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CRS / CS Ex

Review of Local Construction Engineering

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LIST OF ACRONYMS

ADM(Fin CS)	Assistant Deputy Minister (Finance and Corporate Services)
ADM(IE)	Assistant Deputy Minister (Infrastructure and Environment)
ADM(IM)	Assistant Deputy Minister (Information Management)
ANAO	Australian National Audit Office
BCEO	Base Construction Engineering Officer
B Comd	Base Commander
CAS	Chief of the Air Staff
CE	Construction engineering
CESS	Construction Engineering Supply System
CF	Canadian Forces
CFEMS	Canadian Forces Engineering Management System
CLS	Chief of the Land Staff
CMMS	Centralized Maintenance Management System
CMP	Chief Military Personnel
CMS	Chief of the Maritime Staff
CRS	Chief Review Services
DCC	Defence Construction Canada
DCPD	Director Construction Project Delivery
DGRPP	Director General Realty Policy and Plans
DISB	Defence Information Services Broker
DM	Deputy Minister
DND	Department of National Defence
DoD	Department of Defense
DPC (Fin CS)	Director Planning and Coordination (Finance and Corporate Services)
DRAP	Director Realty Asset Plans
DRFM	Director Realty and Facilities Management
FMAS	Financial Managerial Accounting System
FY	Fiscal year
GAO	General Accounting Office
L1	Level One
M&R	Maintenance and repair
MND	Minister of National Defence
MOU	Memorandum of Understanding
MRADP	Master Realty Asset Development Plan
NDHQ	National Defence Headquarters
NPM	National Portfolio Management
NPMP	NPM Plan
PWGSC	Public Works and Government Services Canada
RA	Realty asset
RAIS	Realty Asset Information System
RRC	Realty replacement cost
SLA	Service-level agreement
SOA	Standing Offer Agreement
VCDS	Vice Chief of the Defence Staff

RESULTS IN BRIEF

The objective of this review was to identify key risks and issues affecting local construction engineering (CE) at the base level. This included assessing the adequacy of the management control framework and information in support of decision making, and identifying opportunities to realize savings.

Many CE sections operate quite differently, making it difficult to obtain a full and accurate picture of local CE across the Department of National Defence (DND)/Canadian Forces (CF). Nevertheless, relevant common issues and opportunities for improvements were identified.

Overall Assessment

Despite progress made, there are still significant opportunities to:

- improve the management control framework;
- better identify and manage risks; and
- realize savings.

Observations and Recommendations

Information Management. Although significant efforts have been made to improve the integrity and availability of information to support decision making, more is required in this area. Recent reports indicate that data held in the Realty Asset Information System (RAIS)—the DND/CF web-based inventory system for realty assets (RA)—is only considered to be 50 percent accurate. Yet, realty replacement costs (RRC)—which are used to support funding allocations, performance measurement and strategic planning—are derived from RAIS.

This situation is partially attributed to CE-related information being stored in multiple systems that do not interface and a lack of standardization in terms of where/when/how to record and retrieve information. As a result, information recording and gathering is time-consuming and requires a lot of duplicate data entry.

It is recommended that the Assistant Deputy Minister (Infrastructure and Environment) (ADM(IE)) (as the functional authority), in consultation with the Assistant Deputy Minister (Information Management) (ADM(IM)) and other Level Ones (L1), identify and clearly define the information requirements, including the integration and links between existing information systems, to facilitate sound decision making. In addition, measures are required to monitor data integrity.

Resource Allocation. ADM(IE) recognizes that local CE has been historically under-funded. An assessment in June 2006 identified a 16-percent decline in RA condition over a six-year period. Studies have shown that short-term savings of deferring maintenance and repair (M&R) costs will be more than offset in the future by significantly higher rehabilitation and replacement costs. Industry benchmarks and ADM(IE) Functional Planning Guidance set minimal investment targets at 2 percent of RRCs, whereas current M&R funding is reported to be anywhere between 0.5 and 1.7 percent of RRCs. As long as RRCs are inaccurate, it will be difficult to assess if the 2-percent target is achieved. Also, when funding is not received early in the fiscal year (FY) to coincide with the construction cycle, options on how to commit and spend the funds are limited.

With the inflation of construction costs, the Base Commander's (B Comd) $1.0-million financial authority has been eroded. Routine projects that previously cost less than $1.0 million now cost well in excess of $1.0 million, resulting in more time to obtain project approval.

It is recommended that CE funding be allocated more strategically, coinciding with construction cycles and with links to long-term strategies and plans. In support of this, standard methods and processes should be introduced for evaluating projects and allocating funds.

Procurement and Contract Management. Based on a review of 62 complete project files with an average value of $245,000, final project cost exceeded initial project cost estimates by an average of 55 percent. It is difficult to determine the cause of such discrepancy—i.e., cost overruns or poor initial estimates. Initial project estimates are often just rough estimates provided by CE officers. This is significant as projects are approved based on these initial estimates. At all sites visited, CE staff indicated that due to resource constraints, they are unable to adequately supervise the work performed by contractors, making it difficult to ensure that best value for money is received.

It is recommended that guidelines be issued for the management and use of contracting tools such as Standing Offer Agreements (SOA) and alternative supply arrangements. In the meantime, local CE sections will have to be more rigorous when it comes to estimating project costs, monitoring contractors and controlling cost overruns.

Planning and Performance Measurement. A strategic vision, including long-term direction, is essential to provide the framework to establish annual business plans. Local CE lacks such a framework, increasing the risk that short-term decisions are not aligned with long-term direction. ADM(IE) has begun to develop a strategic vision for DND/CF's RA through the promotion of long-term plans such as the Master Realty Asset Development Plan (MRADP).

Performance measurement is practically non-existent for local CE. While there were no formal systems in place, some of the bases visited have begun to develop some performance measurement elements.

It is recommended that ADM(IE) staff continue to promote the development of MRADPs and other long-term strategies and plans. They must also ensure that a performance measurement framework is in place.

Opportunities to Realize Savings. Inadequate information, the absence of a solid base for resource allocation, and the lack of performance measures are indicators of the difficulty in measuring cost effectiveness of local CE activities. A few opportunities for cost savings were identified:

- Further rationalization of DND buildings and space;
- The pursuit of energy efficiencies through the re-introduction of an Energy Management Program; and
- Outsourcing/contracting out non-core services.

Note: For a more detailed list of CRS recommendations and management response, please refer to Annex A—Management Action Plan.

INTRODUCTION

Background

This review was first identified in the Chief Review Services (CRS) Work Plan as a follow-up to a previous audit. Work began in January 2006 with the conduct work concluding in January 2007.

Local CE is largely responsible for the DND/CF's RA and infrastructure (roads, sewage, etc.), which are critical to the delivery of the Department's mandate. As of September 2004, DND had approximately 20,500 buildings, 2.2 million hectares of land and enough roads to cover the distance between the Pacific and Atlantic oceans. The RRC[1] of these assets is estimated at $18.8 billion.[2]

ADM(IE) is the functional authority for infrastructure and environment and is ultimately accountable for the life cycle management of the national RA portfolio. In 1996, a large part of the responsibility for RA was devolved to the Environments and some subsequently to the bases. On the base, a Base Construction Engineering Officer (BCEO) is responsible to the B Comd for public safety in infrastructure matters and the delivery of CE services, including real property management.

In FY 2004/05, ADM(IE) reported total CE spending of almost $900 million (excluding approximately $100 million for environmental services). Such expenditures are incurred through local CE activities and also through larger capital projects (e.g., capital projects over $1 million) that are most often managed by ADM(IE) at National Defence Headquarters (NDHQ). The local CE activities include operations (e.g., utilities, taxes, etc.) realty and infrastructure maintenance, and smaller capital projects (e.g., projects less than $1 million, for new construction and betterment of realty and infrastructure). As shown in Annex B, operations expenditures account for $334 million of the $531 million in Operations and Maintenance expenditures. Also, Chief of the Land Staff (CLS) expenditures account for $340 million of the total CE expenditures of $900 million.

Objectives

- Review the Management Control Framework (i.e., planning and performance measurement, information for decision making including related policies and procedures, etc.) for local CE;
- Identify risks that require further assessment and monitoring; and
- Examine how resources are being used and identify opportunities to realize savings.

[1] The realty replacement cost is the cost of replacing a given realty asset with a new asset of equivalent size and capacity built to present day standards (*CE Procedures Handbook*).
[2] *ADM(IE) Functional Assessment 2005/06*.

Scope

This review focused on information management, resource allocation, procurement and contract management, and planning and performance measurement in local CE. For the purpose of this review, local CE was defined as the design and delivery of new physical plant and infrastructure, infrastructure maintenance design and execution, the management of real property and the provision of public utilities, airfield, jetty and municipal services.[3] Firefighters and environmental services, normally considered part of CE, were not included in the scope of this review. Also excluded were a detailed review of the risks and controls over contracting and project management activities that are the responsibility of either Public Works and Government Services Canada (PWGSC) or Defence Construction Canada (DCC).

Methodology

The review was conducted at both NDHQ and at the local level as it pertained to CE. The five DND bases visited (Borden, Halifax, Greenwood, Valcartier/Montreal and Edmonton) account for approximately 30 percent of total square metres of all locations. The findings and opportunities for improvement identified by CRS are based on the results of interviews (approximately 14 at NDHQ and 64 at the bases), site visits (five), document review, data analysis and project/contract file (approximately 100) review.

In addition, CRS conducted research to identify trends and best practices in realty and infrastructure management and subsequently completed a high-level comparative analysis, some of which is presented following each finding section.

[3] *Realty Asset Management Manual*.

FINDINGS AND RECOMMENDATIONS

Information Management

The availability and integrity of information used to support decision making must be enhanced. One area that needs improvement is the integration of multiple IT systems.

Data Integrity

It has been reported that information to support decision making is not up-to-date. A major cause is a backlog of work created by insufficient personnel resources in CE sections. For instance, a number of problems specific to RAIS[4] were identified during this review. RAIS is DND/CF's web-based inventory system for RA and was brought on-board in 2003, replacing the Aladdin property application. At the time of its inception, a lot of the data fields in RAIS were populated with data from legacy systems; during the migration of this data, problems were encountered, thus jeopardizing the integrity of the data. This is of concern as RAIS is the source of information for reporting to Treasury Board annually on the accuracy and completeness of DND RA holdings. In addition, RRCs are derived from RAIS. RRCs should, according to the CE Procedures Handbook, be used for funding allocation, research, performance measurement and strategic planning. However, if this data is not accurate, it is nearly impossible to determine if desired goals/targets are being met. As a result, the accuracy and completeness of information was a concern when it came to making informed decisions regarding infrastructure management (utilization rates, resource allocation, preventative maintenance, etc.).

Reports issued as recently as April 2006 by ADM(IE) state that RAIS data is only considered to be 50 percent accurate.

At the project level, financial data is tracked in the Canadian Forces Engineering Management System (CFEMS[5]) but is not always considered complete as it excludes military salaries and indirect costs (such as overhead). At the base level, CFEMS is used yet there is also some reliance on paper-based documents and hard-copy files. Varying sources of funding and fund/cost centres make it difficult to track funding and/or expenses that should be attributed to the local level. As well, ADM(IE) reports in the FY 2004/05 Expenditure Analysis Report that general ledger assignments are not structured properly to capture costs attributed to relevant infrastructure and environment expenditure categories. Many general ledgers are too broad or general in scope, making it impossible to extract useful information. Because there is no national database from which information can be extracted, ADM(IE) staff must rely on input from the L1s to construct an overall picture of local CE. With this they become reliant on the L1s' process controls, as they have no way of validating the information they receive.

Availability of Information

Information often has to be extracted from multiple sources/systems, making information-gathering initiatives very time-consuming. These systems include, but are not limited to, CFEMS, Centralized Maintenance Management System (CMMS)[6], Financial Managerial

[4]Inventory system for DND/CF's realty assets.
[5]Base-level work order management and costing system.
[6]Sub-system of CFEMS designed to automate preventative maintenance inspection and work schedules.

Accounting System (FMAS)[7], RAIS and Construction Engineering Supply System (CESS)[8]. These systems have evolved to satisfy different functions (i.e., FMAS for finance; CFEMS for project management; etc.) with most of these systems acting as stand-alone applications with no interface. Here, there is no reconciliation of information between systems, and the synthesis of information is difficult.

There is little standardization in terms of where/when/how to record and retrieve information (such as that of building condition and for project management). In order to maintain all of these systems and keep them up-to-date, a lot of duplicate data entry is required. While some of these practices cannot be avoided, some could. In fact, a previous audit conducted by CRS (Audit of Management of Local Funds, January 2004) recommended that system duplication be reduced and interfaces among DND systems (i.e., FMAS, Canadian Forces Supply System (Upgrade), CFEMS) be improved. This would potentially free up personnel resources in local CE (a reported 1–2 full-time equivalents per site were attributed to duplicate work and reconciliation between CFEMS and FMAS) and enhance data integrity. However, there has been little progress in implementing these recommendations as the problems persist.

Auditor's Note. ADM(IE) is aware of the above-mentioned issues and has begun to address them through various initiatives such as the introduction of a new reporting structure, the release of an Annual Costing Report, the establishment of a comptroller's directorate, various data clean-up efforts and national support in updating RAIS. Increased improvements are needed to obtain complete, accurate and valid information to support decision making.

Practices and Trends in Other Organizations

- **Australia.** The Australian National Audit Office (ANAO) recommended that the Defence Department establish an authoritative, reliable and accessible system for recording both accounting and management data on the location, value, occupancy and utilization of each property in the Defence estate.
- **United States.** The General Accounting Office (GAO) reports provide examples of initiatives being undertaken, such as using a single system for counting the number and type of facilities and having a single, engineering-based system for assessing facility conditions. As well, the Department of Defense (DoD) developed a facilities sustainment model and a Facilities Cost Factors Handbook that specifies the standard and benchmark costs to maintain different types of facilities and annual costs per square foot.

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[7]DND/CF's official financial system of record, where financial data is collected and managed.

[8]Purchase order and inventory-based system used in supply sections for purchasing and managing inventory and tool cribs.

Recommendations

OPI	RECOMMENDATION
ADM(IE)/DGRPP	**Data Integrity.** ADM(IE), in consultation with ADM(IM) and other L1s, should: • Identify what information is required to support decision making and continue data clean-up to enhance data integrity; and • Implement measures to monitor data integrity on an ongoing basis. **Availability of Information.** ADM(IE), in consultation with ADM(IM) and other L1s, should: • Integrate and establish links between existing information systems to facilitate information gathering.

Resource Allocation

Local CE has been reportedly under-funded for years. Funding allocation and project selection can be very challenging as often there is no standard methodology or set of criteria.

CE Funding

ADM(IE) recognizes that local CE has been historically under-funded and inconsistently managed. In the RA Functional Assessment for FY 2006/07, ADM(IE) states that "the under-funding of RA programs is a persistent, long-standing problem that puts the sustainability of our RA in jeopardy."

Funding Levels

Based on information reported in ADM(IE)'s RA Functional Assessment for FY 2006/07, the L1 Business Plans continue to reflect systemic under-investment in RA, especially in M&R. The effects of this under-investment were evident in ADM(IE)'s assessment of RA condition in June 2006 where a 16-percent decline in RA condition over a six-year period was reported. Rehabilitation costs are on average five times the cost of M&R costs while the costs to replace an asset are five times greater still.[9] Therefore, deferring M&R due to a lack of funds or to save money produces a false economy. The short-term savings of deferred M&R will eventually be offset by significantly higher rehabilitation and replacement costs. In fact, for the last decade or so, it has been reported that there has been little to no preventative maintenance. Instead, the focus has been on minor repairs under a sort of "break-down philosophy." This has dramatically reduced the life expectancy of RA and is evident by the deteriorating conditions being reported.

The Infrastructure and Environment Functional Planning Guidance set minimal investment targets of 2 percent (of RRC)[10] for both M&R and Recapitalization in FY 2005/06. However, planned funding for that year fell short $308 million ($237 million for M&R; $71 million for recap) in these two areas alone.[11] As part of this review, M&R funding was reported anywhere between 0.5 percent and 1.7 percent of the RRC at the bases visited. During interviews, L1 representatives said that they could not meet the RA investment targets without getting additional financial resources.

RA investment targets can be considered shaky at best as they are based on RRCs provided through RAIS.

[9] *Maclean's Magazine*, "Martin Faces an Infrastructure Deficit" by Paul Wells, 24 November 2003.

[10] The Federal Facilities Council (sub-council of the National Research Council, USA) recommended in a report published in 1990 the following: "An appropriate budget allocation for routine M&R for substantial inventory of facilities will typically be in the range of 2 percent and 4 percent of the aggregate current replacement value. Where neglect of maintenance has caused a backlog of needed repairs to accumulate, spending must exceed this minimum level until the backlog has been eliminated."

[11] These figures were based on RRCs, which are not considered to be accurate. Therefore it is difficult to quantify targets and funding shortages.

Timing

Funding for CE is not usually received at the local level until well into the first quarter or, more likely, in the second quarter. This is due to the levels of approval that funding must go through as it is being disseminated down to the local level. There can be up to four levels of management between the L1 headquarters and CE sections, with every level having to approve the budget for its subordinate units. This creates problems as the receipt of, and the ability to commit, funds does not coincide with construction cycles. In the construction business, calls for tender are usually issued over the winter, contracts awarded in the spring and work commences in spring/early summer. If funds are not received in most cases until late spring/early summer, local CE sections are not able to participate in this process. Instead they face receiving bids from a limited number of contractors and risk paying premiums.

Additional funding is often received towards the end of the fiscal year, limiting the options available for spending those funds. These additional funds must be spent by the end of the fiscal year and therefore must be assigned to smaller Operations and Maintenance projects. Had the funds been made available earlier in the year, they might have been used more strategically in support of higher priorities.

Delegation of Authority

Managers interviewed within L1 organizations have expressed concern about the current financial authority levels. Increasing construction costs have eroded the value of the B Comd's delegated authority level for local CE. At present, B Comds have the authority to approve projects with expenditures up to $1 million that can be completed within one year. Projects valued over $1 million must go through an established approval process (i.e., between $1 million and $5 million—ADM(IE) approval; over $5 million—ministerial approval is required). These processes take significantly more time (up to two/three years) to obtain approval as compared to approval at the local level. With the inflation of construction costs (i.e., like what is happening in Western Canada), this means simple and routine projects that would have once been approved at the local level exceed this $1-million threshold and have to be approved at NDHQ.

In 2006, a proposal was put forward by ADM(IE) to the Vice Chief of the Defence Staff (VCDS) to increase the levels of authority. The delegation of authority was originally established based on historical information and has not been amended to take into account inflation.

Selection of CE Projects

Several of the bases visited did not have clearly established criteria to select CE projects, and the processes used to select projects differed from one location to the next. For projects valued at less than $1 million, each area commander or navy formation can decide on the processes to be utilized. At the Base level, the B Comd determines the process for selecting projects. For example, certain locations have an established committee in place with a set of criteria while others seek "client" input, etc. For projects in excess of $1 million, there is a formal process for inclusion in the Long-Term Capital Plan but the process determining what gets submitted for consideration is again at the discretion of the area commander or B Comd. As one manager mentioned: "Investment decisions in Infrastructure & Environment often depend on the ability of the BCEO to convince the B Comd of the need to invest." This allows for quite a bit of discretion to be exercised and results in funding differences for local CE across DND/CF.

In a presentation made to the Defence Management Committee in March 2007, ADM(IE) advocated for the adoption of an integrated departmental approach to RA management. ADM(IE) recognizes that the capacity does not exist at the L1 level and is willing to assume some responsibility in order to have a simple, consistent process for integrated decision making regarding RA management and investment. In addition, ADM(IE) is making a concerted effort to address the backlog of unfunded pressures and proposed new projects. This could lead to many benefits including funding decisions being expedited, better information over the long term to support strategic planning and decision making, and the creation of a long-term integrative investment plan that will facilitate multi-year investment decisions.

Practices and Trends in Other Organizations

- **United States.** The GAO has identified DoD infrastructure management as a high-risk area. A lack of consistent information between Services makes it difficult for Congress and DoD to accurately assess facility conditions and direct funds to those facilities that need it the most. Each Service (Army, Navy, Air Force) has historically developed and identified its own requirement and funding needs. They now intend to reduce costs, link funding to objectives, improve performance measurement, and develop whole-life costs for maintenance and repairs.
- **Australia.** The ANAO recommended that Defence collect data on the full cost of owning and operating the Defence property portfolio, and on actual usage of properties.

Recommendations

OPI	RECOMMENDATION
ADM(IE)/DGRPP	**CE Funding.** ADM(IE), with support from CLS, CMS, CAS and CMP, should ensure that: • Preventative maintenance activities be fully resumed; • Funding be linked to long-term strategies and plans; and • Funding for local CE be allocated at the earliest possible date.
ADM(IE)/ DGRPP, ADM(Fin CS)/ DG Fin Mgt	**Delegation of Authority.** Consider increasing the delegated authority levels for approval of CE projects.
ADM(IE)/DGRPP	**Selection of CE Projects.** ADM(IE), in conjunction with other L1s, should: • Develop a standard methodology for evaluating and prioritizing CE projects; and • Develop processes to ensure that local CE is managed more consistently.

Procurement and Contract Management

The management of SOAs requires improvement. CE sections have difficulty accurately estimating project costs, monitoring contractors and controlling cost overruns.

Standing Offer Agreements

An SOA is a method of supply that allows the customer to deal directly with suppliers, saving the administrative time normally required in routing requisitions through PWGSC. It is well suited for requirements that are repetitive in nature such as those performed by tradespeople, general labor, routine maintenance, etc. During this review, several risks were identified with the extensive use of SOAs. It was recognized that although used extensively, SOAs do not always provide the optimal contracting solution. However, due to a lack of resources and expertise, CE sections often have no other options to satisfy these types of requirements.

Supervision of Contractors. Most SOAs used in local CE are established based on fixed labour rates. When a service is required, the local contract officer makes a call-up against the SOA. CE staff are charged with supervisory responsibility relative to the contract. Upon completion of the contract, and before any handover documents are signed, CE staff are responsible for acceptance of the work. This means ensuring that all the conditions of the contract have been met and that the quality of the work is acceptable within these conditions. At all the sites visited, due to reported resource constraints, these responsibilities were not always adequately fulfilled. Without proper supervision of contractors working under SOAs, and based on the fact that prices are not established per job, CE sections are unable to ensure best value for money is achieved.

Limited Number of SOAs. Another risk was the limited number of SOAs for each service (i.e., general trades, fire alarms, etc.). Although bases reported having in excess of 100 SOAs, they expressed some discontent with the number of service providers per service, often limited to as little as one per service. This increases the CE sections' dependency on one or only a few contractors providing a particular service in terms of price and scheduling. According to PWGSC representatives, the number of SOAs per service is based solely on the number of bids received, which is often limited.

Auditor's Note. At the time of this review, DND and PWGSC representatives were discussing the use of alternative supply arrangements such as fixed-price contracts. This would introduce more competition and subsequently require less oversight as the price of the job is fixed. However for smaller jobs, SOAs will most likely continue to be used.

Project Cost Estimates

CE sections acknowledge the challenges in estimating project costs, monitoring contractors and controlling cost overruns. In fact, discrepancies between estimates are almost expected with the bidding process driving project costing. Cost discrepancies between initial project cost estimates and final project cost are quite common based on interviews and the sample of files reviewed.

The first discrepancy in estimate arises between the original project estimate (rough estimate presented to management to get a project approved) and the subsequent cost estimates obtained through the contractor bidding process. These original project estimates are often based on limited information available to CE contract officers and any other resources available such as other contract costs and the Cost Factors Manual. Based on interviews and a thorough file review, cost estimates from contractors are often substantially higher than the initial estimates developed by CE staff. This is significant as projects are approved based on these initial estimates and decisions rarely revisited when the higher estimates from the contractors are received. Another type of discrepancy arises once contracts are awarded and/or call-ups against SOAs are made. It seems common for estimates to be revised several times. It is difficult to track the number and value of these revisions, as CFEMS does not provide an audit trail. Instead, changes (and approvals) are documented on hard-copy project files. For the sample of files reviewed, documentation was available, but the reasons provided (if any) for the revisions could not easily be validated.

Based on a review of 62 complete[12] project files with an average value of $245,000, final project costs exceeded initial estimates by an average of 55 percent.

PWGSC and DCC Contract Management Support

Contracting for local CE is a DND/PWGSC/DCC joint responsibility. Many CE staffs at the sites visited were concerned with the length of time it takes to renew SOAs and contracts. The degree to which these problems exist between bases varied but nonetheless were present. At the time of this review, CE officers at a few of the sites visited had or were having ongoing discussions with PWGSC to discuss current service levels, expectations and future service delivery. They reported PWGSC as being very receptive.

Staff at all bases visited indicated that they were satisfied with services related to local CE activities provided by DCC. Although both PWGSC and DCC provide contracting services, the scope of these services and mandate of these organizations are quite different. DCC functions as a contracting authority for DND, administering contracts and providing project management support, while the scope of PWGSC services is more limited and includes activities such as setting up contracts on their behalf. As a rule of thumb, DCC is only employed for contracts over $60,000.

In order to mitigate the effect of the increased workload on local CE staff, the use of DCC services has increased. However, DCC services do not come without a price. In fact, bases visited reported that DCC fees usually amount to 8-10 percent of the total contract value. Information on the cost-benefit of using DCC services could not be provided at the time of the site visits and was considered to be beyond the scope of this review. A few local CE managers at sites visited indicated that an assessment of the required DCC service level would be conducted in the near future.

[12] In this case, 62 out of 91 project files reviewed were considered complete in that they contained the following information: Title; Initial Estimate; Revised Estimates; Explanation for Revisions; and the Total Expenditure.

Recommendations

OPI	RECOMMENDATION
ADM(IE)/DGRPP	**Standing Offer Agreements.** Provide guidelines for the management and use of SOAs, and consider alternative supply arrangements to minimize the associated risks.
ADM(IE)/DGRPP	**Project Cost Estimates.** ADM(IE) should promote more rigour by CE sections when developing initial cost estimates for project approval. Discrepancies between estimates should be justified.
ADM(IE)/DGRPP	**PWGSC and DCC Contract Management Support.** ADM(IE), with the support of relevant L1s, should negotiate service-level agreements (SLA) with PWGSC including measurable performance standards (i.e., turn-around times, etc.). Current service agreements should also be reviewed and a common set of criteria for the use of DCC be established.

Planning and Performance Measurement

CE sections need to operate with greater strategic vision and/or long-term direction. Performance measurement is practically non-existent for local CE.

Long-Term Strategies and Business Plans

Local CE sections need to operate with more strategic vision and/or long-term plans. The L1s' annual business planning process incorporates some issues related to CE programs and activities but due to the one-year focus of this process, the level of detail that is included is limited. Although supporting L2/L3 CE plans provide additional details to the L1 business plans, the level of information provided is inconsistent, again with no obvious links to longer-term strategies or performance measures.

ADM(IE) had been promoting the need for MRADPs but at present most bases do not have or are only in the process of developing them. MRADPs are a key tool for the strategic planning and management of all RAs at a particular location. Focused on DND/CF operational objectives, MRADPs provide a comprehensive and long-term development vision, as well as a comprehensive investment plan. In their absence, there is little formal forethought given to the future of DND/CF's RA, making it difficult to include any pertinent information (i.e., investment information) in other planning documents such as annual business plans or capital investment plans.

Currently, there is a risk that decisions regarding local CE are being made in isolation with little consideration given to long-term strategies and plans. ADM(IE) staff indicated that their role was to provide a general direction and minimal oversight to CE operations while allowing the Environments to make their own decisions. At the same time, L1s and staff at the local level indicated that they sought direction from ADM(IE), thus leading to conflicting views of each other's roles.

Performance Measurement

ADM(IE) should assist L1s in establishing relevant and measurable performance indicators to enable local CE to achieve its long-term strategic objectives. Performance measurement is practically non-existent for local CE, although the Realty Asset Management Manual includes a requirement for a performance measurement framework. There was minimal evidence or testimony of a formal performance measurement system. However, some elements of such a system were in place: one base conducted customer surveys; another had some performance measurement conducted through a National Quality Institute Program; and the VCDS Base Services Index included a few CE measures but the tool has since been discontinued. The generation of appropriate performance measurement information is a critical determinant in the success of CE operations and for holding managers accountable for results.

Practices and Trends in Other Organizations

- **Australia.** Created the Defence Estate Organization in 1997 to manage the entire estate in a coordinated fashion.

Recommendations

OPI	RECOMMENDATION
ADM(IE)/DGRPP	**Long-Term Strategies and Business Plans.** ADM(IE) should continue to promote the need for MRADPs that can be linked to other long-term strategies and plans.
ADM(IE)/DGRPP	**Performance Measurement.** ADM(IE) through the L1s should ensure that a formal CE performance measurement system is in place.

Opportunities to Realize Savings

Local CE operates with limited financial resources and must make every effort to operate within their means and as efficiently and effectively as possible. Although CRS did not conduct an in-depth assessment to quantify cost-saving opportunities, three areas where such opportunities may exist have been identified.

Rationalization of DND Buildings and Space

In 2000, the Deputy Minister (DM) issued a directive to reduce RA holdings by 10 percent under the RA Reduction Plan. The plan applied to all L1s with RA holdings and was to be achieved within five years. This 10-percent target was said to be an overall departmental goal with the expectation that some L1s would exceed the target while others would fall short.[13] However, individual L1s were not only encouraged to meet the targeted 10-percent reduction in RA holdings but to consider all viable alternatives and options for further reducing RA holdings. Based on discussions with ADM(IE) and L1s, few L1s sought to go above and beyond the achievement of the 10-percent target, suggesting that further opportunities may exist.

The Plant Replacement Value was initially identified as the common yardstick to measure and report reductions in buildings and works. However, the RRC was adopted as the new valuation measure, even though concern was expressed that the RRC data extracted from RAIS was inaccurate and that the 10-percent reduction target may not have been fully achieved. Although RA holdings have already been reduced under the RA Reduction Plan, further opportunities for rationalization and cost savings may exist. The impact on the L1 operating budgets of holding excess realty is considerable.

Utility Costs

Approximately $100 million is spent annually on electricity and natural gas. It has been reported that public utilities are consuming an increasing share (upwards of 35 percent) of local CE budgets (excluding salaries). Most recently, utility markets have been de-regulated in many jurisdictions,[14] which only further exacerbates the present situation without measures being taken to mitigate these effects. With increased utility costs, Bases/Wings are forced to make operations and utilities trade-offs in an environment of increased risk.

Prior to 1996, utility costs were managed centrally at DND under an Energy Management Program. When this program was discontinued, Bases/Wings assumed responsibility for their own energy management. During site visits, CRS saw varying degrees of “management” and initiatives ranging from educating their population on ways to save energy to engaging in energy performance contracts. Still, few bases had formal Energy Management Programs in place.

ADM(IE) staff report in their FY 2005/06 Business Plan that they would pursue energy efficiencies and enhance utilities management by providing information and assisting L1s in identifying opportunities for optimal resource management. Based on discussions with ADM(IE) staff, ADM(IE) had recently reintroduced an Energy Management Program for DND/CF. This program is said to include an incentive program for bases to conduct a study to identify potential cost savings.

[13] ADM(IE) Guidance Document: DND Framework for the 10% Reduction of Realty Asset Holdings.
[14] DND/CF: Achieving Administrative Efficiency.

Centralize, Outsource and/or Contract Non-core Services

Centralization, outsourcing and/or contracting-out certain services, particularly those related to non-core activities, may provide many advantages, including potential cost savings. The Minister's Advisory Committee on Administrative Efficiencies reported that "opportunities exist for pursuing expanded, strategic public and private partnerships in real property management that could allow Defence to concentrate on its core mandate of delivering combat-capable military forces." In fact, the Committee members were surprised that infrastructure was part of force structure, given that the private sector treats infrastructure as an enabling or non-core activity. Based on our research, other military organizations are frequently contracting-out and/or outsourcing non-core services.

At bases visited, CE managers were unable to provide information on the cost of providing such non-core services. However it is perceived that significant opportunities are likely to exist and warrant some investigation.

Practices and Trends in Other Organizations

- The US Army created a new Installation Management Agency to oversee all facilities maintenance funds for Army installations and supervise seven regional management centres worldwide.
- In Australia, a Defence Estate Organization was formed and subsequently became an infrastructure division and an integrated service provider. A Directorate of Property Services assists in the delivery of property management services with staff in 12 regional infrastructure centres around Australia. Savings have been achieved by eliminating duplicate services and implementing more efficient delivery methods.

Recommendation

OPI	RECOMMENDATION
ADM(IE)/DGRPP	ADM(IE) and L1s should undertake a study to assess identified opportunities to generate cost savings.

ANNEX A—MANAGEMENT ACTION PLAN

Ser	CRS Recommendation	OPI	Management Action	Target Completion Date
Information Management				
1.	**Data Integrity.** ADM(IE), in consultation with ADM(IM) and other L1s, should: • Identify what information is required to support decision making and continue data clean-up to enhance data integrity; and • Implement measures to monitor data integrity on an ongoing basis.	ADM(IE)/ DGRPP/DRAP	A data validation program has been in place since 2005. Monitoring and data integrity will be analyzed further as part of the National Portfolio Management (NPM) Framework. On completion, data validation will shift to maintenance/ compliance/performance measurement. A formal data validation plan is under development. Implementation to follow. The Realty Asset Information Management Framework has been identified as Action 5 in the NPM Plan (NPMP). ADM(IE) Audited Financial Statement Project Team is in the process of actioning a detailed work plan which will ensure that Realty Asset Accounting information in the DND Financial Statements is accurate, complete and is fully supported by a thorough and executable financial control framework.	June 2011 March 2008 March 2010
2.	**Availability of Information.** ADM(IE), in consultation with ADM(IM) and other L1s, should: • Integrate and establish links between existing information systems to facilitate information gathering.	ADM(IE)/ DGRPP/DRAP	Data integration has been recognized as the most effective step forward in the improvement of RA information. DISB project under ADM(IM) has initiated work to permit CFEMS and FMAS to share information. Solution selected to be tested in near future. Further integration will be incorporated into systems rewrite or revitalization and as part of the NPM Framework. The Realty Asset Information Management Framework has been identified as Action 5 in the NPMP.	June 2010
Resource Allocation				
3.	**CE Funding.** ADM(IE), with support from CLS, CMS, CAS and CMP, should ensure that: • Preventative maintenance activities be fully resumed; • Funding be linked to long-term strategies and plans; and • Funding for local CE be allocated at the earliest possible date.	ADM(IE)/ DGRPP	A preventive maintenance program is essential; however, it lacks the required resources to be effective and efficient. Site Assessment Management Plans will integrate preventive maintenance activities and will be a component of the NPM Framework. DND has initiated a Departmental Investment Framework whereby the NPMP will establish long-term strategies and plans to established required funding levels.	 April 2009

ANNEX A

Ser	CRS Recommendation	OPI	Management Action	Target Completion Date
Resource Allocation (cont'd)				
4.	**Delegation of Authority.** Consider increasing the delegated authority levels for approval of CE projects.	ADM(IE)/ DGRPP/DRAP ADM(Fin CS)/ DG Fin Mgt	Proposals have been developed for increasing delegated authority levels. These proposals are under review and will be submitted in 2008 for DM and MND consideration. ADM(Fin CS) will incorporate these approval levels into an updated Delegation of Authorities Instrument once a decision has been finalized.	December 2008
5.	**Selection of CE Projects.** ADM(IE), in conjunction with other L1s, should: • Develop a standard methodology for evaluating and prioritizing CE projects; and • Develop processes to ensure that local CE is managed more consistently.	ADM(IE)/ DGRPP	A more consistent management approach for CE sections will be driven also under the NPM Framework through the RA information management and capital planning framework where a standardized and common info management and capital planning system will be deployed through DND.	December 2009
Procurement and Contract Management				
6.	**Standing Offer Agreements.** Provide guidelines for the management and use of SOAs, and consider alternative supply arrangements to minimize the associated risks.	ADM(IE)/ DGRPP/DRFM	The Memorandum of Understanding (MOU) between DND and DCC has been under review since fall 2006 and is nearing completion. The review intends to include development of standard SLA guidelines and tools to facilitate CE operations.	September 2008
7.	**Project Cost Estimates.** ADM(IE) should promote more rigour by CE sections when developing initial cost estimates for project approval. Discrepancies between estimates should be justified.	ADM(IE)/ DGRPP/DRAP	Project cost estimating will be reviewed as part of the project approval process—therefore covered as per item 4. In the meantime, DCPD has developed a national SOA where project cost estimating can be accessed by local CE sections in support of construction projects.	December 2008
8.	**PWGSC and DCC Contract Management Support.** ADM(IE), with the support of relevant L1s, should negotiate service-level agreements (SLA) with PWGSC including measurable performance standards (i.e., turn-around times, etc.). Current service agreements should also be reviewed and a common set of criteria for the use of DCC be established.	ADM(IE)/ DGRPP	The MOU between DND and DCC has been under review since fall 2006 and is nearing completion. The review intends to include development of standard SLA documentation to facilitate CE operations. SLA/SOA with PWGSC will be considered.	September 2008

ANNEX A

Ser	CRS Recommendation	OPI	Management Action	Target Completion Date
Planning and Performance Measurement				
9.	**Long-Term Strategies and Business Plans.** ADM(IE) should continue to promote the need for MRADPs that can be linked to other long-term strategies and plans.	ADM(IE)/ DGRPP/DRAP	MRADPs will continue to be required for effective planning (Base/Wing). MRADPs and Site Assessment Management Plans will form the key documents for the creation of an effective Construction Investment Plan. These plans are included in the NPM Framework.	January 2009
10.	**Performance Measurement.** ADM(IE) through the L1s should ensure that a formal CE performance measurement system is in place.	ADM(IE)/ DGRPP/DRAP	VCDS has initiated the development of key performance indicators. RA is included in this initiative and ADM(IE) and L1s are collaborating. This element will be included in the NPM Framework.	September 2008
Opportunities to Realize Savings				
11.	ADM(IE) and L1s should undertake a study to assess identified opportunities to generate cost savings.	ADM(IE)/ DGRPP/DRAP	The initiation of a National Portfolio Management approach to RA will optimize added value and highlight potential opportunities for saving. Work is already in progress for the definition of an effective DND energy management program that promotes energy performance contracting. A study of existing outsourcing experiences in other departments will be undertaken to determine if such an approach would be beneficial if applied to some or all CE functions.	January 2009 March 2010

ANNEX B—CE EXPENDITURES FY 2004/05