Developing a Prioritized Capital Budget & Asset Mgmt Plan

A Data-Driven, Mission Centric, Prioritization Methodology Based on Structured Analytic Techniques
Agenda

- About CFB Esquimalt & DND RP Strategy and Mgmt Framework
- Capital budget challenges and goals
- Methodology and approach
- Prioritization model
- Results
- Q&A
DND RP Portfolio

- one of the largest (i.e. in number/area/value) and most complex among GoC. Dictated by evolving CF requirements to train, generate, sustain, and support current/future operations, the portfolio includes:

- 21,000 buildings (i.e. houses, offices, barracks, armouries, warehouses, garages, hangars, schools, hospitals, gymnasiums, storage facilities, police/fire stations, post offices, etc.) covering 11.1 million square meters of floor space, and amounting to 47 percent of all owned federal buildings by floor area;

- 13,500 works of a municipal nature (i.e. roads, bridges, electrical distribution systems, street lighting, water supply systems, sanitary/storm sewer systems, storage tanks, and solid waste systems), and of an operational nature (i.e. airfields, wharves, jetties, communications structures, and training areas); and

- 800 parcels of land covering over 2.25 million hectares (i.e. equal to four times the size of Prince Edward Island).
About CFB Esquimalt

- Esquimalt Harbour established by the Royal Navy in 1848
- Base Construction Engineering (BCE) Office oversees:
  - 23 sites with 869 building assets totaling approximately 425K GSM
  - 1,299 works assets, including bridges, piers, roads, jetties, utility distribution and land
  - **Mission:** CFB Esquimalt contributes to operational capability and provides services, support and people to Maritime and Canadian Forces operations
YOU'LL BE WANTING ME TO STAY ON.... I'VE BEEN THE MAINTENANCE MAN HERE FOR OVER 25 YEARS.
<table>
<thead>
<tr>
<th>VISION</th>
<th>STRATEGIC OBJECTIVES</th>
<th>OUTCOMES</th>
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<td>Right Assets</td>
<td>1 Exercising Rigorous Stewardship</td>
<td>2 A safe, secure, suitable and sustainable real property portfolio that is effectively managed throughout its full life cycle.</td>
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<td>1.1 Life cycle management</td>
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<td>1.2 Sound management practices</td>
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<td>Right Place</td>
<td>3 Optimizing Impact &amp; Investment</td>
<td>5 Rationalized real property portfolio over the 20-year horizon of the CFDS.</td>
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<td>3.1 Integrated portfolio management</td>
<td>6 Portfolio that is relevant to the Defence mission and priorities.</td>
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<td>4 Optimizing Investment</td>
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<td>4.1 Rational asset management and development planning</td>
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<td>4.2 Risk-based investment planning</td>
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<td>Right Time</td>
<td>1.0 Strengthening Accountability</td>
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<td>1.1 Clear governance and policy framework</td>
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<td>1.2 Industry-standard processes and systems</td>
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<td>1.3 Relevant, timely and complete information management</td>
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<td>1.4 Robust performance measurement</td>
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<td>Right Workforce</td>
<td>4.0 Increasing our Capacity to Lead</td>
<td>5.0 A high-performing, proud and professional workforce.</td>
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<td>4.1 Community management</td>
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<td>4.2 Real property training framework</td>
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REAL PROPERTY MANAGEMENT FRAMEWORK (RPMF)

“Conveying the real property management realm in logical and concise terms, to achieve the right results, from the right activities.”

RPMF PLANNING RELATIONSHIPS
- Lessons Learned
- Performance Measurement
- Compliance Reporting
- RP Portfolio

Outputs
- Coordinate
- Plan
- Control
- Organize

Feedback
- Strategic Environment
- External Environment
- Internal Environment
- Processes & Outcomes
- Relationships/Networks of Interest
- Plans of Action

Inputs
- Workforce
- Funding
- Data
- Systems
- Risk
- RP Portfolio

Application
- Lifecycle Activities
- Knowledge Management

Enablers
- Stakeholders
- Funding
- Processes
- Data
- Systems
- Risk
- RP Portfolio

Impact

RPMF POLICY SUITE

RPMF DOCUMENT

Contact Information
Jeff Thomson, DMRP 2.0
Phone: 613-990-9629
E-mail: Jeffrey.Thomson@forces.gc.ca

Canada
From Strategy To Tactics: DND Asset Mgmt Planning Relationships

RPS/NPMP
Vision/Intent
Strategic Focus

MRPDP
What do we need?
Operational Focus

SAMP
What needs to be done? In what priority?
Tactical Focus (CE)
Challenges in Capital Budgeting

- How do we use the Facility Condition Assessment data?
- How do we prioritize our needs?
  - Everyone wants their needs met
- How do we optimize our resources?
  - Limited resources
- How do we remain flexible?
  - Situations will change
- How do we take action to ensure capital renewal funds are allocated to the highest priority projects?
OPTIMIZED DECISION MAKING & HOW TO ACHIEVE IT

- ODM is about balancing competing objectives. In making any decision we have to weigh up the pros and cons of the different options and make trade-offs between these.
- ODM refers to the use of quantitative analysis techniques to produce the most economically efficient outcome.
- ODM implies providing a balanced investment portfolio that reflects DND strategic objectives and policy.
- We will optimize our decision making with the help of a decision support tool.
- Through applying weighting factors to ranking criteria (assets, priorities, requirements), complex investment/funding decisions will be reduced to a series of simple comparisons. Through such comparison, aided by the software, decision-makers will be able to objectively prioritize projects to better reflect organization vision and mission.
- The end state will be more effective long-term capital plans that are based on accurate, intelligence-based, real-property information.
CFB Esquimalt’s Capital Budget Project Goals

- Implement a methodology to:
  - Prioritize IM&R to meet strategic objectives and physical condition
  - Reduce subjectivity
  - Shorten the time necessary to complete
  - Increase transparency in the selection process
  - Produce a system that is scalable to large numbers of projects
- Prepare more credible budgets
- Proactively manage deferred maintenance
- Plan for future capital renewal needs
Methodology: Data-Driven Mission-Centric Prioritization Model

- Comparison of the attributes of all projects to determine the importance of each to the Mission
- Bias for one particular project is removed
- Simplified and codified decisions using mathematically-based process
- Scalable model can be used to evaluate all identified needs across the portfolio
Capital Budget Development – Approach

- Review and evaluate selection criteria that best enables the BCE team to prioritize capital projects in line with CFB Esquimalt’s mission and goal
- Facilitate team ranking and relative importance of criteria selected
- Create a data-driven, mission-centric prioritization model
- Illustrate a process to enrich the existing condition data with the additional information, such as relevance to mission and impact on BCE HR Impact, needed to further align the data with CFB Esquimalt’s mission and goals.
- Apply the model to a sample set of CFB Esquimalt’s existing data for review and comment
4 Basic Questions for Cross-Functional Team

- What is the process currently practiced at the CFB Esquimalt for making decisions on funding of capital projects?
- What are the parameters that are considered to be critical to the decision making process?
- What changes to the decision making process would help the CFB Esquimalt to achieve their facility management and capital planning goals?
- What information would be useful to capture in order to help further in the decision-making process?
7 Key Criteria for Evaluation

In order of relative impact:
1. Relevance to Mission
2. Requirement Priority
3. Requirement Prime System
4. CFB Esquimalt Asset Use
5. Requirement Category
6. BCE HR Impact
7. Asset FCI
1. Relevance to Mission

Measures the extent to which a project will impact the mission of CFB Esquimalt. Four values have been established:

- Direct to Mission
- General Support
- Indirect Support to Mission
- Training
## 2. Requirement Priorities

<table>
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<tr>
<th>Priority</th>
<th>Name</th>
<th>Description</th>
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| 1        | Currently Critical                        | Life Safety Hazard  
Current code violation  
Return a facility or equipment to operation                                                                                                           |
| 2        | Potentially Critical                      | Correct in the near future to maintain the integrity of the building, including systems that are functioning improperly or not at all                                                                 |
| 3        | Necessary, Not Yet Critical               | Includes systems that have exceeded their expected useful life, but are still functioning                                                                                                                  |
| 4        | Recommended                               | Improve overall usability and/or reduce long-term maintenance costs                                                                                                                                        |
| 5        | Does Not Meet Current Codes/Standards     | “Grandfathered as is” - No action is required at this time. amount of work that triggers code compliance is typically at least partially at the discretion of the local building official |
| 6        | Non-Structural Seismic                    | Items that do not conform to non-structural seismic existing codes                                                                                                                                        |
2. Requirement Priorities

- 6 - Non Structural Seismic
- 1 - Currently Critical
- 2 - Potentially Critical
- 3 - Necessary - Not Yet Critical
- 4 - Recommendation
- 5 - Grandfathered Code
3. Requirement Prime System

- Site, Roads and Hardstands
- Site Improvements, Fencing, etc.
- Structural
- Envelope
- Interior Construction
- Interior Finishes
- Conveyance Systems
- Plumbing Fixtures
- Plumbing Distribution
- HVAC Generation
- HVAC Distribution and Controls
- Fire Protection
- Built-In Equipment and Furnishings
- Electrical Distribution
- Emergency Light and Power
- Communications
- Site Electrical
- Site Mechanical
- District Heating Systems
- HAZMAT Remediation
3. Requirement Prime System

[Image of a bar chart showing various systems and their importance levels]
4. CFB Esquimalt Asset Use

- Armoury
- Fire/Police Station
- Marine Works
- Non Public Property
- Office Buildings
- Personnel Support
- Storage
- Storage – Fuel and Hazardous Materials
- Training and Research
- Utility and Plants
- Works
- Workshops
4. CFB Esquimalt Asset Use
5. Requirement Category

Reason a capital project should be undertaken. In some cases, multiple categories may apply; most compelling category is selected during the assessment.

- Appearance
- Building Code
- Environmental
- Functionality
- Grandfathered Code and Accessibility
5. Requirement Category
6. Asset FCI

- The lower the FCI is, the better the condition of the asset. FCI ranges were created for the purpose of ranking the requirements as follows:

<table>
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<tr>
<th>FCI Rating</th>
<th>Range</th>
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<tr>
<td>Good</td>
<td>$\leq 0.1$</td>
</tr>
<tr>
<td>Fair</td>
<td>Between 0.11 and 0.30</td>
</tr>
<tr>
<td>Poor</td>
<td>Between 0.31 and 0.50</td>
</tr>
<tr>
<td>Very Poor</td>
<td>Between 0.51 and 0.70</td>
</tr>
<tr>
<td>Dozer Bait</td>
<td>$\geq 0.71$</td>
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</tbody>
</table>

![Asset FCI Chart]

![Table Chart]

![Graph Chart]
7. Impact to BCE HR

Looks at the projects impact on staffing, i.e. unchanged or no impact, requires additional staffing, or reduces staffing needs

- No Significant Change
- Reduces HR Impact
- Increases HR Impact
Pairwise Analysis and Weighting

- Criterions are ranked via pairwise analysis to weight them against each other.
- Relevance to Mission and Requirement Priority of highest business importance.
Result: Prioritization Model

- Shows the projects in the pilot data ranked by criteria
- Demonstrates what should be done first
Create Budget Scenario or Site Asset Mgmt Plan

- Select Criteria
- Set Parameters
  - Select Strategy
  - Select Funding options
  - Add Cost options, if desired
  - Set Inflation Rate
- Calculate Results
Capital Budget Plan – Next Steps

- Based on the pilot model, review criteria and adjust the model as necessary.
- Run the model again using remaining requirements data.
- Identify any trends or anomalies in the data to ensure applicability to the BCE’s decision-making process.
- Transitioning from traditions “gut feel” projects Implementation Plan to new Mission Oriented analytical model.
Results of Capital Budgeting Process

- Provides the framework to structure short- and long-term strategic planning processes
- Achieve Capital Budgets that are:
  - Data-driven
  - Objective
  - Flexible
  - Defensible
  - Optimized in support of CFB Esquimalt’s mission
Questions?

➤ Peter MacInnis (NDHQ-Ottawa)
➤ Peter.Macinnis@forces.gc.ca
➤ Marcel Gingras (CFB Esquimalt)
➤ Marcel.Gingras2@forces.gc.ca