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## Remote Work as a Measure Towards Sustainability

Major Brent McIntyre

### JCSP 48

#### Exercise Solo Flight

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# CANADIAN FORCES COLLEGE – COLLÈGE DES FORCES CANADIENNES

JCSP 48 – PCEMI 48

2021 – 2022

Exercise Solo Flight – Exercice Solo Flight

## **Remote Work as a Measure Towards Sustainability**

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## **OBSOLETE OFFICES: REMOTE WORK AS A MEASURE TOWARDS SUSTAINABILITY**

No sector or individual has avoided the impact that the COVID-19 pandemic has had on modern society. Whether it could have been predicted or not, the immediate changes in day to day life were significant as people sought to protect their loved ones and governments, their people. While supply chains and travel industries took massive economic hits, there were also huge leaps taken in the fields of vaccination, delivery services and virtual workspaces. Zoom, a peripheral video conferencing company prior to 2020, turned into a household name as it became a vital meeting place when businesses shuttered offices.<sup>1</sup> Its stock rose 630% that year.

As an element of the federal government, the Department of National Defence (DND) fell in line with work from home mandates. Buildings sat empty as defence team members established home offices and new ways to stay connected and still get their work done. DND and other federal services quickly rolled out additional IT capacity through laptop procurements and new programs which could function outside of the department intranet bubble. People adjusted, some enjoying their increased autonomy, lack of commute and time with family. As work went on through whatever means possible, demand for utilities plummeted across bases. Less electricity, heat and water were needed to sustain skeleton crews of essential workers or maintain buildings in caretaker status. As the pandemic prolonged, debates have gone on regarding the value of being in person at an office versus the flexibility to continue to work remotely<sup>2</sup>.

This paper does not seek to answer the debate regarding the future environment of cognitive work. It asks whether a review of DND's use of remote work, with a consideration of

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<sup>1</sup> Rupert Neate, "Zoom Booms as Demand for Video-Conferencing Tech Grows," *The Guardian*, 31 March 2020.

<sup>2</sup> The term remote is used in any reference to working in an established manner outside of a conventional office setting. This could also be called telework or a distributed workforce in various references but is focused on one's primary location for work.

long term commitment, is in line with government sustainability intent. As Canada seeks to remain a global leader in the battle against climate change, aggressive considerations need to be taken regarding means of reducing greenhouse gas emissions. As one positive in a host of negatives brought on in the first year of the pandemic, there was a notable decline in such emissions. Continuing that trend and meeting emissions targets by 2050, with limited fiscal resources, remains an exceptionally problem to solve. As technology progresses and workforces transition to the next generation, existing workspaces need not remain the status quo. Now is a prime opportunity to transition away from old office buildings, reduce the government's infrastructure portfolio to a more manageable size and embrace the future.

## **DEFENCE REAL PROPERTY**

DND manages the largest infrastructure portfolio within the government of Canada. With 23 bases and additional satellite sites spanning all parts of the country, real property (RP) fills a critical role in the Canadian Armed Forces (CAF) mission readiness. The department's 2008 Canada First Defence Strategy (CFDS) identified infrastructure as one of four core capability pillars and committed to a 60% increase in RP funding over twenty years to improve infrastructure that is "aging and in poor repair".<sup>3</sup> At the time base real property management fell to the owning elemental commanders, namely the Army, Air Force and Navy, whom could decide funding allocations based on operational requirements. With minimal increases in military spending compared to CFDS,<sup>4</sup> this led to a scathing report in 2012 by the Office of the Auditor General.

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<sup>3</sup> Government of Canada, *Canada First Defence Strategy*, (Ottawa: 2008), 19.

<sup>4</sup> World Bank, "Military Expenditure (current USD) – Canada," last accessed 26 April 2022, [https://data.worldbank.org/indicator/MS.MIL.XPND.CD?end=2020&locations=CA&most\\_recent\\_value\\_desc=true&start=2000&view=chart](https://data.worldbank.org/indicator/MS.MIL.XPND.CD?end=2020&locations=CA&most_recent_value_desc=true&start=2000&view=chart)

The report found that DND was unable to meet spending goals,<sup>5</sup> lacked a real property management framework and was leading to further deterioration of the portfolio.<sup>6</sup> In response, custody of all RP in the department was transferred to Assistant Deputy Minister (Infrastructure and Environment) between 2016 and 2017.<sup>7</sup> As an initial step, ADM(IE) released *Defence Portfolio 2030: Towards a Sustainable Real Property Footprint*, which highlighted that the current portfolio was unsustainable as resourced and supported a rationalized footprint.<sup>8</sup> Key planning principles in the document include consolidation of RP at core bases, fiscal and environmental sustainability and joint/multi-use facilities.<sup>9</sup> Although this was forecasted as a long term effort, consolidation of DND facilities conceptually remains difficult due to the macroeconomic effects and potential political backlash.<sup>10</sup> ADM(IE) has also grappled with the gathering accurate data on the state of the portfolio for educated decision making<sup>11</sup> To exhibit these challenges one need only compare the 2012 OAG report to ADM(IE)'s latest draft portfolio strategy where the number of identified buildings and works have increased by 1,000 and 500 respectively over the last ten years, despite efforts to rationalize.<sup>12</sup>

In 2017 Canada's new defence policy, *Strong, Secure, Engaged (SSE)*, was released. No longer a pillar of CAF mission readiness, SSE promised \$4.9 billion over twenty years for RP,<sup>13</sup>

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<sup>5</sup> Industry standards set a benchmark of 1.4% of realty replacement cost. The OAG found that DND was averaging under 0.9% and that to make matters worse, the realty replacement figure was significantly undervalued.

<sup>6</sup> Office of the Auditor General, *2012 Fall Report of the Auditor General of Canada: Chapter 5 – Real Property National Defence*, (Ottawa: 2012), 2.

<sup>7</sup> *Ibid.*, 35.

<sup>8</sup> Government of Canada, *Defence Portfolio 2030: Towards a Sustainable Real Property Footprint*, (DND, Ottawa: 2016), 5.

<sup>9</sup> *Ibid.*, 9.

<sup>10</sup> Joel Chartrand, "Improving Real Property Portfolio Planning and Governance at the Department of National Defence," (McGill School of Urban Planning: 2016), 35

<sup>11</sup> Government of Canada, *Evaluation of Infrastructure Management—Real Property*, (DND, Ottawa: 2018), 8.

<sup>12</sup> Government of Canada, *Defence Real Property Portfolio Strategy (DRAFT)*, (DND, Ottawa: 2022), 9.

<sup>13</sup> Government of Canada, *Strong, Secure, Engaged: Canada's Defence Policy*, (Ottawa: 2017), 103

or \$245 million per year,<sup>14</sup> and highlighted generic initiatives such as disposing of underutilized buildings and improving infrastructure.<sup>15</sup> Despite commitments through CFDS and SSE to increase infrastructure spending, it has largely remained stagnant with overall defence spending, with maintenance for RP and housing decreasing from 2018 through 2021.<sup>16</sup> As one of many competing priorities for limited resources in the department, ADM(IE) has chosen to focus on compliance and crisis mitigation as its planning framework matures. This has led to more one for one replacements of single occupant buildings that had already been planned prior to transformation and no major gains in terms of efficiency or portfolio reduction.<sup>17</sup> Going forward, the portfolio strategy has adopted a tiered approach to prioritize investments.<sup>18</sup> Noting that much of CAF infrastructure aligns with strategic capabilities and training, non-mission specific elements such as office and administrative buildings should be reviewed closely. While ADM(IE) struggles to keep the oversized portfolio from degrading further, it must also support new initiatives brought on by the battle against climate change.

## **GREENING GOVERNMENT**

As the largest RP portfolio within government centralized under ADM(IE), Canada was in the process of ratifying the Paris Accords in parliament, following the previous Conservative's target of 30% reduction from 2005 levels by 2030.<sup>19</sup> These numbers were ratcheted up in 2021 to a 40-45% target with Canada reporting a 9.3% decrease at that time from 2005 emissions. This

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<sup>14</sup> For reference, one new accommodations building in CFB Borden is projected to cost over \$75 million.

<sup>15</sup> *Ibid.*, 77.

<sup>16</sup> Government of Canada, "Infographic for National Defence – Finances," last modified 19 April 2022. <https://www.tbs-sct.canada.ca/ems-sgd/edb-bdd/index-eng.html#infographic/dept/133/financial>

<sup>17</sup> From the author's experience, the size and complexity of new buildings in Trenton has led to a significant increase in square footage due to new equipment requirements, building codes and older buildings often being repurposed. Thus leading to a net growth in the portfolio.

<sup>18</sup> *Defence Real Property Portfolio Strategy (DRAFT)*, 20.

<sup>19</sup> Bruce Cheadle, "Canada to Ratify Paris Climate Deal while Working on National Plan," *The Canadian Press*, 16 September 2016.

number should be interpreted with caution as the trend had remained relatively neutral until the COVID-19 pandemic arrived in 2020, at which time all sectors reported a decrease in emissions.<sup>20</sup> Although a small contributor comparatively to large sectors such as oil and gas and transport, GoC is an active participant in efforts to reduce the greenhouse gas it produces. Through the Greening Government Strategy,<sup>21</sup> GoC aims achieve net-zero through targeted GHG reduction of 40% by 2025 and 90% below 2005 levels by 2050.<sup>22</sup>

Meeting these targets objectively falls to the department which generates the majority of GHG. In 2020-21, DND produced over 46% of government GHG. Since National Safety and Security are not included in the numbers, DND real property accounted for a staggering 96% of that. Reported progress indicates a successful 40.6% decrease in GHG by the government since 2005. However that hides an approximately 5% decrease in consumption through the pandemic and that half of the overall decrease is from reduction of GHG intensity of electricity purchased off the grid.<sup>23</sup> This leaves a tremendous pressure on ADM(IE) to reduce its remaining 477 kilotonne real property GHG footprint over the coming decades, a time domain much less than the average lifecycle of a building. Over 25% of DNDs RP portfolio is buildings over 50 years old, including many repurposed buildings from the 1940s, leading to low expectations that lifecycle turnover alone would see the portfolio transition to all new carbon neutral buildings.

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<sup>20</sup> Government of Canada, "Greenhouse Gas Emissions," last modified 14 April 2022. <https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gas-emissions.html>

<sup>21</sup> While targeted in the goal of net-zero by 2050, the absolute emission reduction targets do not apply to Canada's National Safety and Security fleet, which is comprised of the aircraft, marine vessels, and tactical land vehicles from DND, RCMP and Coast Guard.

<sup>22</sup> Government of Canada, "Greening Government Strategy: A Government of Canada Directive," last modified 29 March 2022. <https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/strategy.html>

<sup>23</sup> Government of Canada, "Government of Canada's Greenhouse Gas Emissions Inventory," last modified 15 March 2022. <https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/government-canada-greenhouse-gas-emissions-inventory.html>

Compare this to the changeover frequency of a vehicle fleet which provides ample opportunity to procure green vehicles as they are transitioned between now and 2050. DND also houses a significant heritage footprint that must be maintained to historical standards, making renovations or efficiency upgrades difficult and expensive. Beyond this, while RP built in the last decade has endeavored to meet or exceed conventional sustainability standards, this has generally meant high efficiency gas utilities rather than electrification for net zero efforts.<sup>24</sup> Although DND has struggled to maintain its current portfolio, SSE and other initiatives continue to deliver new capabilities and increase RP footprints. While moving forward, these new initiatives will follow DND's 2021 *Green Building Directive*, they will continue to strain fiscal resources, delaying investment for base electrification or other GHG specific measures.<sup>25</sup> From audits, through strategic policy and institutional direction, it is clear that DND's RP portfolio exceeds likely resources to avoid continued deterioration, let alone meet aspirational climate goals. Bold strategies are necessary to rationalize what is not needed to focus on infrastructure's key role in supporting mission capabilities.

*SSE and Defence Portfolio 2030's* espoused plans for portfolio rationalization through demolition of unused buildings and disposal of properties has met with some success. However, the market of targets of opportunity will continue to dwindle and tactical elements are loathe to offer up their own spaces for such endeavors. Military culture has grown to tie distinct RP elements to individual units and capabilities. This can be seen through recent construction in Petawawa with one project for ten buildings built specifically for the Canadian Special Operations Regiment and another project specifically for the Royal Canadian Dragoons. A question to ask is

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<sup>24</sup> 8 Wing Trenton's natural gas consumption has gone up 51% since 2005, primarily through new construction of large modern aircraft hangars. Even though these new buildings meet Leadership in Energy and Environmental Design (LEED) standards.

<sup>25</sup> Government of Canada, *Green Building Directive*, (DND: Ottawa: 2021), 9.



whether all the new construction projects completed by ADM(IE) that will stand for the next 50-100 years align with the rapidly changing work environment brought on by the digital revolution.<sup>26</sup>

## **THE FUTURE OF WORK**

Prior to 2020, the concept of working outside of a physical office setting would have been foreign to CAF members. Earlier introduction of T-DVPNI compatible laptops to remotely access the defence network and Blackberry cellphones to provide ubiquitous access to one's work email had allowed some additional flexibility. But this generally meant simply breaking down the boundary between work and home. It also allowed connectivity while travelling or during periods someone wouldn't be expected at work. Expectations remained that those working primarily administrative tasks would perform from a physical workspace, often meaning a duplication of telecommunication equipment. Treasury Board's *Telework Policy* has existed since 1999, a time prior to the invention of the iPod and sought to provide flexibility for changing family dynamics and a competitive edge for attracting highly skilled individuals.<sup>27</sup> It operated on a case by case basis, was cancelable at any time by either employee or management and as written implies the employee still has a designated physical workspace available. Within DND, even organizations like ADM(HR-Civ) which supported a dislocated work model, where someone in Comox could support Cold Lake's HR needs for example, continued to have employees work in physical offices.

The arrival of the COVID pandemic saw a dramatic change as employers nationwide shifted to a remote model. A study by Statistics Canada determined that at the peak, 40% of

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<sup>26</sup> Thomas Philbeck and Nicholas Davis "The Fourth Industrial Revolution: Shaping a New Era," *Journal of International Affairs* 72, no. 1 (2018): 17–22.

<sup>27</sup> Government of Canada, "Archived – Telework Policy," last modified 09 December 1999. <https://www.tbs-sct.canada.ca/pol/doc-eng.aspx?id=12559&section=html>

Canadian workers were effectively working from home, while many others were unable to work due to job type or IT limitations.<sup>28</sup> DND responded as well with a dramatic move to dispersed operations in order to protect the force on 13 March 2020 and a stop to in-person individual training on 20 March.<sup>29</sup> Thus began a live experiment of DND's venture into the realm of remote work as managers juggled day to day operational requirements with COVID-19 measures. DND's telecommunication backbone struggled with limited T-DVPNI hardware and bandwidth over the initial weeks and all levels argued over the definition of an essential employee.

A white paper by Excel Communications introduced a model showing five levels of remote working created by Matt Mullenweg and shown in figure 1.<sup>30</sup> DND fit snugly within Level 1 at the beginning of the pandemic. Work beyond the office was not the norm, nor was it enabled. Efforts were undertaken quickly to improve things with the introduction of Office365, which supported work from personal IT devices and an approved videoconferencing system. These and other efforts saw DND shifting to Level 2, 'The Office... Online', which the authors caution is precisely where an employer does not want to be. This is because "Systems, processes, structures and equipment that functioned in the office struggle to work effectively in a remote setting."<sup>31</sup> Despite DND and many other employers barely staged in Level 2, Statistics Canada's analysis of employees who had only commenced remote work as a response to the pandemic reports that 90% state they were just as productive at home and 80% would prefer to continue working remote, at least part of the time, after the pandemic.<sup>32</sup> This leaves a potential opportunity for DND to

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<sup>28</sup> Government of Canada, *Working from home: Potential implications for public transit and greenhouse gas emission*, (Statistics Canada, Ottawa: 2021), 2.

<sup>29</sup> Jonathan Vance, *March 24: Letter from Chief of the Defence Staff (CDS) regarding COVID-19*, (Department of National Defence, 24 March 2020).

<sup>30</sup> Excel Communications, *How to Master the 5 Levels of Remote Working*, (n.p. 2020), 4.

<sup>31</sup> *How to Master the 5 Levels of Remote Working*, 6.

<sup>32</sup> Government of Canada, *Working from home in Canada: What have we learned so far?*, (Statistics Canada, Ottawa: 2021), 2.

review its vision of employment going into the future. The pandemic provided a violent push towards remote work and significant resources were dedicated to operationalizing such a structure. While still nascent, these capabilities could be expanded on if leadership sought to explore a level 3, ‘Remote First’, workforce where possible. This would require an evolution in file sharing and communication structures, investment in training<sup>33</sup> and a review of where remote work can be best employed beyond the existing case by case model.

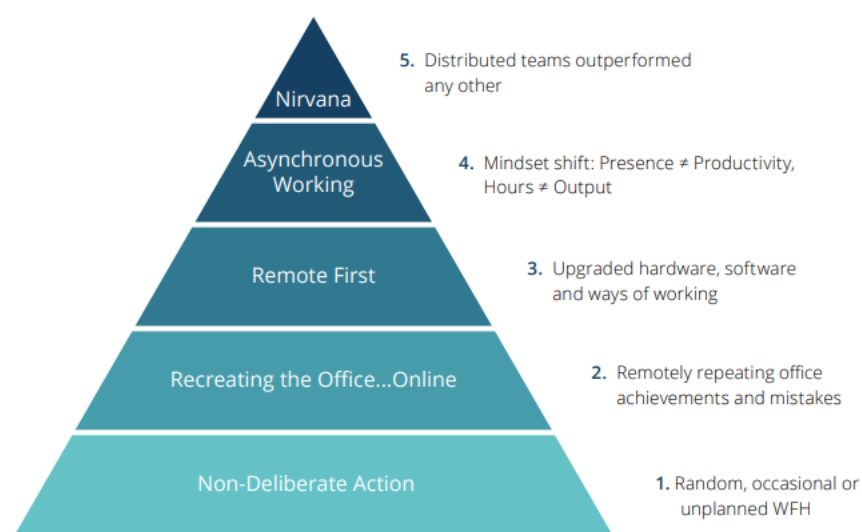


Figure 1. Five Levels of Remote Working

Beyond simply reviewing how far DND has come, it is worth considering the greater trends across industry that will seep into Canadian culture. The book *Virtual Culture* argues that we are on the edge of the technology cliff, with remote work proven as a viable concept with incredible merits. The workplace style developed through the industrial and digital revolutions continues to exist today, but not for substantial productive reasons.<sup>34</sup> The newest GCWorkplace’s activity based concept does seek to facilitate productivity and is attempting to facilitate a hybrid model based on a growing desire for more remote work.<sup>35</sup> While employing the GCWorkplace

<sup>33</sup> *How to Master the 5 Levels of Remote Working*, 12.

<sup>34</sup> Bryan Miles, *Virtual Culture: The Way We Work Doesn’t Work Anymore*, (Austin: Lioncrest, 2017), 14

<sup>35</sup> Government of Canada, “A modern workplace for the new public service,” last modified 03 March 2022. <https://www.tpsgc-pwgsc.gc.ca/biens-property/mt-wp/mt-wp-eng.html#a2>

through ADM(IE) projects, CAF has not shown the institutional desire to join the growing trend. This, despite evidence that military officers suffer higher job strain and job dissatisfaction than their civilian equivalents.<sup>36</sup> A model which does not improve a leading retention problem in house relocation frequency around the forces.<sup>37</sup> The hybrid model offers additional flexibility but does not fully harness the potential of technology. During the pandemic, some companies experimented with a virtual reality office, or meta-office in which they created a digital workspace that employees could operate within using avatars.<sup>38</sup> The CAF has already experimented with this idea conceptually in a fictional narrative developed by Directorate Land Strategic Concepts.<sup>39</sup> In which VR was used to link subject matter experts with troops on the ground and meetings could be held virtually face to face from anywhere in the world. Such technology is already in use and could be developed with the CAF in mind to maintain cohesion amongst co-workers, provide supervisors with virtual access to employees and permit greater integration with allies and operations no matter where they physically reside.

*Virtual Culture* also further critiques bureaucratic organizations being unable to look past the risks of remote work, notably from management, who feel disconnected or unable to properly supervise employees.<sup>40</sup> Within a CAF framework this seems like an illogical mindset. Those with jobs which would support remote work are predominately filled by officers with over ten years of service.<sup>41</sup> Such officers are entrusted both with command of CAF members as well as

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<sup>36</sup> Jungwee Park, "A Profile of the Canadian Forces," *Perspectives on Labour and Income* 20, no. 3 (2008): 25.

<sup>37</sup> Dominique Brais and Canadian Forces College, *Geographic Relocation of CAF Members: The Necessary Review*, (Canadian Forces College, 2018), 9.

<sup>38</sup> Hyoungh-Yong Choi, "Working in the Metaverse: Does Telework in a Metaverse Office Have the Potential to Reduce Population Pressure in Megacities? Evidence from Young Adults in Seoul, South Korea," *Sustainability* 14, no. 6 (2022): 3629.

<sup>39</sup> Karl Schroeder, Kalman Andrasofszky and Canada, *Crisis in Zefra*. (Director General Land Capability Development: 2005), 56.

<sup>40</sup> *Virtual Culture*, 47.

<sup>41</sup> Park, "A Profile of the Canadian Forces," 19.

significant governmental financial authorities. Providing autonomy to work remotely would be low risk comparatively based on level of responsibility and could in fact be a lever in building trust with the institution. While reflecting Canadian society at large, the CAF must consider protection of its own culture and whether one's warrior spirit is at risk if operating from the comfort of home.

## **THE FUTURE OF CULTURE**

While some businesses have fully embraced a remote workforce, this paper does not presume to think military indoctrination training can occur virtually. Much of the instilled ethos and attitudes the institution seeks to maintain to be an effective fighting force will remain fostered during this period. Yet current media attention and internal review led the Acting Chief of Defence Staff to, among other things, provide an institutional update on culture change within the CAF.<sup>42</sup> This implies that CAF culture is not perfect, nor set in stone. The new cornerstone document on military ethos, *Trusted to Serve*, will shed light on the way forward when it is released,<sup>43</sup> however there is no monopoly on ethical behaviour by being physically present. Development of culture will remain the responsibility of leaders throughout the organization, whether in person or not. Miles and Mullenweg also reinforce the importance of physical meetups with teams every several months.<sup>44</sup> In two articles from MIT management review, mechanisms for leaders to maintain culture and productivity. These include revised mechanisms for transparent communication, clear expectation setting and regular strategic reviews. A key for leaders is to active management of work-life balance to avoid employees feeling like they never

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<sup>42</sup> LGen Wayne Eyre, *Message from the A/CDS: Update to the Canadian Armed Forces on Culture Change*, (Department of National Defence, 12 July 2021).

<sup>43</sup> Amanda Connolly, "Canadian Forces publishing new ethos in wake of sexual misconduct crisis: 'Trusted to Serve'," *Global News*, 9 February 2022.

<sup>44</sup> *Virtual Culture*, 74.

leave work.<sup>45</sup> A shift to remote work also provides a new opportunity to review and include cultural *artifacts* deemed essential into this new space. Creating new practices as part of day to day virtual activities can cement desired culture.<sup>46</sup>

With the arrival of the post-Millennial<sup>47</sup> worker into the recruiting pool, DND must carefully consider tectonic shifts in the business world if they hope to be a desired employer. With the recent release of another damning report on racism within the CAF<sup>48</sup> recruitment efforts are struggling to fill the void left from attrition through the pandemic. In his book *Harnessing the Potential of Digital Post-Millennials in the Future Workplace*, Dr. Alan Okros highlights several traits expected to be seen in the upcoming generation of employees. This includes a higher propensity to multi-task and integrate technology to support collaboration, a balancing between human capital and traditional productivity metrics and a reluctance to accept the status quo.<sup>49</sup> The last of which will be felt in the generated conflict between boomer and younger generation's work culture. While written prior to the pandemic and without a focus on technology supported virtual workspaces permitting a distributed workforce, the book paints a picture of a generation who could be highly capable in such an environment. A workforce who finds less value in the brick and mortar of a designated workspace to build and maintain relationships and culture. As Dr. Okros states in his book, "The choice for employers is not a matter of *if* they will need to change business practices but *how* and *when*."<sup>50</sup> Yet when given indications that the pandemic is waning

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<sup>45</sup> Donald Sull, Charles Sull, and Josh Bersin, "Five Ways Leaders Can Support Remote Work," *MIT Sloan Management Review* 61, no. 4 (Summer 2020): 6-8.

<sup>46</sup> Jennifer Howard-Grenville, "How to Sustain Your Organization's Culture When Everyone Is Remote," *MIT Sloan Management Review* 62, no. 1 (Fall 2020): 3-4.

<sup>47</sup> Born after 2005.

<sup>48</sup> Amanda Connolly, "Widespread systemic racism in Canadian military 'repulsing' new recruits: report," *Global News*, 27 April 2022.

<sup>49</sup> Alan Okros, *Harnessing the Potential of Digital Post-Millennials in the Future Workplace*, (Switzerland: Springer, 2020), 137-138.

<sup>50</sup> *Ibid.*, 171.

the natural inclination has been to return to the status quo. The recent message from the CDS and Deputy Minister articulate a goal of returning to the physical workplace with a measured concern for public health measures. It reinforces the concept of a hybrid workforce but implies this will continue on a case by case or temporary time domain rather than looking at a future means of operating.<sup>51</sup>

## **OPPORTUNITY AT OUR FRONT DOOR**

The nature of the defence business could be changing but many military capabilities will not transition to a virtual space. War may now span additional domains but power continues to exist in the physical realm. Aircraft, vehicles and ships remain the foundation of an armed force and the majority of CAF members will be employed in trades to win the future fight or however else the GoC calls on them to serve. This paper does not attempt to call that into question, but instead asks to take a hard look at the institutional and corporate elements of the force that a non-military entity would consider capable of working in a distributed, virtual environment. While respecting that data is only as reliable as its input, between the directory of federal real property<sup>52</sup> and ADM(IE) building extract data<sup>53</sup> the department manages somewhere between 603 and 817 buildings considered as offices. This adds up to 834,972m<sup>2</sup> to 1,380,376m<sup>2</sup> averaged out to about 10% of the RP portfolio.<sup>54</sup> While a modest percentage, they represent over \$2 billion in realty replacement cost and continue to require maintenance and future recapitalization, all while continuing to produce a percentage of DND's GHG emissions. In a portfolio that continues to

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<sup>51</sup> Bill Matthews and Gen Wayne Eyre, *Joint DM/CDS Message: CDS/DM Directive on DND/CAF Operating and Reconstituting in a Persistent COVID-19 Environment*, (Department of National Defence, 22 February 2022).

<sup>52</sup> Government of Canada, "Directory of Federal Real Property," (Treasury Board of Canada Secretariat), last accessed 27 April 2022. [https://www.tbs-sct.gc.ca/dfrp-rbif/query\\_question/summary-sommaire-eng.aspx?qid=26312817](https://www.tbs-sct.gc.ca/dfrp-rbif/query_question/summary-sommaire-eng.aspx?qid=26312817)

<sup>53</sup> Data provided by contact within ADM(IE).

<sup>54</sup> *Defence Real Property Portfolio Strategy (DRAFT)*, 6.

degrade, any and all savings, which can be reinvested in essential, capability driven RP, are valuable. This aligns with ADM(IE)'s strategic goals and is can be actioned sooner than retrofitting substantial percentages of the portfolio. The initiatives put in place through the *Green Building Directive* have some true opportunities to succeed in reducing emissions, however by means of averaging the capital investment given to RP against the undervalued replacement value, much of the existing infrastructure of today will still be in use. The plan to focus on electrifying all utilities that have traditionally relied on GHGs puts exceptional pressure on agencies outside of DND control. Notably in some bases outside of major city centres, growing DND demand is surpassing renewable energy output of providers. This will be exacerbated as industry across the country also seeks to electrify their facilities to meet federal mandates and reduce their own emissions. Reduction of redundant office space on a base cuts down immediately on emissions, while also freeing up critical electrical capacity to take on other buildings heating demand as equipment is updated.

The metrics used to specify departmental GHG targets focus on what occurs on base, however there are plenty of other unmeasured benefits to a distributed workforce when considering sustainability. Of course all members of the defence team need to live somewhere, so this space will need heat, power and water regardless of residents' locations during the day. One of the biggest reported benefits of a work from home policy is the reduced commuting. For those stationed at bases outside of major urban centres, commutes may fall far short of the Canadian average. However, the majority of defence team office workers who could work distributed live in larger cities like Ottawa and Winnipeg. Statistics Canada estimates that if those who could work from home did so, there could be a reduction in household GHG emissions of



11%.<sup>55</sup> DND is also a heavy user of air travel to, registering over 23 kilotonnes of CO<sup>2</sup> equivalent emissions prior to the pandemic. A number that dropped 89% in FY20/21 due to restrictions in air travel.<sup>56</sup> A more enabled workforce with modern virtual capabilities and experience could travel significantly less while maintaining value when considering conferences or other such gatherings. Without debating the potential for reduced need to physically relocate and how that could affect morale or retention within the force, it is worth noting that each move bears a heavy carbon tax. From the 2014 Military Cost Moves Working Group, an average of 12,700 moves were estimated annually.<sup>57</sup> Averaged to one metric tonne of CO<sup>2</sup> equivalent per move, there is opportunity for significant reduction. A final benefit worth noting is a large reduction in waste produced by the department. Meals will still need to be consumed wherever people are working, but eating at home gives easy access to reusable items, a higher propensity to recycle if plastics are used and less dependence on single use plastics to get items to the workplace.

## CONCLUSION

History has been witness to work revolutions before. There was fear and scepticism when computers became ubiquitous during the digital revolution.<sup>58</sup> Yet the CAF and its culture survived, employing the new technology to improve efficiency and networking across the country and globe. As we look forward through the fourth industrial revolution there are new opportunities. The *2021 Progress Report* on Canada's Sustainability Strategy points out that additional attention is required to meet the government's initial GHG reduction goals by 2030,

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<sup>55</sup> Government of Canada, *Working from home: Potential implications for public transit and greenhouse gas emission*, (Statistics Canada, Ottawa: 2021), 30.

<sup>56</sup> Government of Canada, "Government of Canada's Greenhouse Gas Emissions Inventory," last modified 15 March 2022.

<sup>57</sup> Department of National Defence, Military Cost Moves Working Group, Military Cost Moves Corporate Account (C107) Review – A DND Review of C107, (June 2015), 33.

<sup>58</sup> Richard S Rosenberg, *The Social Impact of Computers*, (Elsevier, 2013), 44.

not considering the loftier goals established by the current government.<sup>59</sup> With the existing DND RP portfolio continuing to worsen and no clear plan to invest significant resources towards amelioration, unlikely methods must be looked at to downsize existing building space. Progress seen since 2005 in DND emissions reductions will plateau based on current limitations of renewable electrical supply, costs of electrification and reliance of GHG to keep buildings heated in Canada's northern climate. Transitioning appropriate positions to a distributed style would also reduce emissions and waste in other ways not measured by government reporting metrics, as well as providing additional worktime based on reduced commuting and reducing the number of relocations necessary by the CAF. This transition should not be rushed and must build an IT framework to best enable defence team members to work in this new environment. A long term view on this topic will make DND a more competitive employer, prepare for generational transition within the workforce and help meet the government's objectives in combatting climate change.

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<sup>59</sup> Environment and Climate Change Canada, *2021 Progress Report*, (Ottawa: 2021), 28.

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