's report to the Legislative Assembly of Nunavut on the Nunavut Housing Corporation dated May 2008
- Excel file forecast, NHT Construction Costs Audit Recap v2;
- NHT Summary Report-V4;
- Excel file, forecasts
  - Baffin forecast,
  - Kivalliq forecast
  - Kitikmeot forecast;
- Excel file, Public Housing Construction Costs 0607 to 0809 Mar31 2009
- Financial Statements (Winzip files)
  - File 0607fs
  - File 0708fs
  - File 0809fs
  - File 0910fs;
- Excel file, Chart of Accounts – Guidelines June 2009;
- PDF files
  - NHC Contracting Report 2007 – 2008
  - NHC Contracting Report 2006 – 2007
  - NHC-SML Input 07-aug-09
  - Draft Evaluation Framework V2
  - Summary of SOWG Input
  - Considerations on Baseline;
- E-mail files
  - NHT Delivery Strategy Implementation – Stage3 (inc attachment)
  - NHT Delivery Strategy Implementation – Stage3 (inc attachments)
  - Details of Budget sent to Technical Managers as Budget Remaining
    - NHT Budget Balance Feb 28, 2010 (74KB)
    - NHT Budget Balance Feb 28, 2010 (74KB)
    - NHT Budget Balance Feb 28, 2010 (82KB);
- Excel file, Nunavut Beneficiaries Pay Feb 2010 (Inuit labour details);
- NHC Staff List June 2010;

- Excel files,
  - Baffin STATUS REPORT NHT-AHI-STAFF-ENewhook,
  - DESCRIPTION OF CONTRACT WORK (Template)
- Email file, Reports (inc attached Hall Beach Status Reports)
- The labour contract with Kinngait Property Management Limited for the construction of the 5410-210-002 unit (Cape Dorset);
- Excel file, Status Reports
  - Kitikmeot NHT Construction
  - Kivalliq STATUS REPORT NHT-AHI-STAFF((((UPDATE THIS FILE ONLY))))
  - Baffin STATUS REPORT – 2010-05-17
- Excel file, Change Order Log – Baffin NH2 – 2008-2009;
- The material supply contract with Northern Networks Ltd for the 2010-2011 construction period;
- PDF Drawings of the Nunavut housing units
  - 3BR-STICK-2010-COMPLETE DRAWINGS first 3 pages only
  - NHC 5 PLEX 2010-2011 COMPLETE 3 pages extracted
  - 3BR NHC SFD SIP Drawings first 3 pages only;
- PDF files, Job Clock Submission form 1 site
  - June6–June19
  - June6-June19_Touch
- Excel files,
  - NHT Spending to June 2010.
  - NHT Lands

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