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REAL PROPERTY TRANSFORMATION: A COMPLEX STRUCTURAL SOLUTION TO A WICKED PROBLEM

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Exercise Solo Flight

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Maj John Hayward

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REAL PROPERTY TRANSFORMATION: A COMPLEX STRUCTURAL SOLUTION TO A WICKED PROBLEM

Introduction

Defence administers one of the largest federal real property portfolios, comprising some 21,000 buildings, 13,500 public works (including 5,500 kilometres of roads, jetties, runways, and training areas), and more than 1,000 parcels of land covering 2.2 million hectares.

-Defence Charter Renewal ¹

In 2012 the Office of the Auditor General (OAG) identified significant problems with the Canadian Forces (CF) Real Property (RP) stewardship.² CF RP is a vast and complex system which influences everything from the local to provincial level and Federal other government departments. Decisions which impact CF RP also affect the local economies through employment, contractors, construction firms and suppliers. Federal payment in lieu of taxes (PILT) to provincial and local governments also accounts for a substantial amount of income. Defence Establishment's³ (DE) impact on the local economy is proven to be more significant in areas where the local economy is less diverse, increasing the influence of RP expenditures.⁴ With so many stakeholders and competing influences on the CF portfolio, CF RP can be considered a wicked problem.⁵

¹ "Defence Charter Renewal", Department of National Defence and the Canadian Armed Forces. October 2013, 14-15.

² "2012 Fall Report of the Auditor General of Canada Chapter 5 Real Property" – National Defence, 4-5.

³ Defence Establishments consist of Bases (Canadian Division Support Bases) and Wings as well as stations, armouries and other CF facilities.

⁴ Joel Chartrand, "Improving Real Property Portfolio Planning and Governance at the Department of National Defence." McGill School of Urban Planning. 29 August 2016. 46-48.

⁵ Andrejs Skaburskis, "The Origin of 'Wicked Problems'." *Planning Theory & Practice* 9, no. 2 (June 2008).

RP transformation, which moved the stewardship from nine Level 1 organizations within DND to Assistant Deputy Minister Infrastructure and Environment (ADM(IE))⁶ in April 2016, was a complex structural solution to this wicked problem. Without workforce adjustments and immediate DE closures transformation remained politically neutral. As wicked problems are often defined by their solutions,⁷ the decision to address the issues internally ensured that the adopted solutions would have minimal external interference. While expedient, the solution ensured that solving the sustainability problem would require substantial time and additional investment in order to meet spending targets.

The author intends to assess the effect of RP transformation on the OAG's identified problems, the areas of concern with the chosen solution, unresolved issues with CF RP and solutions that *were enabled by the new structure* proving that transformation, while a complex solution to a wicked problem, is a vast improvement over the previous system.

What the Solution Addressed

The current [former] business model for managing real property is decentralized, fragmented, and based on a complex governance model, which has lead to ineffective use of capital construction and maintenance and repair budgets, inconsistent delivery standards, and delays in the delivery of infrastructure projects.

-Defence Charter Renewal⁸

The chosen solution was strictly an internal restructuring of how DND dealt with its RP.⁹ That decision provided the structural framework for future improvements while providing no

⁶ "Defence Charter Renewal", 15.

⁷ Morrison, Val. "Wicked Problems and Public Policy." *National Collaborating Centre for Healthy Public Policy* (June 2013): 1.

⁸ "Defence Charter Renewal", 15.

actual solution to the problem. With the implemented solution intended to be funding, Salary Wage Envelope (SWE), Military Person Year (PY), Civilian Full Time Equivalent (FTE) neutral,¹⁰ transformation provided overhead efficiencies and a greater accountability structure for RP without addressing being underfunded.

What transformation accomplished was the creation a single organization spanning from Level 1 with ADM(IE) to Level 4 at the DE level whose sole purpose was the stewardship of RP. In the past, focus amongst the other L1s was diluted as RP stewardship was not their primary mission. They had organizational flexibility and input into their RP but inconsistent standards and levels of interest. Large operations and training events could quickly deplete the RP funding for the year.

In an effort to ensure that the former custodians still had input into the RP process and an opportunity to influence the out-year plan, the RP governance cycle was created. This cycle is composed of the RP Coordination Committees (RPCC) at the DE level, RP Steering Committees (RPSC) at the regional level, and the RP Operations Committee (RPOC) at the national level.¹¹ It provides users an opportunity to influence the plan, explain operational requirements and ensures that the limited funding is prioritized. It reduces flexibility for the execution of “pet projects” and non-priority spending at the DE level and increases value for money and accountability.

⁹ 1901-1 (COS(IE)), CDS/DM initiating Directive for Department of National Defence Real Property Management Renewal, 23 Jan 13, Canada. 1901-1 (COS(IE)), VCDS Initiating Directive DND Real Property Management Master Implementation Plan, 12 Jul 13.

¹⁰ “Master Implementation Directive – Real Property Management Centralization Full Operational Capability,” Real Property Operations Group, 8 Sept 15, 2.

¹¹ *Ibid.*, 18.

Value for money is further improved by focusing on the ‘minimum military requirements’ (MMR) which help reduce huge increases in the maintenance budget with the construction of elaborate buildings. The MMR has yet to be adequately defined¹² but the overall vision of building ‘Honda Civics instead of Sports Cars’ was well communicated to RP Operations Units (RPOUs) by the former Commander of RP Operations Group (RP Ops Gp), Colonel (Col) Kevin Horgan.¹³

The implementation of the Infrastructure Environment Business Model (IEBM) and the Infrastructure and Environment Resource Information System (IERIS) built off the Defence Resource Management Information System (DRMIS) provides a mechanism to look into spending on RP nationally.¹⁴ The new system provides better financial oversight for the new organization and will expand to include auto generating work orders for preventive maintenance (PM). VFA¹⁵ is another new system used to track the condition of infrastructure systems and components and will eventually be used to help plan out repair schedules.

Centralization improved overall program situational awareness and the new structure enabled better operational level financial flexibility and security at the expense of tactical level flexibility. Urgent and un-forecasted requirements can be addressed expediently. Financial risks are managed at the regional and national levels so that urgent issues are not held hostage to sub-unit level budget constraints. RPOUs can adjust funding between sub-units expeditiously, with national funding adjustments between RPOUs occurring at financial quarters. RPOUs now have

¹² “Defence Real Property Strategy: Efficiently Enabling Defence Capability”. ADM(IE). October 2013, 9.

¹³ Col K.G. Horgan “Sticks and Stones #7” RP OPS Gp Newsletter, 08 Jan 16.

¹⁴ Canadian Forces Real Property Operations Group (RP OPS Gp) Infrastructure and Environment Business Data and Support (IEBDS) Project Implementation Order. 28 June 2017.

¹⁵ VFA is the name of the software, built by VFA Canada Corporation.

the ability to move funds to meet the capacities of their sub-units. When a project slips,¹⁶ funding can be moved to satisfy pressures elsewhere. Funding assigned to ADM(IE) and RP Ops Gp are solely dedicated to RP ensuring their security. In the past, funds would be assigned from DE resources and were interchangeable with operations and training funds, causing seasons of feast or famine.

The increased operational financial flexibility comes at the expense of the tactical level. Base Construction Engineering Units¹⁷ (BCEs) used to get additional funds in-year from their supported DE. DEs provided additional funds to the RP portfolio when there were in-year slippages within their budgets. DEs could take advantage of a cancelled event to provide additional resources to the RP portfolio or they could do the reverse to support readiness.

Concerns surrounding the chosen solution

The management of the real property portfolio is facing a considerable range of new and evolving pressures as it enters an era in which a growing proportion of the built assets are at the end of their economic life cycle. More than half of this infrastructure is over 50 years old and much of the portfolio was not designed for today's operational requirements and the modern, first-class military envisioned in the CFDS [Canada First Defence Strategy] [and Strong Secure Engaged].

-Defence Charter Renewal¹⁸

After transformation the “in-year top-up” funding was not transferred. The losing L1s¹⁹ believed that the top-ups should not be included in the baseline allocation. This continues to be a

¹⁶ ‘Slipping’ means falling behind schedule or not spending the expected funds. ‘Pressures’ are when projects require additional funding beyond their allocations.

¹⁷ Base Construction Engineering Units are now called RP Ops Sections and Detachments. Sections are co-located with the Regional Headquarters, but do not infer size or importance. All Sections and Detachments are considered Sub-units of RPOUs.

¹⁸ “Defence Charter Renewal”, 15.

¹⁹ CF/DND Level 1 organizations that were transferring responsibility of RP to ADM(IE).

source of concern for the RP portfolio with negotiations ongoing. As the true funding used for RP was less than the amount transferred to ADM(IE) the first year after Full Operational Capability (FOC) was rife with paused projects and pressures. Transfers of PYs and FTE were also problematic. BCEs went from being a part of the DE to becoming a lodger unit. The use of DE FTEs to hire casuals was restricted further hindering RP operations.

ADM(IE) entered FOC without the full complement of its leadership. ADM(IE) was missing its ADM until summer 2017, with the hiring of Elizabeth Van Allen who began resolving internal staffing issues. ADM(IE) experienced growing pains in becoming a headquarters. After transformation, ADM(IE) expanded to include RP Ops Gp, a 3400 person organization. Until that time it had limited subordinates to administer and was solely based out of Ottawa. RP Ops Gp had a rank constraint which placed the command of the 3400 person organization under a Colonel (Col). Commanding Officers (COs) of RPOUs, ranked at Lieutenant-Colonel (LCol), were responsible for over 1000 subordinates and Officers Commanding (OC) sub-units with up to 300 subordinates were run by Majors.

RPOUs were built out of the existing personnel from the BCEs with many run by LCol. These units were downgraded to Majors and the additional Majors and LCol were used to build both the regional and national headquarters or were retained by their former L1s. BCEs formally run by LCol and several Majors were now run by one Major and junior officers. The increased demand on the lower ranks significantly increased the risk of burnout at the sub-unit level.

Another issue with the solution was the differences between former BCEs, as they had evolved independently for decades. Organizations with the same roles were staffed with different classifications of personnel and were now being compared to one another. Work to standardize the organizations began immediately but the ability to hire was hindered by

departmental red tape and capacity issues across the department. RPOUs ability to spend are being hindered by their inability to hire. Without additional SWE, new changes to the organization are slowly being made as employees retire freeing up resources to staff new positions. The new chain of command has been able to influence priority positions and remove some roadblocks, but there is still work to be done before this is resolved.

Director General Program Requirements (DGPR) is an ADM(IE) L2 which authorizes the execution of the Vote 1 (V1)²⁰ Maintenance and Repair (M&R) projects and Vote 5 (V5) below \$2.5M minor capital projects (MNC) at the RPOU sub-unit level. This legacy oversight function remains from when DEs did not report to ADM(IE). The new RP governance cycle ensures that projects are vetted by three levels of RP Ops Gp before they are executed. This redundant oversight from DGPR has yet to be resolved causing additional confusion and blurred lines of responsibility.

The timelines for execution of capital projects identified by the OAG²¹ remains unresolved in part. V5 signing authority was increased in 2017 to \$2.5M for COs, but could still be improved further if limits to Commander RP Ops Gp were increased to support the full \$5M MNC giving DGPR further ability to focus on the major capital program.

²⁰ Vote 1 funding is used for Operating and Maintaining (O&M) and Maintenance and Repair (M&R) of existing infrastructure. Vote 5 funding is used for building new infrastructure or upgrading existing infrastructure.

²¹ "2012 Fall Report of the Auditor General of Canada Chapter 5 Real Property," 9-11.

Unresolved Issues with CF RP

The inertia of existing locations and the history associated with the portfolio as it stands today is often at odds with the type of portfolio required to deliver a modern CAF capability.

-Defence Portfolio 2030²²

RP transformation was a structural change that did not address the funding shortfall. The efforts required to create a sustainable portfolio have been exacerbated by failing to analyse the CF's holdings. By avoiding a discussion on Base Realignments and Closures, (BRACs) changes to RP stewardship remained an internal DND matter which remained politically neutral. Without addressing the number of DEs, all existing DEs continue to draw upon the limited available resources which was the identified problem in the first place.²³ Inadequate resources and staff to support the RP portfolio cannot be addressed with a growth neutral plan without reductions.

Defence Portfolio 2030 discusses portfolio reduction, but without BRACs it will take decades to rationalize. Failing to discuss validity of DE locations, capabilities and equipment scale hinder portfolio sustainability. Reserve armouries are often located in areas whose demographics do not support recruitment aspirations. Search and Rescue operations, which are now recognized as a mission in Strong Secure Engaged, (SSE)²⁴ have little to do with defence but are often supported by an entire DE. Local airports could be used to support this mission but the analysis never took place. Failing to look beyond the department hindered the time required for success.

The first Commander of RP Ops Gp Col Ken Horgan used to say "RP Ops was building the airplane as we fly it." The RP community is operating in the absence of usable doctrine. As

²² "Defence Portfolio 2030: Towards a Sustainable Real Property Footprint". ADM(IE), February 2016, 4.

²³ "2012 Fall Report of the Auditor General of Canada Chapter 5 Real Property," 18-21.

²⁴ "Strong Secure Engaged: Canada's Defence Policy." National Defence, 2017.

<http://dgpaapp.forces.gc.ca/en/canada-defence-policy/docs/canada-defence-policy-report.pdf>

policies are developed the organization is enhances its performance but initial successes have occurred in spite of available doctrine not because of it. The OAG report noted the absence of Defence RP Strategy and National Real Property Management Framework.²⁵ Both documents were released in 2013. While their vision states “having the right assets, in the right place at the right time, for the right cost supported by the right workforce”,²⁶ they do not communicate more than surface level intent. Both documents were completed before the strategy for transformation was established and do not reflect the new reality of CF RP.

Defence Portfolio 2030 signed February 2016²⁷ formulates the plan for the national level portfolio. However, it is focused on the classification of DEs and laying out various means for reducing the footprint, but lacks direction on size entitlements, "standardized design concepts"²⁸ and standardized/generic building components, rather than proprietary systems. Common designs and components are pivotal for ensuring a sustainable and maintainable portfolio. They enhance economies of scale and reduce construction costs.

Regional Master Real Property Development Plans (MRPDP) are still in the preliminary stages of initiation, but lack the national level guidance required for anything but consolidation. Local MRPDPs are mandated documents for all DEs but are not tied to resources. Without investment plans to support them they are little more than vision documents.

Governmental direction to build Leadership in Energy and Environmental Design (LEED) silver buildings increases maintenance complexity and costs often in excess of sub-unit shop capacities and capabilities. To counter this concern, Facility Maintenance Contracts

²⁵ “2012 Fall Report of the Auditor General of Canada Chapter 5 Real Property,” 4.

²⁶ “Defence Real Property Strategy: Efficiently Enabling Defence Capability”. ADM(IE). October 2013, 7.

²⁷ “Defence Portfolio 2030,” 11-13.

²⁸ “Defence Charter Renewal,” 15.

(FMCs)²⁹ are sometimes used to ensure service to newer structures but these require an additional allocation funds. The long term solution will be to focus on passive systems³⁰ which require less maintenance, such as using shade and sun for heating and cooling instead of Heating Ventilation Air Conditioning (HVAC) units. New facilities cost more to maintain and are often not accompanied by an increase in funds. With each replacement the demand for O&M increases.

As the CF's portfolio ages, more facilities are being designated heritage status by Federal Heritage Building Review Office (FHBRO)³¹. Heritage buildings are more difficult and expensive to maintain, difficult to divest and the CF often struggles to find a purpose for them within the portfolio as CF capabilities evolve. Heritage buildings must be maintained to heritage standards in spite of their operational importance and continue to draw a disproportionate amount of resources.

The use of generic dimensions for doors and weight loads within structures to meet equipment demands of the future is still not common practice. Additional clearance or width for structures would make infrastructure with a lifespan of over 50 years more adaptable to new equipment which typically has a lifespan of 20 years. Construction in Support of Equipment (CISOE) paid for by ADM(Material) attempts to maximize funding for equipment procurement often at the expense of common sense solutions for the RP portfolio.³²

²⁹ FMC hire external contractors to maintain new infra thus removing the responsibility for O&M for a pre-determined period of time from the RP Ops Sect/Det. These contracts ensure the condition of a structure is maintained for the duration of the contract time but at the expense of paying for the service which would include that company's profit.

³⁰ Will Perkins, "Scaling Up Passive House Designs in Canada", *Canadian Architect*, 27 Feb 18. Last accessed 20 May 2018. <https://www.canadianarchitect.com/features/perkinswill-passive-house-design-canada/>

³¹ Federal Heritage Building Review Office. Last accessed 27 May 2018. <https://www.pc.gc.ca/en/culture/beefp-fhbro>

³² Martin Pierre, Project Director DCPD, conversation with author, 8 May 2018.

The PM³³ shortfalls continue. PM is an economic means of improving the overall conditions of the portfolio which can be up to 80% less expensive than breakdown maintenance.³⁴ Direction has been passed for its execution but solutions are still developing.

RP Replacement Cost (RPRC) continue to be undervalued. Percent of RPRC spent for O&M and M&R continue to be used as a metric for meeting Treasury Board guidelines.³⁵ Undervaluing RPRC imply a reduced requirement for funding to meet this standard. New systems such as VFA use “RS Mean”³⁶ as a standard for establishing RPRC, but they are consistently under-estimated. Old structures cannot be replaced for their assessed values. Newly built structures are often assessed well below their construction prices. If RPRC is used as a mechanism to determine funding levels, a true assessment of RPRC would result in a cost prohibitive funding requirement for the portfolio. The Defence Charter Renewal states, "A reduction in the size of the portfolio and the corresponding reductions in real property replacement costs will result in reduced requirements for maintenance and repair."³⁷ Unfortunately, this is not the reality. RP is rarely divested without a replacement and new infrastructure has a higher RPRC value and maintenance requirement than what was replaced. Renewing the portfolio will not ease the M&R burden without a reduction in what requires support. M&R demands will increase as buildings are replaced with the exception of space optimization and entitlement reduction.

³³ “2012 Fall Report of the Auditor General of Canada Chapter 5 Real Property,” 14.

³⁴ Khaled Shahata, “Infrastructure Asset Management: A Strategic Approach Toward Sustainability.” EPIC Course. 7 March 2016. 61.

³⁵ “2012 Fall Report of the Auditor General of Canada Chapter 5 Real Property,” 18-19.

³⁶ “RS Means is a division of Reed Business Information that provides cost information to the construction industry so contractors in the industry can provide accurate estimates and projections for their project costs.” <https://whatis.techtarget.com/definition/RS-Means>

³⁷ “Defence Charter Renewal,” 15.

Without reducing CF missions or whole DE divestments the sole method for reducing the RP footprint is to demolish and optimize existing infrastructure across the portfolio.³⁸ While consolidation and densification of DEs can work, they often require the construction of new facilities. Plans to facilitate construction in support of demolitions are in preliminary stages but are receiving institutional support.³⁹ While divestment and demolition remain a priority, emptying or rationalizing existing holdings remains difficult. National guidance on space entitlements still does not exist⁴⁰ and renovations to “Workplace 2.0”⁴¹ standards are expensive and do not yield significant returns in density. Users hoard obsolete equipment ensuring that footprint requirements grow in spite of densification. This results in newer, more expensive but more efficient infrastructure replacing older cheaper buildings but because the resources to support them are not increased the newer buildings deteriorate at a faster rate.

Solutions enabled by RP Transformation

[RP Transformation] is an important first step that will enable broader and more transformative changes.

- Defence Charter Renewal⁴²

With so many existing challenges, it is important to recognize that many of the initial successes of transformation are due to strong leadership and innovation from within the organization and less with the initial guidance and planning. The learning curve for RP Ops Gp

³⁸ "Defence Portfolio 2030," 11-13.

³⁹ Col Martin Gros-Jean, Comd RP OPS Gp discussion with RPOU(Atlantic) leadership, conversation with author, 9 May 2018.

⁴⁰ "Defence Portfolio 2030," 15.

⁴¹ "GC Workplace: A Modern Workplace for the new Public Service." Dated 25 May 2018. Last accessed 27 May 2018. <https://www.tpsgc-pwgsc.gc.ca/biens-property/mt-wp/mt-wp-eng.html>

⁴² "Defence Charter Renewal", 15.

was steep, but the RP focused chain of command has proven to have some excellent innovations, solving decade old problems.

One major concern from the OAG was the timely arrival of funds.⁴³ This issue was never addressed formally, but solved by having a leadership focused on and understanding RP. For example, in Fiscal Year (FY) 17/18 funding arrived at RPOUs on *24 May 2017*. That late arrival of funds had a significant impact on the commitment and expenditure of funds across the country. In October 2017,⁴⁴ to eliminate the problems of starting late, the new Commander RP Ops Gp, Col Martin Gros-Jean, had authorized the commitment of 50% of the program budget for FY 18/19 by 1 April 18, regardless of when funding would arrive. As a result the program reached 50% commitment shortly after April 1st 2018 and nearly full commitment of funds by late May 2018. With the late arrival of funds in 2017, the 50% commitment of funds did not occur until August/September 2017 and full commitment was not achieved until *January 2018*.⁴⁵

Commander of RP Ops Gp also lobbied to have the delegated authorities of COs raised in V5.⁴⁶ Having better oversight increased the confidence of ADM(IE) to warrant the increase from \$1M to \$2.5M. This change reduced approval times for V5 under \$2.5M projects from months to minutes as project approval (PA) documents were no longer required.

Regular national, regional and local program reviews provide increased confidence and accuracy of the overall program. Increased accuracy allows additional flexibility in moving funding and requesting additional resources ensuring less waste. "Commander's Scorecard meetings" have become a monthly event ensuring that the state of the program is accurate

⁴³ "2012 Fall Report of the Auditor General of Canada Chapter 5 Real Property," 21-22.

⁴⁴ Colonel Martin Gros-Jean, "RP Ops FY 18/19 Interim Directive", 13 October 2017.

⁴⁵ CF RP Ops Gp Financial Status Report – 18 May 2018 & 12 Jan 2018.

⁴⁶ Colonel Martin Gros-Jean, "RP Ops FY 18/19 Interim Directive", 13 October 2017.

allowing internal pressures to be resolved quickly. This has enabled the Commander to assume additional risk with regional pressures while reducing the risk of creating a national level pressure. Increased interaction between the L2s within ADM(IE) allow the slippages of major capital projects to provide additional V5 funding relief to RPOUs.

Conclusion

RP transformation has facilitated an unprecedented amount of focus on RP issues within DND. Having one organization unified in its mission to “enabling operational success” has drastically increased the attention RP problems have received. The problems identified in the OAG report have not all been addressed by transformation, but the organization is in a much better position to solve them.

The restructuring of CF RP was a complex solution to a wicked problem. It deferred the difficult discussions and decisions surrounding BRACs in the short term, but has left the custodians of CF RP with a far more complex and long-term problem to solve. The slow and laborious process for divestments of facilities⁴⁷ and internal restructuring following retirements will require significant time to complete. Over that period, RP Ops Gp will continue to improve its performance and capacity to meet spending targets.

The initial successes achieved with transformation are still preliminary and highly reliant on strong leadership. Each year since transformation has yielded additional areas for improvement and new innovations. With the increased expenditure authorities and the move to multi-year planning, RP Ops Gp is well placed to improve performance further. Transformation

⁴⁷ "Defence Portfolio 2030," 11-13.

has enabled a more fluid execution of tasks but RP in the CF continues to be constrained by a lack of monetary and human resources. The lack of PM, the preponderance of aging buildings and failing infrastructure continues to demand more than has been made available. Decades of neglect will not be undone quickly because the structure has shifted.

Former custodians begrudge the loss of their authority and seek further visibility and influence into RP. Attempts to appease the L1s by allowing increased influence in their most important project files will buy time in order for the organization to prove that transformation was a success. The challenges with RP are still significant but transformation has provided a means to innovate and improve the CF's stewardship of its portfolio. The new system has already shown great improvements over the system it replaced. With the continued leadership from ADM(IE) and RP Ops Gp, they will continue to convince the department that the new system is working and with luck secure the resources, support and policy necessary to address the remaining problems with CF RP.

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