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## CANADIAN ARMY: THE FUTURE OF THE MOBILE KITCHEN TRAILER

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**CANADIAN ARMY: THE FUTURE OF THE MOBILE KITCHEN TRAILER**

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## **CANADIAN ARMY: THE FUTURE OF THE MOBILE KITCHEN TRAILER**

### **AIM**

1. The purpose of this service paper is to identify the required capabilities of future CA fresh feeding platforms. It will demonstrate that future feeding capabilities must be safe, mobile, flexible, adaptable and capable of providing a variety of nutritious foods in all environments. Additionally, it must be easy to deploy and easy to operate. It will aim to provide guidance for future feeding capability procurement.

### **INTRODUCTION**

2. The CA's primary fresh feeding platform is the Mobile Kitchen Trailer (MKT). The MKT has provided the CA's integral fresh feeding capability since 1984. Designed to feed 150 personnel with a complement of three cooks, the ability to link the MKTs together provides the CA flexibility to support larger feeding requirements.<sup>1</sup> The MKT platform is built on a trailer which provides excellent mobility to a Unit's feeding support capabilities. It also has a small footprint compared to other Canadian Armed Forces (CAF) feeding platforms<sup>2</sup> which facilitates its integration within various types of training and operations. Unfortunately, the MKT's life expectancy is now expired.<sup>3</sup> The current fleet is in poor repair as several MKTs have significant structural damage and are unsafe to operate.<sup>4</sup> Consequently, CA units are forced to borrow MKTs from other units in order to provide the fresh feeding support required during training and operations. In an attempt to temporarily address this issue, a portion of the MKT fleet is undergoing refurbishing

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<sup>1</sup> Department of National Defence, A-85-269-001/FP-001, *Food Services Manual Chapter 15*. (Ottawa: DND Canada, 2018), 4.

<sup>2</sup> Ibid., 18.

<sup>3</sup> Louis Duchesne, telephone conversation with author, 26 October 2019.

<sup>4</sup> Christopher Parker, telephone conversation with author, 24 October 2019.

over the next couple of years. It is intended to afford the CA enough feeding platforms to support training and operations over the next 10 years, providing the required window to acquire a replacement.<sup>5</sup>

3. As sustenance is a requirement of an organic force, it is essential to properly identify the capabilities that will be required in the replacement of the MKT. Doing so ensures that procurement meets the needs of the CA in providing their soldiers the necessary fuel for mission success. Though the MKT was effective in many ways, it had some shortcomings that can be addressed in future procurement. This service paper will identify all required capabilities of a new platform by analysing the projected future mandates and challenges of the CAF and the CA. This analysis will then be used to formulate the impacts in terms of fresh feeding support capability and provide guidance for the replacement of the MKT. It is important to note that *Canada's Future Army, Volume 3: Force Employment implications* identifies that the CA's missions and tasks are unlikely to change between now and 2040.<sup>6</sup> Consequently, operational success of current CA feeding platforms is relevant in the analysis process.

4. An assumption that is made within this service paper is that the CA will retain its integral fresh feeding capability and will continue to utilize both integral and alternate methods of fresh feeding in a similar fashion. Alternative concepts of feeding will not be explored as this service paper's focus is the replacement of the MKT's platform. It is

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<sup>5</sup> Louis Duchesne, telephone conversation with author, 26 October 2019.

<sup>6</sup> Department of National Defence. D2-354/2-2017E, *Canada's Future Army, Volume 2: Force Employment Implications* (Kingston: Canadian Army Land Warfare Centre, 2017), 26.

recognized that approaches such as centralized production using cook-chill<sup>7</sup> processes and contracted services could have value in meeting some CA feeding requirements. Such concepts have been successfully adopted by Correctional Services Canada among others and could be the subject of future research.<sup>8</sup>

## **DISCUSSION**

5. The capabilities required of a feeding platform in support of military are numerous. This service paper will therefore address the capabilities individually for the replacement of the MKT.

### **Safe**

6. Safety for any piece of equipment is essential in avoiding injury. Safety within a military training or operational context is often a command focus. This contributes to an environment that minimizes the risk of injury. In food services, safety can be broken down into two separate categories.

- a. Workplace safety. Workplace safety as it relates to a kitchen environment includes production processes, the equipment that is used, and the working environment. This applies to both static and deployable kitchens. Workplace safety within a kitchen is of particular importance due to the injury risks that relate to high temperature cooking and the use of sharp and heavy objects. These risks are increased under confined spaces and with the pressure of high intensity

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<sup>7</sup> Plascon. "Seven Steps Cook Chill Process," Last modified [or accessed] 28 October 2018.

<https://www.plascongroup.com/food-solutions/the-cook-chill-system/7-step-cook-chill-process/>

<sup>8</sup> Correctional Services Canada. "Standard Operational Practices: Food Services-Central Feeding," Last modified [or accessed] 30 June 2007. <https://www.csc-scc.gc.ca/politiques-et-lois/880-1-sop-eng.shtml>

production that is common to CA training and operations. Food production processes will not be addressed as it is managed through cook training and is adjusted to the equipment utilized. The kitchen equipment itself however, specifically in the context of a deployable feeding platform, must not only meet Canadian regulatory standards. Particular attention must be paid to the cooking methods and the risks that it entails. A balance must be struck between efficiency and safety. As an example, deep frying is not permitted in a field environment. The challenge to this balance is that equipment technology improves rapidly. Though deep fryers are not currently used in the field environment due to safety concerns, they could become an option with the development of the right technology. As a result, it will be important to remain current with kitchen equipment technology to ensure that safety is balanced with the need for efficiency. As deployable kitchens are a self contained piece of equipment, they can also be defined as the working environment. The feeding platform must have enough working space to allow for the safe transportation of hot items and the operation of equipment. The most dangerous among these include hot liquids and cutting tools. Safe storage must also be available to ensure that hazardous items are stowed away when not in use. The combination of these considerations will help mitigate unnecessary injury to CA soldiers.

- b. Food Safety. Proper food safety is essential “to produce safe food, thereby decreasing the risk of foodborne disease to CAF diners.”<sup>9</sup> Sickness from

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<sup>9</sup> Department of National Defence, A-85-269-001/FP-001, Food Services Manual Chapter 7. (Ottawa: DND Canada, 2018), 4.

foodborne diseases can have a direct affect on the health of the CA soldiers and mission success. As a result, deployable feeding platforms must be conceived with the intent to minimize the risk of food contamination. To do so, the production equipment must be accessible for cleaning and sanitation and must prevent the contamination of food during production.<sup>10</sup> A properly enclosed feeding platform further enhance the prevention of food contamination, specifically in dusty environments. The feeding platform must also allow proper drainage.<sup>11</sup> This feature facilitates proper kitchen cleaning and reduces the risk of cross-contamination. The surfaces of the feeding platform must also meet the CAF Food Safety and Defence Program standards to reduce the risk of dirt build-up.<sup>12</sup> These features will ensure that the health of the CA soldier is protected within context of field feeding support.

### **Variety of nutritious foods**

7. CAF Food standards and menus are developed to “reflect the nutritional requirements of an active and healthy military population.”<sup>13</sup> These standards are established to ensure that a consistent level of quality and quantity is provided in order to meet the calorific and nutrient requirements of its personnel.<sup>14</sup> This is achieved with a nutritionally balanced cycle menu that offers diverse menu options over a period of three

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<sup>10</sup> Ibid., 16.

<sup>11</sup> Ibid., 17.

<sup>12</sup> Ibid., 17.

<sup>13</sup> Department of National Defence, A-85-269-001/FP-001, Food Services Manual Chapter 2. (Ottawa: DND Canada, 2018), 1.

<sup>14</sup> Department of National Defence, A-85-269-001/FP-001, Food Services Manual Chapter 15. (Ottawa: DND Canada, 2018), 1.



to four weeks. This approach also helps to minimize diner fatigue which can lead to a decrease in nutritional intake. As a result, the replacement for the MKT must have the equipment necessary to produce a large variety of foods. The increased emphasis on diversity acceptance within the CAF has also resulted in the need to provide varying types of menu options to meet different cultural needs. This shift in feeding support thinking began with the introduction of Religious and Spiritual Accommodation policy.<sup>15</sup> This diverse menu composition establishes a requirement for multiple cooking methods. Any MKT replacement must be capable of producing the meals required to support Canada's various ethnic groups. This requirement will become increasingly critical as the CAF places "a new focus on recruiting and retaining under-represented populations within the Canadian Armed."<sup>16</sup>

## **Mobile**

8. "The Army trains to fight at the brigade group-level. This is the minimum level at which it is possible to execute joint campaigns while integrating various components."<sup>17</sup> The CA brigade group is a mobile force. Though the brigade group structure could change in the future, mobility will continue to be one of its key capabilities. This is supported by the CAF's intent to "upgrade the light armoured vehicle fleet to improve mobility and survivability."<sup>18</sup> The CAF also intends to continue its contribution to global

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<sup>15</sup> Department of National Defence, A-85-269-001/FP-001, Food Services Manual Chapter 2. (Ottawa: DND Canada, 2018), 4.

<sup>16</sup> Department of National Defence. D2-386/2017E, *Strong Secure Engage Canada's Defence Policy* (Ottawa: Minister of National Defence, 2017), 23.

<sup>17</sup> Ibid., 36.

<sup>18</sup> Ibid., 37.

security<sup>19</sup> and humanitarian aid.<sup>20</sup> Feeding platforms providing support to these types of operations must be mobile. This allows for independent operation of feeding support capabilities. This is achieved by utilizing a vehicle or trailer based system. While a vehicle based platform in the style of a combat food truck is mobile, a towable trailer such as the MKT allows your vehicle to be used for replenishment or administration without interference to feeding support.<sup>21</sup> For interoperability, the trailer should be easily towable by a variety of light vehicles. Technological advancements have also allowed trailers to be easily lowered to ground level, which increases efficiency and reduces the risk of cook injury. The mobility advantages of the MKT provide significant efficiency and should be improved upon in future feeding platforms.

### **Flexible and Adaptable**

9. “The trend toward the necessity for Canadian Army involvement in the broad range of activities required to manage conflict will persist into the future.”<sup>22</sup> Other mandates such as aid to civil power or disaster assistance further contribute to the diversity of activities that are conducted by the CA. Such diversity necessitates flexibility and adaptability in the CA’s integral fresh feeding capability. Much of the adaptability is provided by having various platforms from which to operate. Static kitchens, whether leased or owned, can be leveraged for large scale feeding. Semi-permanent operations or central feeding can be supported by the Canadian Joint Operations Command re-locatable

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<sup>19</sup> Ibid., 57.

<sup>20</sup> Ibid., 52.

<sup>21</sup> Christopher Parker, telephone conversation with author, 24 October 2019.

<sup>22</sup> Department of National Defence. D2-354/2-2017E, Canada’s Future Army, Volume 2: Force Employment Implications (Kingston: Canadian Army Land Warfare Centre, 2017), 32.

temporary camp (RTC) kitchen<sup>23</sup> or the CA Specially Equipped Vehicle Platform (SEV) Kitchen.<sup>24</sup> Mobile or short-term feeding requirements can be met by the MKT.<sup>25</sup> Combined with the Individual Meal Packs, this allows the CA to adapt to the feeding requirements of any operation. This ability is essential to maintain as it permits the CA to provide its troops with the feeding support in all operations. As the CA's primary feeding platform, the MKT also provides immense flexibility. Several MKTs can be linked together in response to short notice increases in feeding requirements. Flexibility and adaptability are features that must be included in any MKT replacement as the CA will be expected to "support small missions while remaining ready to conduct large operations."<sup>26</sup> It will also allow feeding support to continue seamlessly as the CA adapts "to the changing security environment."<sup>27</sup>

### **Capable in all environments**

10. The CA will continue to operate in virtually all types of environments, to include deserts, mountains, jungles and the Arctic.<sup>28</sup> The reality of such environments necessitates a feeding platform that is robust and durable. Furthermore, it imposes the requirement for both integral heating and cooling systems. Heating systems are fairly common in the industry. An aftermarket modification was added to the MKT to address

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<sup>23</sup> Department of National Defence, A-85-269-001/FP-001, Food Services Manual Chapter 15. (Ottawa: DND Canada, 2018), 20-21.

<sup>24</sup> Ibid., 9.

<sup>25</sup> Ibid., 18.

<sup>26</sup> Department of National Defence. D2-386/2017E, Strong Secure Engage Canada's Defence Policy (Ottawa: Minister of National Defence, 2017), 36.

<sup>27</sup> Ibid., 36.

<sup>28</sup> Department of National Defence. D2-354/2-2017E, Canada's Future Army, Volume 2: Force Employment Implications (Kingston: Canadian Army Land Warfare Centre, 2017), 22.

this oversight following its initial procurement. Cooling can however be done in a few ways. Air conditioning is always an option however, it comes at the cost of an increased power draw and maintenance requirements. Large roof vents are an alternative that effectively allows heat to escape upwards. The MKT uses this method combined with stow-away walls<sup>29</sup> to reduce heat in warmer climates. This approach, though less effective, offers a quieter solution that is not subject to maintenance issues under harsh conditions. Wall ventilation can be achieved in various ways and need not prescribe to the MKT concept. Besides heating and cooling, any MKT replacement must also take into consideration its deployed footprint. A limited footprint while optimizing the previous considerations would allow it to operate in confined areas such as forests, mountains and urban centers.

### **Ease of deployment**

11. The MKT's largest disadvantage is its inability to be shipped via containerised shipping. As it is not primary in the order of battle, the MKT's replacement must be easily moved by sea container methods. This would allow it to be integral to any sustainment plan without further consideration. This reduces deployment costs while avoiding the complicated logistics related to finding a work-around solution. Such a capability can be achieved by either ensuring that the replacement platform can be stored for shipping in a container or that it is compatible with containerised shipping in another fashion.

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<sup>29</sup> Department of National Defence, A-85-269-001/FP-001, Food Services Manual Chapter 15. (Ottawa: DND Canada, 2018), 8.

## **Easy to operate**

12. Future feeding platforms must also be easy to operate. Complicated kitchen equipment often comes at the cost of durability or robustness, both of which are characteristics ideally suited for the field environment. Equipment that can easily break during transportation or that have reduced life cycles leads to increased maintenance requirements. This must be avoided for a feeding platform that can be used in isolated locations as it creates undue stress on sustainment. Complicated equipment also leads to increased training requirements. However, simple equipment allows easy employment of cooks who have yet to be exposed to the variety of equipment in the CAF. This allows for a quick transition to the new feeding platform while also facilitating interoperability with cooks from non CA elements and allied forces.

## **CONCLUSION**

13. In conclusion, this service paper demonstrates that any replacement for the MKT feeding platform must be safe, mobile, flexible, adaptable, and capable of providing a variety of nutritious foods in all environments. Additionally, it demonstrates that it must be easy to deploy and easy to operate. This has been achieved by identifying the future challenges and mandates of both the CAF and the CA found within defence policy. The key factors of force structure, operational environment, flexibility and simplicity were primary aspects of the evaluation process. The result is a list of key capabilities that must be included in the procurement of a replacement to the MKT.

## **RECOMMENDATION**

14. It is recommended that the CA initiates a replacement project for the MKT. The MKT's life expectancy following the refurbishing will be extended to 2029. A procurement project of this magnitude is expected to take up to 7 years.<sup>30</sup>

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<sup>30</sup> Louis Duchesne, telephone conversation with author, 26 October 2019.

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