

This is an Extract from the Minutes of the Virtual Public Meeting of the Toronto Police Services Board that was held on June 24, 2021

P2021-0624-4.0. Conducted Energy Weapons Reports

Deputations: John Sewell (written submission included)
Toronto Police Accountability Coalition

Nicole Corrado (written submission only)

Chief Ramer made comments with respect to Mr. Sewell's presentation; see video for detailed statement.

Chair Hart read the following message from the Co-Chairs of the Board's Mental Health and Addictions Advisory Panel.

MHAAP looks forward to discussing the CEW review with TPS in the fall. We are in full support of the crisis call centre pilot with the Gerstein Centre and believe it is a good first step in building more civilian crisis response. We look forward to reviewing the results of the pilot.

Chief Ramer responded to questions from Mayor Tory, and said that this is "a life-cycle purchase" as the devices the Service currently has won't be functional for much longer, and are not compatible with the body-worn cameras (BWC).

Mr. Tony Veneziano said that the ability to pair the Conducted Energy Weapons (CEW) with the Body-Worn Cameras (BWC) increases accountability and trust with the community. He said that this is just one tool that can be used and noted that its use requires the use of de-escalation techniques first.

Chair Hart asked about the number of injuries to members of the public and police officers since the Service has rolled out CEWs. Chief Ramer said he provides that specific data in the Service's annual reports; this data shows that the injuries have been reduced and are substantially less than before.

P2021-0624-4.1. Independent Review of the Toronto Police Service Use of Conducted Energy Weapons

The Board was in receipt of a report dated June 7, 2021 from James Ramer, Chief of Police.

Recommendation:

It is recommended that the Toronto Police Services Board (Board) receive this report.

P2021-0624-4.2. Award of Contract for the Supply of Conducted Energy Weapons – Axon Canada

The Board was in receipt of a report dated June 7, 2021 from James Ramer, Chief of Police.

Recommendation:

It is recommended that the Toronto Police Services Board (Board):

- 1) Approve the purchase and full frontline rollout on a personal issue model of Taser 7 Conducted Energy Weapons (C.E.W.) from Axon Canada (Axon) for a five-year term commencing July 1, 2021, to June 30, 2026, and at a cost of \$4,147,000 over the five-year period;
- 2) Delegate the authority to the Chief of Police, to exercise the option to extend for one additional year; and
- 3) Authorize the Chair to execute all required agreements and related documents on behalf of the Board, subject to approval by the City Solicitor, as to form.

The Board received the deputations and approved the foregoing report.

Moved by: J. Tory
Seconded by: A. Morgan



Toronto Police Services Board Report

June 7, 2021

To: Chair and Members
Toronto Police Services Board

From: James Ramer, M.O.M.
Chief of Police

Subject: Independent Review of the Toronto Police Service Use of Conducted Energy Weapons

Recommendations

It is recommended that the Toronto Police Services Board (Board) receive this report.

Background / Purpose

At its meeting of February 18, 2018, the Board approved the following motions (Min. No. P19/18 refers):

“2. THAT the Board direct the Chief to conduct, by engaging an external body, an international review of best practices regarding use of force options, including possible alternatives to CEWs, and tactical approaches, and to provide a public report with recommendations, where appropriate, at the culmination of this review.

a. As part of this review, evaluate best practices on the safety of CEWs in different modes, including TPS members that are already using CEWs and from other jurisdictions that have implemented policies on permitted methods of discharging CEWs.

b. THAT the Board, as an exception to the Board’s Special Fund Policy, make a contribution to the cost of this review and evaluation in an amount not to exceed \$80,000.”

This report responds to the Board motions and provides the Board with the independent report from MNP LLP (M.N.P.), who was engaged to review the Toronto Police Service’s (Service) C.E.W. program. This review examined statistical data on C.E.W. use, governance and policy, training and reporting.

MNP's objectives were to:

1. Perform global benchmarking or comparator analysis on the use of C.E.W.s
2. Conduct an international review of best practices regarding police use of force options, including:
 - Possible alternatives to C.E.W.s that are being used internationally; and
 - Tactical approaches to situations involving use of force and non-use of force incidents including de-escalation tactics to reduce the intensity of a person in crisis and, if force is used, to reduce the force necessary, if appropriate.
3. Evaluate best practices on the safety of C.E.W.s in different modes
 - Full Deployment and Drive-Stun Mode for:
 - Service members who are currently using the C.E.W.; and
 - Other jurisdictions that utilize C.E.W.s.

Overview:

In September of 2020, the Service, at the direction of the Board, commissioned an independent review of the Service's C.E.W. program through a competitive procurement process. M.N.P. was selected to conduct that review and has now provided the Service with its final report, attached as an addendum to this report.

M.N.P. compared the Service's use and governance with the following police services:

1. Peel Regional Police Service
2. York Regional Police Service
3. Durham Regional Police Service
4. Halton Regional Police Service
5. Ottawa Regional Police Service
6. Calgary Police Service
7. Royal Canadian Mounted Police

Notwithstanding the differences in societal norms, training and legal frameworks, M.N.P. also benchmarked the Service against the following international police agencies:

1. New York Police Department
2. Los Angeles Police Department
3. Chicago Police Department
4. New Zealand Police Service
5. England and Wales Police Service

M.N.P.'s report outlines its key findings which include areas where the Service is to be commended as well as recommendations for future improvements. A summary of the findings, commendations and recommendations are provided in the Discussion section below.

The overall findings demonstrate that the Service's use, policies and reporting are either in line with, or exceed, those of its immediate peer group. Notwithstanding, there are always areas that require improvement. The Service is committed to implementing the recommendations, many of which are well underway, and will report to a future meeting of the Board on the status of the action taken.

Financial Implications:

The total cost of this review was \$130,000. The cost was shared between the Board and the Service.

Discussion:

The report provides the following conclusions:

- All use of force experts concur that although there are alternatives to C.E.W.s, there is no viable replacement. No other use of force tactic or tool provides the unique qualities of a C.E.W.
- The data suggests that the Service uses the C.E.W. within the guidelines of existing Service policies and training for the device; and
- The Service is operating within international best practices identified on deployment, data collection and reporting of C.E.W. use.

Excerpt of Key Findings:

"The research conducted for this review demonstrates that CEW use increases as the device becomes more available and more officers are trained to use the device. TPS has found similar trends based on annual CEW reports. However, the data suggests that the TPS uses the CEW in accordance with incident circumstances (i.e. subjects that are assaultive) and within the guidelines of existing policies and training for the device. These findings illuminate that the frequency of CEW use by a police service is not only a function of its availability to officers but also a function of policy and subject behaviour.

Since being recorded by the TPS in 2019, the 2019 and 2020 reports also indicate that de-escalation was utilized by officers in 97.3% and 97.8% of incidents involving a CEW respectively. These results indicate that de-escalation techniques are being utilized in most incidents involving the use of a CEW by the TPS. TPS CEW use is not being utilized as an alternative to techniques meant to mitigate the volatility of an incident.

Data from police services that track presentation of force, full deployment, and drive-stun mode show that CEWs are primarily utilized as a presentation of force.

Research and data collected from other police services/departments show that CEWs are associated with fewer injuries compared to other use of force tactics/tools and rarely officially attributed as a cause of death. To this point, the TPS have recorded zero deaths, an average of 4.7 subject injuries, and two civil action cases annually due to CEW use between 2010 and 2020. Additionally, the expansion of the CEW to frontline officers in 2018 has been followed by a 15% reduction in Special Investigations Device (sic) (SIU) cases (from 76 to 64) and a 22% reduction in officer injuries (from 138 to 107). These results suggest that the TPS is doing a good job of ensuring that citizens were not put at risk by the expansion of CEW deployment. However, these devices are a use of force tool and still present a risk of serious injury or death when used by the police.

Best practices dictate that clear policies are required regarding testing, training, use, and supervision of CEWs. Recurring training for officers that is scenario based and oversight ensuring accountability and transparency to reduce instances involving injury or death regarding CEWs is also necessary. The TPS has clear policies regarding CEW use, comprehensive supervision and training, as well as fulsome accountability mechanisms/processes and transparency in comparison to other police services.”

The M.N.P. report also included a number of areas where the Service was commended on their C.E.W. practice and processes and also included recommendations for future consideration.

M.N.P. Commendations:

1. Service de-escalation training was specifically recognized as more comprehensive compared to other services/departments included in this review.
2. Service policy surrounding C.E.W. use was found to be clear and appropriate.
3. The Service provides training that is longer, more comprehensive and with greater frequency for recertification than other services/departments included in this review.
4. Mobile Crisis Intervention Teams were highlighted as making a significant commitment to safely address individuals in crisis.
5. The Service's reporting was highlighted as being substantially more robust than other services/departments included in this review.
6. The Service aligns with best practice in relation to conducting regular reviews to ensure best practices are embedded into policy.

M.N.P. Recommendations:

1. Expand scenario based training to include, “priming the scene” by removing third parties, using the environment to their advantage and containing the scene. This training should include scenarios that highlight various types of disengagement in order to assist officers in finding the balance between the safety of each person involved in an incident.

2. Provide inclusivity training for officers where they are exposed to perspectives of individuals from racialized communities to assist officers in improving their de-escalation techniques.
3. C.E.W. and Use of Force data should be collected in relation to “suicide calls”. In addition the data should also track injuries and types of injuries which could be made public on a dashboard with high level information provided.
4. Continue the monitoring of C.E.W. expansion including reviews of best practices and community consultation.
5. In-Service training debrief sessions should be part of annual training. These would provide the opportunity for discussion on how to improve performance by coupling real experience debriefings with reality based scenarios.
6. Make policy improvements in some areas of C.E.W. use, such as prioritizing de-escalation, disengagement tactics, safety considerations and privacy considerations.

Conclusion

The Service has only just received the M.N.P. report and will require time to fully examine the recommendations. However, this independent report concludes that the Service’s approach to the C.E.W. program is sound and effective, and commends the Service for its practices. Some of the report’s recommendations are reflective of existing practices the Service employs, however, these could be continuously improved upon.

The M.N.P. report outlines a number of opportunities where the Service can further expand and improve training and governance. The Service is committed to leveraging those opportunities and will provide a progress report back to the Board at a future meeting.

Mr. Tony Veneziano, Corporate Services Command will be in attendance to answer any questions the Board may have regarding this report.

Respectfully submitted,

James Ramer, M.O.M.
Chief of Police

*original copy with signature on file in Board office



Use of Force Review

Toronto Police Service

Prepared by MNP LLP

May 2021

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Executive Summary

As per the Toronto Police Service (TPS) RFP 1323392-20, this report has been completed in accordance with the following objectives:

1. Global benchmarking or comparator analysis of the use of CEWs
2. An international review of best practices regarding police use of force options, including:
 - Possible alternatives to CEWs that are being used internationally; and
 - Tactical approaches to situations involving use of force and non-use of force incidents including de-escalation tactics to reduce the intensity of a person in crisis and, if force is used, to reduce the force necessary, if appropriate.
3. Evaluate best practices on the safety of CEWs in different modes
 - Full Deployment and Drive-Stun Mode for:
 - TPS members who are currently using the CEW; and
 - Other jurisdictions that utilize the CEW.

In reference to these three objectives, the following key findings, commendations and recommendations are being presented for consideration by the TPS.

Key Findings

The following are key findings based on the secondary research, benchmarking, and stakeholder consultations completed for this review:

Frequency and Type of Use

- The research conducted for this review demonstrates that CEW use increases as the device becomes more available and more officers are trained to use the device. TPS has found similar trends based on annual CEW reports. However, the data suggests that the TPS uses the CEW in accordance with incident circumstances (i.e. subjects that are assaultive) and within the guidelines of existing policies and training for the device. These findings illuminate that the frequency of CEW use by a police service is not only a function of its availability to officers but also a function of policy and subject behaviour.
- Since being recorded by the TPS in 2019, the 2019 and 2020 reports also indicate that de-escalation was utilized by officers in 97.3% and 97.8% of incidents involving a CEW respectively. These results indicate that de-escalation techniques are being utilized in most incidents involving the use of a CEW by the TPS. TPS CEW use is not being utilized as an alternative to techniques meant to mitigate the volatility of an incident.
- There is a difference in the proportion of instances that TPS and the RCMP utilize the CEW as a presentation of force compared to the New Zealand and the England and Wales Police Services. The discrepancy between services does not appear to be explained by differing use of force model requirements. There is limited data available to explain these differences and they may be a function of police in New Zealand and England and Wales not routinely carrying firearms.

- The TPS, RCMP, New Zealand Police Service and the England and Wales Police Services have a higher threshold to justify the use of a CEW compared to the New York and Chicago Police Departments. There is no definitive answer for when a CEW should be utilized by police (i.e. where the device should be placed on a jurisdiction's Use of Force Model). Most use of force stakeholders indicated that the Ontario Use of Force Model has situated the CEW in the appropriate place.
- Data from police services that track presentation of force, full deployment, and drive-stun mode show that CEWs are primarily utilized as a presentation of force.

Subject Demographics and Behaviour

- CEW and use of force tactics/tools are most likely to be used on males between the ages of 18 and 35, who are experiencing a mental health crisis, are under the influence of drugs/alcohol, and/or are assaultive/armed.
- Information collected from other police services/departments as well as research show that individuals from marginalized populations are overrepresented in all instances involving use of force by police. A multivariate analysis completed for the Ontario Human Rights Commission found that Black community members in Toronto are overrepresented in all use of force categories and instances by the TPS. CEWs specifically were noted as being significantly more likely to be utilized on other racialized minorities (13.5%) and Black individuals (8.7%) in comparison to White individuals (3.9%).
- Data from the TPS and the New Zealand Police Service show that subjects who are experiencing a mental health crisis and/or are under the influence of drugs/alcohol are more likely to be armed and/or perceived by police to be armed. It is important to note that these findings do not definitively say that individuals experiencing mental health issues are more prone to violence or a threat to society. Mental health is a complex issue and no generalizable statements or findings can be made related to this topic based on the data collected to complete this review.

Injuries and Death

- Research and data collected from other police services/departments show that CEWs are associated with fewer injuries compared to other use of force tactics/tools and rarely officially attributed as a cause of death. To this point, the TPS have recorded zero deaths, an average of 4.7 subject injuries, and two civil action cases annually due to CEW use between 2010 and 2020. Additionally, the expansion of the CEW to frontline officers in 2018 has been followed by a 15% reduction in Special Investigations Unit (SIU) cases (from 76 to 64) and a 22% reduction in officer injuries (from 138 to 107). These results suggest that the TPS is doing a good job of ensuring that citizens were not put at risk by the expansion of CEW deployment. However, these devices are a use of force tool and still present a risk of serious injury or death when used by the police.
- Best practices dictate that clear policies are required regarding testing, training, use, and supervision of CEWs. Recurring training for officers that is scenario based and oversight ensuring accountability and transparency to reduce instances involving injury or death regarding CEWs is also necessary. The TPS has clear policies regarding CEW use,

comprehensive supervision and training, as well as fulsome accountability mechanisms/processes and transparency in comparison to other police services.

Conducted Energy Weapon Use Compared to Use of Force Tactics/Tools

- Physical tactics are the most utilized use of force tactic/tool by police services/departments, including the TPS.
- CEWs are the second most utilized use of force tactic/tool for the TPS and all other police services/departments included in this review apart from New Zealand. These results are an indication of the utility of the device for officers. Further, these results demonstrate that TPS use of CEWs compares to other police services/departments.
- Most use of force experts indicated that CEWs have a distinct place on the Use of Force Model because it can be used at a distance to achieve neuromuscular incapacitation. This result was stated by use of force experts are being preferable for addressing subjects armed with a blunt or edged weapon or exhibiting potentially self-harming behaviour.
- CEWs are not a replacement for firearms nor do they lead to a reduction in the use of firearms. CEWs and firearms serve two distinct purposes and are not replacements or alternatives to one another. The tactical advantages and distance requirements of a CEW limit the ability for the device to be a viable alternative or replacement for a firearm during circumstances that would require its use by police as referenced in the use of force model and policies and procedures of respective jurisdictions.

Effectiveness of CEW Use

- Based on input from subject matter experts and research collected for this review, the effectiveness of the CEW should be defined by the ability to momentarily stop assaultive behaviour by an individual to gain control/compliance. Essentially, the definition of effectiveness should focus on the outcome of an individual being safely restrained or complying with officers and no longer posing a threat. This is the definition of effectiveness used by the TPS regarding CEWs.
- The TPS CEW effectiveness rate of 85% both generally and with persons in crisis appears higher than other police services. However, it is acknowledged that there are discrepancies in the definition of 'effective' between services and a lack of national or international standards in that definition.

Alternatives to CEWs

De-escalation techniques (referred to as 'communication' on the Ontario Use of Force Model) would be attempted upon arriving at every call and are applicable throughout a use of force incident. One unique quality of de-escalation is that it can be utilized by an officer in tandem with all other use of force tactics/tools. However, the impact of the technique, although influenced by the level of skill of officer using it, is ultimately reliant on the cooperation of the subject. Furthermore, de-escalation techniques cannot be utilized by police in certain situations such as ones involving a subject that is threatening individuals with a weapon or being immediately assaultive.

If de-escalation techniques do not work, then officers may decide that physical control tactics are the best option. Physical control techniques are shown on the Ontario Use of Force Model as “soft and hard”. It is the potential for injury that determines the “level of force used”. The higher the potential of injury, the higher the threat assessment needs to be. Soft physical control would include an officer applying a wrist lock on a subject to the point of immobilization, whereas hard physical control would include the officer performing a dynamic take down of the subject. Physical control tactics are used more than any other use of force option by police. It needs to be noted that this is not always by choice. Should a subject spontaneously attack an officer or a subject resists during an altercation, there may not be time to use any other use of force options. The effectiveness of physical control tactics can be reliant upon the size, strength and physical capabilities of the officer compared to the subject.

A baton is an intermediate weapon use of force tool that is an option for police to help overcome size, strength, and physical capabilities. If used successfully, a baton may cause physiological incapacitation, eliminate the subject’s will to fight, and/or disorient the subject so the officer can gain control. However, a baton is also associated with a high likelihood of injury for both the officer and the subject compared to other use of force tactics/tools.

OC spray is an intermediate weapon or use of force tool that is used to give the officer a tactical advantage over a subject. It is less likely to result in injury to the officer and the suspect in comparison to physical control techniques or the baton. Proper application of OC spray causes the subject to have a hard time “locating” the officer due to the spray hampering vision. It also causes the subject pain. It does not have the ability to incapacitate a subject. It should be noted that an officer may have to utilize an additional use of force tactic/tool in conjunction with OC Spray. For example, an officer sprays a subject and the subject keeps attacking the officer who then transitions to their baton. Environmental conditions such as the wind, rain or snow can reduce the effectiveness of this tool.

The newest intermediate less lethal weapon to be implemented by the TPS is the Extended Range Impact Weapon. This device has been shown to provide officers with another option for addressing assaultive subjects from a distance through pain compliance delivered by the impact of the projectile. However, this device is associated with a higher likelihood of injury in comparison to other use of force tools. This tool is less effective if a subject closes the gap between themselves and the officer quickly.

Finally, CEWs, which are also intermediate weapons, are the second most utilized tool by officers from departments/services involved in this review. The most frequent type of CEW used by police is as a demonstration of force. The second most is a full deployment that results in neuromuscular incapacitation. The tactical benefit of a successful deployment of a CEW is that it is capable of neuromuscular incapacitation of the subject. This provides officers with an opportunity to restrain a subject and consequently prevent any or further actions that may have or may lead to injury.

Research and information gathered from other departments/services involved in this review indicate that CEWs are utilized by officers most frequently to address subjects armed with a blunt or edged weapon and experiencing a mental health crisis. Additionally, the New Zealand Police Service utilizes CEWs disproportionately for dealing with subjects that are suicidal. Anecdotal evidence suggests that officers may be utilizing CEWs for subjects armed with a knife, that are experiencing a mental health crisis, or individuals that are suicidal because they provide officers with the best opportunity to

immediately stop the subject from harming themselves or others with the lowest risk of injury to the subject and the officer.

The most promising alternative to a CEW is the BolaWrap. This tool shoots out wires that wrap up a subject's arms or legs thus decreasing the subject's ability to assault officers. An increasing number of police services are testing the tool and/or providing officers with them in the United States. At the time of writing this review, the BolaWrap is not available in Canada. Due to its limited application it cannot be viewed as a viable replacement for a CEW. The BolaWrap is situationally dependent on large, open areas for proper and consistent usage. However, a BolaWrap may be an alternative that officers could consider in specific situations. There is no pain associated with the BolaWrap except possibly from secondary action such as the subject falling. With that said, no use of force expert or research found during this review indicated that there is a use of force tactic/tool available that would be able to replace the CEW.

Ultimately, an intermediate use weapon is required if a subject is exhibiting assaultive behaviour or the officer believes an assault is imminent and is within five to twenty feet of a subject. Under these circumstances, utilizing the CEW will generally result in less injury to both the officer and the subject than other use of force tactics/tools. Additionally, the officer does not need to be concerned about cross contamination, multiple strikes of the baton causing injury, or the subject's size, strength and physical capabilities for empty-hand techniques with a CEW. Neuromuscular incapacitation offered by the successful deployment of the CEW allows the officer to gain control of the subject. The CEW allows an officer to overcome the discrepancies in strength, size and physical capabilities between the subject and the officer better than any other non-lethal weapon.

Overall, a CEW is a highly utilized tool to address assaultive subjects, primarily as a demonstration of force. Further, the TASER 7™ is able to provide in-depth information regarding the use of the device and is now capable of linking to a body-worn camera to further improve the accountability and transparency of the device - unparalleled by other use of force tactics/tools.

Commendations

In general, the TPS members who were consulted for this review were a progressive and innovative group that are interested in reducing injuries and deaths during police-citizen interactions. The individuals who were consulted for this review expressed interest in pursuing opportunities for improvement of CEW use by the service. The following are specific commendations for the TPS based on the results of this review:

1. **Improved De-escalation Training and Research into Less-Lethal Force Options:** In 2017 the TPS added a three-week judgement and decision-making training course for all recruit classes as well as an in-service day on de-escalation training for all members. The TPS have also incorporated de-escalation tactics into all use of force reality-based training scenarios. Further, the TPS implemented the use of soft-nosed impact rounds in 2016 and piloted the potential use of shields by general patrol members to respond to volatile incidents involving the public. Finally, the TPS do more reality-based training scenarios, often regarded as the ultimate standard in training, compared to the other five police services included in this review.

2. **Use of Force and CEW Policies:** The TPS was found to have clear policies regarding the use of CEWs with appropriate safety policies and controls in comparison to other police services included this review. The exception was the lack of policy related to multiple and/or simultaneous deployments which is included as a recommendation in this review.
3. **CEW training and Recertification:** The TPS provides four more hours of training for members than the 12 hours required by the Province of Ontario. They also require recertification annually compared to the minimum of two years required by the RCMP. Also, the TPS has included rapid cognition in their training drills that provide officers with opportunities to improve decision-making skills. Finally, the TPS has the highest volume of reality-based training scenarios compared to the five other municipal police services in Canada utilized in this review.
4. **Mobile Crisis Intervention Teams:** The development of these teams over the past 20 years by the TPS are an indication of the service's commitment to providing a holistic approach to individuals experiencing a mental health crisis. By the end of 2021, the Mobile Crisis Intervention Teams, along with the crisis care case managers, and Divisional Crisis Support Officers will be available 24 hours a day, seven days a week. These teams and positions will help individuals experiencing a mental health crisis by providing assessment, stabilizing supporting, and referrals. Improving interactions between police and individuals experiencing a mental health crisis is an important topic for national and international police services. These steps by the TPS will better situate the service to safely address individuals experiencing a mental health crisis.
5. **CEW Reporting:** The TPS collects more in-depth information and reports it more frequently than most of the police services included in this review. Specifically, the information collected regarding perceived subject behaviour and condition, number of cycles, and type of incident. The collection of race-based data by TPS which started in 2020 will align the service with similar data collected by the international police services included in this review. Further, the TPS is only the police service found in this review to provide a stand-alone report on CEWs. The TPS provides quarterly reports on the specific use of CEWs which is more frequent than other police services. Only the Chicago Police Department and the New York Police Department reports use of force data more frequently. They do so via a public dashboard that is updated monthly. However, the dashboard lacks the level of detail that the TPS is reporting.
6. **Conducting Reviews on CEW Use:** the TPS is in alignment with leading practices that suggest regular reviews of CEW policies and procedures to ensure they are up to date and reflect best practices.

Recommendations

1. **Further Expanding Training in Disengagement /Releasing Containment Pressure/Creating Space in CEW :** Augmenting the existing knowledge-based training regarding creating space/disengagement with reality-based training scenarios, may reduce the number of incidents involving a use of force tactic/tool including CEWs by TPS. These tactics could be considered for a variety of situations when the TPS is attending a call with or without a weapon involved, including those involving a person in crisis, to ensure officers' tactics, when possible, contribute to avoiding or mitigating the subject's ability or opportunity to carry out an assault.

Creating space/disengagement may take several forms and the scenarios should be designed to reflect the most appropriate level of disengagement. Scenarios should include a spectrum of disengagement options, for example:

- **Complete Disengagement:** a scenario where the officer identifies that the police have no lawful authority to continue staying engaged with a subject who has expressed no desire to continue interacting with the police.
- **Full Structure Disengagement:** a scenario where the totality of the circumstances would suggest to the officers that the best course of action is to remove themselves from the structure, contain and request special resources (Tactical team, Crises Counselor etc.)
- **Disengagement Through Tactical Repositioning:** a scenario where it is recognized that the containment of an individual experiencing a mental health crisis can be safely expanded to provide more time/distance for officers and lower the containment pressure on the individual.

The training needs to focus on the officer's understanding of the balance between the safety of the individual, third parties and officer(s) on scene by utilizing these tactics. Additionally, the safety and security of other third parties must always be considered by the officer prior to disengagement. One main objective of all additional reality-based training scenarios would include the officers priming the scene by removing third parties, ensuring the officer has an exit for them if required, utilizing the environment to their advantage, and containing the scene at a place the officers have a position of advantage. While priming the scene the officer would rely on de-escalation training to continue to address the incident. One example for reality-based training that could be considered for the above tactics includes a person in crisis situation where the police officers themselves, simply because they are the police, are the stimulus for the escalation of the subject's physical and mental anxiety. Another scenario could include the subject displaying pre - "suicide by cop" behaviour and verbal cues.

2. **Inclusive Training for All Officers:** The findings of the Andrew Loku Inquest as well as the input of several stakeholders interviewed for this review recommend that the TPS should expose members and recruits in training to the perspective of individuals from racialized communities as well as individuals with a mental health condition(s). The purpose would be to help officers understand how individuals are interpreting the officers' actions and comments that, in turn, will help to improve de-escalation techniques. Presently, the TPS is working on addressing this recommendation, aligned with recommendations 52 to 58 of the Andrew Loku Inquest.
3. **CEW Data and Use of Force Data:** The TPS should begin to collect information regarding the use of CEW during suicide calls, like the practice in New Zealand. Additionally, information should be collected regarding the number of injuries, the severity of those injuries, as well as the effectiveness of other use of force tactics/tools. These additional data points would provide a more robust comparison of the use of force tactics/tools utilized by the TPS to share with the public. Finally, the TPS should consider the feasibility of using a publicly available dashboard to provide use of force statistics to the public. The Chicago Police Department has a publicly available dashboard that is updated monthly with information limited to the frequency of CEW use as well as the age, sex, ethnicity, and if the individual was in possession of weapon. Due to

the amount and level of depth of information collected by the TPS regarding CEW use, monthly updates would not be as robust as the quarterly or annual reports currently developed by the TPS.

4. **Continuous Monitoring of CEW Expansion:** Police services nationally and internationally are increasingly providing CEWs to all uniform officers because it has proved to be an effective tool in addressing individuals armed with an edged weapon and/or individuals that are assaultive or may cause serious bodily harm to themselves or others. The unique benefit of neuromuscular incapacitation and the low injury rates for officers and subjects compared to other use of force tactics/tools are two primary reasons for the increasing deployment of this device. There was a high degree of consensus among many of the stakeholders on the strengths of the approach taken by the TPS to the broader distribution of CEWs in the Toronto Police Service. The process has taken five years and involved extensive community consultation and reviews of best practices in other jurisdictions as well as being complete along with the development of the de-escalation policy. Overall, the TPS has continually sought to improve the safe and effective use of the CEW and should continue to do so into the future.
5. **In-Service Training:** a session should be provided to officers during annual in-service training to discuss their experience with the use of CEWs and possibly other use of force tactics/tools. These sessions would augment knowledge and reality-based training by providing a formal opportunity for officers to ask a use of force expert any questions that they have as well as to share and exchange suggestions and insights regarding decisions to utilize use of force tactics/tools or alternatives to them. These discussions need to be focused on education, as opposed to punishment or fault finding, to ensure officers feel supported and to gain value from the discussions to improve performance. Once incorporated into annual in-service training sessions by the TPS, the TPS should establish a formal evaluation framework to properly measure the outcomes of these sessions. For instance, indicators might include monitoring the level of confidence officers have in using specific use of force tactics/tools, a reduction in injury for both officers and individuals, or a reduction in use of force incidents by the service.
6. **Specific Policy Improvements:** In comparison to other jurisdictional CEW policies and procedures included in this review, the following opportunities for improvement have been identified for the TPS to consider:
 - a. Incorporating the priority of using de-escalation prior to other use of force options by officers as well as the rationale for using de-escalation and the goals of the technique into the existing TPS procedures for using a CEW.
 - b. Reinforce methods to create distance to release containment pressure on subjects including disengaging (situationally dependant) within the existing use of force and CEW training, policies, and procedures.
 - c. Incorporate a definition of sensitive areas (i.e. head, genitals, and neck) within the existing CEW policy.
 - d. Add the weight of an individual, drug/substance use, and distance within the existing CEW policy as conditions that may impede the effectiveness of the CEW.

- e. Adding to the existing CEW policy to consider multiple or extended cycles only in exceptional circumstances and after reassessment of the situation which caused the initial use of CEW.
- f. Prohibiting the use of a CEW for the sole purposes of gathering digital video and audio evidence as well as using the device as a form of coercion or punishment.

Finally, one additional opportunity for further exploration by the TPS would be including Crisis Counsellors in the Communication Centre. These counsellors would be available for officers and callers (subject in crisis) to provide mental health support over the phone. The ultimate goal of the support provided by the Crisis Counsellor would be to get a subject to exit the location where the subject is as long as it is safe, or to get the subject to where the officer(s) on scene deem is the safest when they are ready and in place - similar to how an armed and barricaded situation is currently dealt with by police.

Within the Toronto Police Service there are the General Patrol Units but also specially trained units such as Emergency Task Force and K-9 Unit. The proposed Crisis Counsellor would be a similar specialist, trained to help officers for calls for service that meet a particular threshold such as a suicidal individual. A well-trained police officer, generally speaking, will be better at policing than a crisis counselor, and a professionally trained crisis counselor will be better at handling a person in crisis than a police officer or emergency call taker.

To be clear, there were no other police services consulted within this review or within the research that had a program or approach like the one described above. The suggested approach of adding a Crisis Counsellor to the communication centre is the result of a culmination of input gathered for this review and an analysis of options available by the individuals completing this review. As a result, there is no guarantee of impact or cost-effectiveness associated with this suggestion. Alternatively, further investigation as to the feasibility and effectiveness of this suggested opportunity would be required if deemed to be an approach worth pursuing.

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Introduction

Overview of Project

It is important to review the role of Conducted Energy Weapons (CEW) and other use of force tools and techniques to ensure police officers are optimally equipped to keep themselves and the public safe. Due to the potential for significant injury of both police officers and citizens, use of force reviews are also important to ensure policies and procedures are in alignment with best practices to mitigate potential risks and challenges related to individual civil liberties or public trust and confidence in the police.

As per the Toronto Police Service (TPS) RFP 1323392-20, this report has been completed in accordance with the following objectives:

1. Global benchmarking or comparator analysis in the use of CEWs.
2. An international review of best practices regarding police use of force options, including:
 - Possible alternatives to CEWs that are being used internationally; and
 - Tactical approaches to situations involving use of force and non-use of force incidents including de-escalation tactics to reduce the intensity of a person in crisis, and if force is used, to reduce the amount of force necessary, if appropriate.
3. Evaluate best practices on the safety of CEWs in different modes:
 - Full Deployment and Drive-Stun Mode for:
 - TPS members who are currently using the CEW; and
 - Other jurisdictions that utilize the CEW.

The principles guiding this project as per (TPS) RFP 1323392-20 are as follows:

1. The public, by way of their representatives in police governance, and police leaders have a duty to provide officers with an evidence-based suite of responses to safely address situations involving the application of force in their communities.
2. Responses must be governed by a continued emphasis on governance, training, supervision, innovation, and accountability through public reporting.
3. The CEW will successfully minimize the gap within the correct suite of response options that will contribute to the aspirational goal of zero deaths in encounters with members of the public.
4. Officers should have more appropriate options based on comprehensive research that leads to zero deaths.

Description of a CEW

A Conductive Energy Weapon (CEW) is a generic categorization of any device that uses electricity to affect an individual. For example, a stun-gun or a Thomas A. Swift Electric Rifle (TASER), which is a trademark of Axon Enterprise Inc., are both CEWs. A stun-gun is a device that emits an electric shock. TASERs are devices utilized by police and are distinct from a stun-gun due to their ability to shoot a projectile from the device. This distinct method of use is referred to as full deployment of a TASER. In full deployment mode, the TASER discharges projectiles, that are referred to as probes, which are made of

metal and have barbs or needles on one end that are meant to pierce an individual's skin. The TASER propels two probes from a single cartridge on the front of the device and once they pierce an individual's skin, the device sends an electric impulse that lasts five seconds and results in neuromuscular incapacitation. This is an exclusive result of the TASER in comparison to other use of force tools that are available to police officers.

Neuromuscular incapacitation occurs when the electrical current from the device causes involuntary muscle contractions that temporarily immobilize an individual. The tactical benefit of neuromuscular incapacitation is the ability to incapacitate an individual, enabling officers to restrain them and consequently prevent any or any further actions that may lead to the injury of the individual or others. Neuromuscular incapacitation makes the TASER unique in comparison to other less-lethal use of force tactics/tools since there is no other option that provides this tactical benefit.

In addition to full deployment mode, the other two primary modes of a TASER that officers are trained in and use in the field:

1. Drive-stun: this means that when the CEW is placed in direct contact with the subject and the electrical current is applied. A drive-stun application can serve two different purposes.
 - a. First, where an officer is in close quarters with a subject and has an ineffective probe connection (i.e. where one probe has made connection with the subject and the second has not). If the subject is close enough to the officer, the officer may use the CEW itself to make a connection that may result in the subject becoming incapacitated with the connection between the CEW itself and the probe.
 - b. The second type of drive-stun is where the officer uses the CEW to touch the subject in Arc Mode, with or without probes. There is no incapacitation in this case and the CEW becomes a pain compliance tool.
2. Demonstrated Force Presence: this means that the CEW is un-holstered and displayed in the presence of a subject with the intention of achieving behaviour compliance without using the device.

Understanding the difference between a stun-gun and a TASER as well as the primary modes of a TASER is important as these will be referred to throughout the review. For this review, "CEW" will be used to refer to a TASER to align with provincial legislation in Ontario.

History of CEW Use by the Toronto Police Service

The Toronto Police Service (TPS) started using CEWs in 2002. Primary approval by the Ministry of Community Safety and Correctional Services was for tactical and hostage rescue teams only. In 2004, the Ministry expanded the use of CEWs to include preliminary perimeter control and containment teams as well as frontline supervisors. This expansion was undertaken on the premise that it improved public safety by providing a less lethal force option for officers in high-risk situations. As stated in the RFP, further expansion of CEWs to Primary Response Unit sergeants was introduced in 2006 after a successful pilot project demonstrated that the TPS had developed and implemented:

- Clear policies and procedures.
- Comprehensive training.
- Appropriate reporting structures

In February of 2018 the Toronto Police Service Board (TPSB) approved the use of CEWs by Primary Response Unit constables. This expansion was a part of the strategy to reach the “zero public deaths” goal. In 2019 the less lethal incident response option was incorporated into the In-Service Training Program (ISTP) and was also added as a mandatory component in recruit training.

As part of the preparation for the expanded use of CEWs in 2018, the TPS introduced an expanded frontline officer training program for CEWs that involves 16 hours of study and scenario-based exercises with four of sixteen total hours dedicated to decision-making regarding the use of CEWS. The course is designed to ensure the responsible use of CEWs. Its guiding principles include (2017):

- “The decision to use force is the fundamental decision to be made before deciding what force option to use.
- CEWs should be used as a weapon of need, not a tool of convenience.
- Officers should not over-rely on CEWs in situations where more effective and less risky alternatives are available.
- CEWs are just one of several tools that police have available and are considered as only one part of the Service’s overall use of force response” (p.11).

To ensure the lawful and effective use of CEWs, the TPS has implemented the following policies and procedures (2017):

- Procedure 15-09 establishes when officers can and cannot use a use of force tool as well as how it is to be used if required.
- The UFR – CEW report must be completed and submitted by an officer when a CEW is used against a citizen, explaining its use.
- A two-part review of the completed report is conducted by the officer’s supervisor to identify potential breaches or concerns regarding the law, policy, procedures and/or training. Subsequently, a Use of Force Analyst reviews and records the report to identify trends, issues or opportunities that may be incorporated in policy, procedure, and/or training development.
- Daily testing of and regular inspections of CEWs in accordance with the manufacture’s requirements.
- Regular download and audit of CEW data to confirm use and condition (p.12).

Additionally, the TPS submits quarterly and annual reports to the TPSB that describes the use of the CEW as well as the circumstances of use and on whom it was used.

Finally, it is important to note that there is an ongoing review of the Ontario Use of Force Model by the Ministry of the Solicitor General as well as efforts to review and update the Canadian Association of Chiefs of Police National Use of Force Model. There have been no updates or re-issuing of the provincial or national use of force model at the time of this review.

Reports, Papers, and Inquiries into the Use of CEWs by the Toronto Police Service

Throughout its history with CEWs, the TPS has utilized its own research as well as independent review and inquest findings to guide its policies, procedures, safety paradigm and training program. The table below provides the publication year, title, and summary of the major findings and/or recommendations regarding the use of CEWs by the TPS.

Table 1: Summary Table of Significant Reports Papers, and Inquiries into the use of CEWs by the Toronto Police Service

Year of Publication	Document Title	Key Findings/Recommendations
2009	Review of Conducted Energy Weapon Use in Ontario: Report of the Policing Standards Advisory Committee	<p>The report by the Ministry of Community Safety and Correctional Services (2009) states:</p> <ol style="list-style-type: none"> 1. The ministry, in consultation with policing partners, should establish training standards for users and instructors including requalification requirements. 2. The ministry should amend the current provincial Use of Force Guideline to include policy and procedural guidance to police services on CEWs in consultation with policing partners. Areas to be examined should include: <ul style="list-style-type: none"> • Deployment/tactical considerations • Restrictions on use • Post-deployment procedures • Reporting and accountability • Equipment control 3. The ministry should undertake further analysis and consultation with policing partners in relation to the members of police services who should be authorized to use CEWs. 4. The ministry should consult further with policing partners on the types of circumstances in which a CEW may be used, consistent with the Ontario use of force model. 5. The ministry, in consultation with policing partners, and in keeping with the original objectives of the form, should revise the Form 1 Use of Force Report to capture the most current and appropriate use of force information, including CEW use. 6. The ministry should prepare and disseminate communications material to assist in informing the public about the risks and benefits of CEW use (p. 25).

Year of Publication	Document Title	Key Findings/Recommendations
2014	Police Encounters with People in Crisis – An Independent Review Conducted by the Honorable Frank Iacobucci	<p>The mandate of the report, “was to conduct an independent review of the policies, practices, and procedures of, and the services provided by, the TPS with respect to the use of lethal force or potentially lethal force, in particular in connection with encounters with persons who are or may be emotionally disturbed, mentally disturbed or cognitively impaired” (p.14)</p> <p>Recommendations were made specific to the use of CEWs that focused on further investigation of medical effects and expansion of use, data collection, reporting and accountability, as well as training provided to police service members.</p> <p>All 16 recommendations applicable to the use of CEWs may be found in Appendix A.</p>
2015	JKE Inquest	<p>The scope of the inquest included an investigation into the deaths of Reyal Jardine-Douglas, Sylvia Klibingaitis and Michael Eligon. All three individuals were diagnosed with severe mental illness and were shot by police under similar circumstances.</p> <p>In total there were 74 recommendations. The most relevant recommendations are provided in Appendix B.</p>
2016	A Matter of Life and Death: An Investigation into the direction provided by the Ministry of Community Safety and Correctional Services to Ontario’s Police Services for De-escalation of Conflict Situations	<p>In addition to the recommendations noted below, some notable findings of the report include:</p> <ul style="list-style-type: none"> • At 12 weeks, the basic training course provided to new recruits in Ontario was noted as being short compared to other major municipal police services in Canada. • There is no clear definition of “de-escalation” within the existing Ontario Use of Force Model nor an emphasis on using this approach. • No consistent training is delivered by police services across Ontario or monitoring of the effectiveness of the training delivered. <p>All 22 recommendations are included in Appendix C.</p>
2017	Achieving Zero Harm/Zero Death – An Examination of Less-Lethal Force Options, including the Possible Expansion of Conducted Energy Weapons (CEWs) – Toronto Police Services Board	<p>The report states (2017):</p> <ul style="list-style-type: none"> • Expand the deployment of CEWs to on-duty Primary Response Unit constables and to on-duty constables from designated specialized units. • CEWs have been used by the TPS since 2002 and the record of its use demonstrates good judgement by officers, using the tool when reasonably necessary.

Year of Publication	Document Title	Key Findings/Recommendations
2017	Andrew Loku Inquest	<ul style="list-style-type: none"> • The TPS has increased de-escalation training, and CEW training, and using other less lethal use of force options (e.g. Extended Range Weapon and shields). • The TPS believes that with proper policy, procedures, training, and accountability, CEWs can help maintain public order, officer safety, and assist in achieving the goal of zero harm/zero death (p.13). <p>Andrew Loku was shot and killed by the TPS in July of 2015. Andrew was a tenant in CMHA Toronto’s Supportive Housing at the time. The inquest recommended that the TPS (2015):</p> <ul style="list-style-type: none"> • Fund and continue to study the use and deployment of less-lethal use of force options such as, the CEW, SOCK rounds and the use of defensive equipment such as helmets and shields and to study the expanded use and deployment and related training on less-lethal use of force options to front-line officers as well as specialized teams. • Ensure that all front-line or “primary response” officers are trained and equipped with conductive energy weapons (p.4). <p>All 39 recommendations are included in Appendix D.</p>

The TPS has requested additional CEWs from the TPSB to expand the use of the device to on-duty constables from the Primary Response Unit and other specialized units. To this end, the TPS has noted that records of CEW use show that officers are using the device in accordance with the Ontario Use of Force Model and internal training and policies/procedures. Furthermore, the Ministry of Community Safety and Correctional Services has approved the expanded use and several Coroner’s juries in Ontario have recommended its expanded deployment. Medical research has found no consistent negative impacts on physical and mental health and fatalities are extremely rare for incidents involving CEWs. Finally, the TPS has increased de-escalation training for officers and has implemented proper policy, procedures, and training ensuring accountability and transparency. However, external groups and individuals have expressed concerns about TPS use of force amongst marginalized populations. This review will provide an independent and objective perspective to help inform decision makers regarding the current and expanded use of CEWs by the TPS.

Methodology and Approach

A mixed methodological approach using both quantitative and qualitative data has been utilized to ensure that the findings of the study are based on multiple lines of evidence. With support and approval by the TPS, internal and external data sources were identified regarding operational, organizational, and strategic information and subsequently collected, consolidated, and analyzed by the MNP team.

Data Request

The following list encompasses the information collected and analyzed to inform this review from the TPS and TPSB:

- Annual CEW Use of Force reports from 2010 to 2019
- Annual Corporate Risk Management Reports from 2015 to 2019
- Annual Less Lethal Deployments 2016 to 2019
- Toronto Police Service and Toronto Police Service Board
 - TPSB Rule 4.4 Use of Force
 - TPS Procedure 13-02 Uniform External Complaint Intake/Management
 - TPS Procedure 15-01 Use of Force
 - TPS Procedure 15-06 Less Lethal Shotgun
 - TPS Procedure 15-09 Conducted Energy Weapon
 - TPS Procedure 15-20 Body Worn Camera
 - TPS Procedure 15 Injury/Illness Report
 - TPS 584 Conducted Energy Weapon Use Report
- Conducted Energy Weapon X2™ User Course Manual
- Divisional Crisis Support Officer Safety: High Risk Incident Response and Situational Awareness Manual
- Feasibility Study: Use of Shields (Plexi-glass) by Priority Response Unit Officers
- Previously completed evaluation by the TPS on Use of Force and CEWs – 2006 pilot involving Division 31, 42, and 53)

Internal and External Stakeholder Interviews and Focus Groups

Thirty individual/group interviews were completed with TPS and external stakeholders (Table 2). The stakeholder groups consulted were approved by the TPS. Interviews were conducted between March 15th, 2021 and April 7th, 2021.

To request and verify participation for this review, all potential participants were individually contacted by MNP via email. A standardized script was utilized by MNP to inform potential participants about the purpose of this study, why they were being contacted, and what their participation would entail. Furthermore, all potential participants were informed that their responses would be provided in aggregate and that participation in the study was voluntary.

All interviews were conducted by video conference without the use of voice recordings. Interviewers used password-protected laptops to capture input from participants with their consent. Interview notes were subsequently uploaded to the secure client file on an MNP server in Winnipeg. All interviews were semi-structured and three separate interview guides were utilized based on the position and expertise of the stakeholders interviewed (Appendix E).

Table 2: Stakeholder Group and Department/Position Title

Stakeholder Group	Department/Position Title
Toronto Police Service	Use of Force Analyst Primary Response Unit – Supervisor and Constable Emergency Response Unit – Tactical Operations Supervisors Professional Standards Unit Audit Unit Governance Review Unit Tactical College Office of the Chief
Toronto Police College	Program Co-Ordinator Master Trainers Use of Force Review Project Team
Special Investigations Unit	Toronto Police Service and Civilian Representative
Toronto Police Service Board	Staff Member
Experts from Other Jurisdictions	Raptor Protection Services – Executive Director
Other Jurisdictional Police Services	Peel Regional Police Service York Regional Police Service Durham Regional Police Service Halton Regional Police Service Ottawa Police Service Calgary Police Service Royal Canadian Mounted Police
Solicitor General	Public Safety Division
Mental Health and Addiction Panel	Panel Co-Chairs
Ontario Association of Chiefs of Police	Executive Director
Canadian Association of Chief’s of Police	Use of Force Committee Co-Chair
Office of Chief Coroner	Representative from the Provincial Forensic Pathology Unit
Police Associations	Toronto Police Association Toronto Police Service Senior Officer Association
Toronto Community Housing	Internal Training Representative
Axon Enterprise Inc.	Principal of TASERs

Data Analysis

Triangulation of multiple types of data collected for this study ensures findings and recommendations are based on multiple streams of evidence. Data from interviews were analyzed for recurring and unique comments to identify patterns and to construct themes that illuminate central concepts/experiences. Interview notes were not analyzed using data analysis software (e.g. Nvivo), as the volume of data collected did not warrant its use. All reports and other secondary data sources were also analyzed to identify patterns and construct themes illuminating central concepts/experiences.

Data Limitations

Statistics for the use of CEWs were sought out from the United States, United Kingdom, Australia, and New Zealand. These specific jurisdictions are a standard for benchmarking policing in Canada due to similar legal systems, the structure of police services, and societies at large. Information regarding the use of CEWs in the United Kingdom and New Zealand has been sourced from annual reports available on federal government websites as well as the police service website. For clarification, the New Zealand Police Service is a federal service with jurisdiction across the entire country similar to the Royal Canadian Mounted Police (RCMP). The United Kingdom data utilized for this study is representative 43 police services funded by the Home Office across England and Wales. No current and consistent information regarding CEW use from police services in Australia could be found. However, CEW policies were found for the Queensland Police Service and New South Wales Police Force in Australia and both are included in the safety best practices section of this report.

Due to a lack of publicly available information regarding the use of CEWs in the United States, three police departments were selected from the United States. Specifically, the Chicago Police Department, the Los Angeles Police Department, and the New York Police Department. The Chicago Police Department was selected due to its similar population, police service and geographic size compared to Toronto. Additionally, the Chicago Police Department has a publicly available use of force dashboard that is updated monthly. However, the New York Police Department provides more comprehensive information regarding CEW use than the Chicago Police Department. Therefore, New York was added to assist in providing specific CEW use in a major US city because of the lack of CEW-specific data from Chicago. Similarly, the Los Angeles Police Department has been included due to the level of detail provided regarding the use of CEWs. Finally, the Royal Canadian Mounted Police (RCMP) has also been included in the report as a National comparator due to its size and to the level of detail collected by the service regarding use of force.

Identifying consistent and comparable data regarding CEW use and use of force statistics in general inside and outside of Canada is difficult. There are varying definitions of use of force, differing use of force models utilized by police services, and widely varying reporting requirements and data collection policies/procedures. For example, the Chicago Police Department only reports on firearm use by service members when an officer discharges the weapon, while the TPS records every time a firearm is drawn and not pointed at someone, drawn and pointed at someone, as well as discharged. As a result, the Chicago Police Department reported 24 “uses of a firearm” in 2019 compared to 1,268 “firearm uses” by the TPS in 2019. The TPS discharged a firearm 21 times in 2019 –comparable to the Chicago Police

Department. Therefore, great care and attention are required when comparing any use of force statistics across police services.

Stakeholders are aware of these challenges. There is a general acknowledgement that standardized definitions, data collection, data analytics and reporting would be of tremendous value. However, there is also a recognition that police services are governed by independent governance mechanisms, each with a specific mandate and an overarching strategic plan. It is acknowledged that the level of effort required to have only a few police services reach a standardized logic model and output and outcome measurements is daunting, even if those services operate in the same jurisdiction, let alone in different countries.

Adding to the complexity of comparisons for CEWs is that information regarding how many officers are trained to use CEWs as well as how many devices have been issued to officers is not always available publicly. This makes it difficult to provide comparators at a “per officer” level. Therefore, data presented within the benchmarking section of the report needs to be interpreted cautiously by the reader using the applicable caveats noted within each section.

Statistical Prevalence of Police Use of Force

One note to consider before reading the following subsections is that use of force incidents involving the police and citizens are the exception and not the rule. For instance, between 2010 and 2019 a total of 0.09% of police/citizen interactions involved the use of force by an RCMP officer or one out of 1,067 occurrences (RCMP, 2020). These findings are similar to information prepared for the Canadian Association of Chiefs of Police involving eight police services in Canada that showed a use of force rate range of 0.02% to 0.25% (Walker & Bennell, 2020).

While this does not minimize the significance of use of force by the police, these numbers demonstrate that use of force by police represents a small portion of their overall interactions.

Global Benchmarking

The objective of this section is to compare the use of CEWs by TPS officers to other police services. Police services from the United States, United Kingdom, and New Zealand have been selected with input and consultation with the TPS for comparison due to similar legal systems, societies, and formal partnerships/training relationships. The RCMP has also been included as a national comparator.

There is no standard definition regarding the use of force across jurisdictions. Furthermore, there is no standard for recording and publicly reporting on the use of CEWs or other forms of force by police services internationally. Consequently, the richness of information regarding the use of CEWs varies from jurisdiction to jurisdiction and limits the ability to compare findings of other jurisdictions to the TPS. With that said, TPS was able to be compared, at least to some degree, to the benchmark police services regarding:

1. CEW frequency and type of use
2. Subject behaviour/condition when a CEW was used
3. CEW injuries and death
4. CEW use compared to other use of force tactics/tools
5. Effectiveness of CEW use

These five topics have been identified for comparison after careful consideration of the publicly available data, input from key stakeholders, and prominent topics regarding CEWs based on the secondary research completed for this review.

To organize the collected and analyzed information, all five topics will be discussed using the following subsections:

- Use of Force Experts: this subsection includes aggregate and/or unique perceptions collected from use of force experts that were consulted for this review. These use of force experts have both work experience as well as professional certifications in police use of force tactics/tools.
- Key Stakeholders: this subsection includes aggregate and/or unique perceptions collected from all key stakeholders that are not use of force experts that were consulted for this review. For example, key stakeholders included representatives from provincial ministries/departments and community-based organizations.
- Primary and Secondary Research: this subsection includes information collected from the TPS as well as through academic and publicly available government research.
- Benchmarking: this subsection includes applicable information from other police services involved in this review that include:
 - RCMP
 - New York Police Department
 - Los Angeles Police Department
 - Chicago Police Department
 - New Zealand Police Service
 - England and Wales Police Services

Due to a lack of national and internal standards regarding the monitoring and reporting practices of use of force information including CEW use; not all police services are included within each benchmarking section. To help with clarity, each benchmarking subsection includes a description of which police services were included for comparison and which ones were not. Furthermore, limitations or caveats regarding comparisons between police services will be noted.

- Summary: this subsection will include key findings and takeaways from the stakeholder input, research, and benchmarking subsections.

Frequency and Type of Use

Due to a lack of national and international standards, the ability to compare the total use of CEWs and the type of use is limited. Specifically, only three of the six other police services included in this review collect information regarding the presentation of a CEW. Additionally, there is inconsistent and limited information regarding the number of officers trained in using a CEW as well as the availability of CEWs to calculate the use of CEWs on a per officer basis for comparison. However, the frequency of CEW use over time will be examined inclusive of these noted limitations. Additionally, the types of use will be compared between the TPS, RCMP, New Zealand, as well as the England and Wales Police Services using comparable information that is publicly available.

Use of Force Experts

All use of force experts indicated that officers from their respective jurisdictions, including Toronto, are using the device appropriately and in accordance with the circumstances of the incidents police encounter while on duty. These experts indicated that TPS officers are using the CEW in accordance with their training, the Ontario Use of Force Model, and TPS policies and procedures. The relatively limited number of public complaints and misconduct files were cited by use of force experts to support their perception that CEWs are being used appropriately.

Some use of force experts indicated CEWs could be utilized more by police based on the lower injury rates of the CEW in comparison to other use of force options and ability to gain compliance simply by presenting the device. However, the majority of use of force experts perceived the CEW to be situated correctly on the Use of Force Model of their respective jurisdictions and is being utilized in the proper situations with actively resistant and/or assaultive subjects.

Finally, the majority of use of force experts perceived that drive-stun mode is utilized in limited scenarios by officers on duty. Training involving drive-stun primarily focuses on completing a three-point contact in close quarters by an officer to complete the connection if only one of two probes connect to achieve neuromuscular incapacitation. With that said, most of the use of force experts perceived that in the majority of instances, simply presenting the CEW is enough to gain the compliance of a subject and does not require the actual full deployment of the device. To this point, there is a perception that most uses of a CEW are a demonstration of force.

Key Stakeholders

Most stakeholders that were consulted for this project perceived that the officers from the TPS are utilizing CEWs appropriately and not overly using the device or misusing the device. However, a few stakeholders perceived that CEWs are being utilized by the TPS more than the circumstances of incidents would justify. The degree or the frequency of the perceived overuse by these stakeholders were not specifically identified but these stakeholders perceived that TPS officers may be utilizing CEWs rather than using de-escalation techniques. These stakeholders expressed the view that when officers are equipped with a CEW, then there is a risk that they will use the tool to expeditiously handle the incident as opposed to taking their time to de-escalate the situation. Furthermore, these stakeholders perceived that the frequency and type of use for CEWs and use of force tactics/tools, in general, will differ based on officer characteristics such as experience and gender.

Primary and Secondary Research

Research into police use of force and the factors that are most likely to increase its likelihood include variables such as:

- The subject's age, socioeconomic status, ethnicity, criminal record, if the subject is intoxicated or not, if the subject is experiencing a mental health crisis, behaviour during the time of arrest, or being disrespectful to police officers
- Presence of bystanders
- Neighbourhood/community characteristics
- Police officer characteristics including gender, age, experience, ethnicity, education level

Research findings concerning police officer characteristics that are associated with a higher likelihood of using force are mixed. For example, some studies have found that there is no statistically significant difference between male and female officers regarding use of force (Hoffman and Hickey, 2005). Other research has found that female officers are less likely to use force than male officers (Schuck and Rabe-Hemp, 2005). Similarly, the age and experience of an officer has had mixed results regarding use of force. Some studies have found that younger officers with less experience are more likely to use force than their more experienced colleagues (Terrill and Mastrofski, 2002; Wortley, Lanionu, and Laming, 2020). Other studies have found that more experienced and older police officers are more likely to use less-lethal use of force tactics/tools (Klahm & Tillyer, 2010). However, after controlling for rank and type of assignment, the experience of the officer is not significantly correlated with use of force (Lawton, 2007). Essentially, the use of force by an officer has more to do with the area that police officers are patrolling than with their age and experience. (Lawton, 2007). Further to the significance of the area police patrol, one study has found that Black officers are more likely than white officers to shoot Black individuals (Menifield et al. 2019). One possible explanation that was provided is that Black officers are more likely to patrol high-crime neighbourhoods that are disproportionately Black and have a disproportionately higher use of force incidents (Wortley, Lanionu, and Laming, 2020). Finally, there is some limited research to suggest that officers with post-secondary education are less likely to use force compared to officers with a high-school education (Paoline & Terrill, 2007; Rydberg and Terrill, 2010).

Additionally, research has found a relationship between training and policy and the frequency of use by officers as well as complaints by citizens. For example, 8,480 Chicago Police Department officers were trained to adopt procedural justice policing communication tactics. Essentially, procedural justice policing emphasizes active listening between police and citizens that reinforces treating everyone with dignity courtesy and respect and involves hearing what an individual is saying as well as explaining to individuals police policies and procedures to explain why the officer is doing or needs to perform particular actions. Procedural justice has been a tactic developed to improve police legitimacy and cooperation amongst citizens. Once trained in procedural justice tactics, the Chicago Police Department had a 10% reduction in public complaints and a 6% reduction in use of force incidents over a two-year period (Wood, Tyler, and Papachristos, 2020). Another study, specific to the use of CEWs, found that the limitations placed on the use of the device, e.g. cannot be used on an individual that is running away from officers, will decrease the use of the device overall (Bishopp, Klinger, & Morris, 2014). Unfortunately, there is only limited research into policy changes and non-lethal use of force tactics/tools. Most of the research related to policy and use of force is focused on firearm use.

Overall, the frequency of the use of force is influenced by a variety of factors associated with individuals, police officers, community characteristics, as well as training and existing policies for police.

Benchmarking

There are no national or international standards regarding the monitoring and analysis of CEW use by police or use of force tactics/tools use in general. However, the TPS recently completed an international review of CEW reporting practices in 2020 for the following thirteen services (TPS, 2019):

- Chicago Police Department
- Durham Regional Police Service
- Edmonton Police Service
- Houston Police Department
- Los Angeles Police Department
- Service de Police de la Ville de Montréal
- New York Police Department
- Peel Regional Police Service
- Royal Canadian Mounted Police (British Columbia only),
- Metropolitan Police (The MET)
- Vancouver Police Service
- York Regional Police
- Calgary Police Service

The review found that no other police service produces stand-alone statistical reports for CEW use. Generally, CEW use is contained within annual statistical reports produced by the respective services. The frequency of reporting use of force statistics ranged from quarterly to not providing the public available information, with the majority of the 13 police services producing annual reports only. The type of CEW use data collected by these 13 services ranged from no publicly available information to in-depth information reported by the RCMP on the types of CEW uses, the behaviour of subjects, and injuries. The TPS provides quarterly reports regarding the use of CEWs and includes the most robust information of the comparator services regarding use, subject behaviour, types of incidence used, and injuries.

Similar results were found in reference to the police services selected as comparators for this review. Specifically, the New Zealand Police Service, Los Angeles Police Department, and Royal Canadian Mounted Police provide use of force information annually, while the consolidated England and Wales Police Services and the New York Police Department provide quarterly reports. Finally, the Chicago Police Department is the only police service that has a publicly available dashboard that includes monthly

updates. However, the monthly updates by the Chicago Police Department are limited to frequency counts of CEWs by district without providing specific information pertaining to the type of incident, the subject’s behaviour, injury information, or the outcome of the incident. Of all the police services included in this review, the Toronto Police Service included the most in-depth information regarding CEWs the most frequently.

Table 3 provides a summary of how CEW use is tracked for each of the other six police services in addition to the TPS. Appendix F provides a definition of each type of CEW use outlined in Table 3 as well as the respective criteria for when officers are allowed to use a CEW.

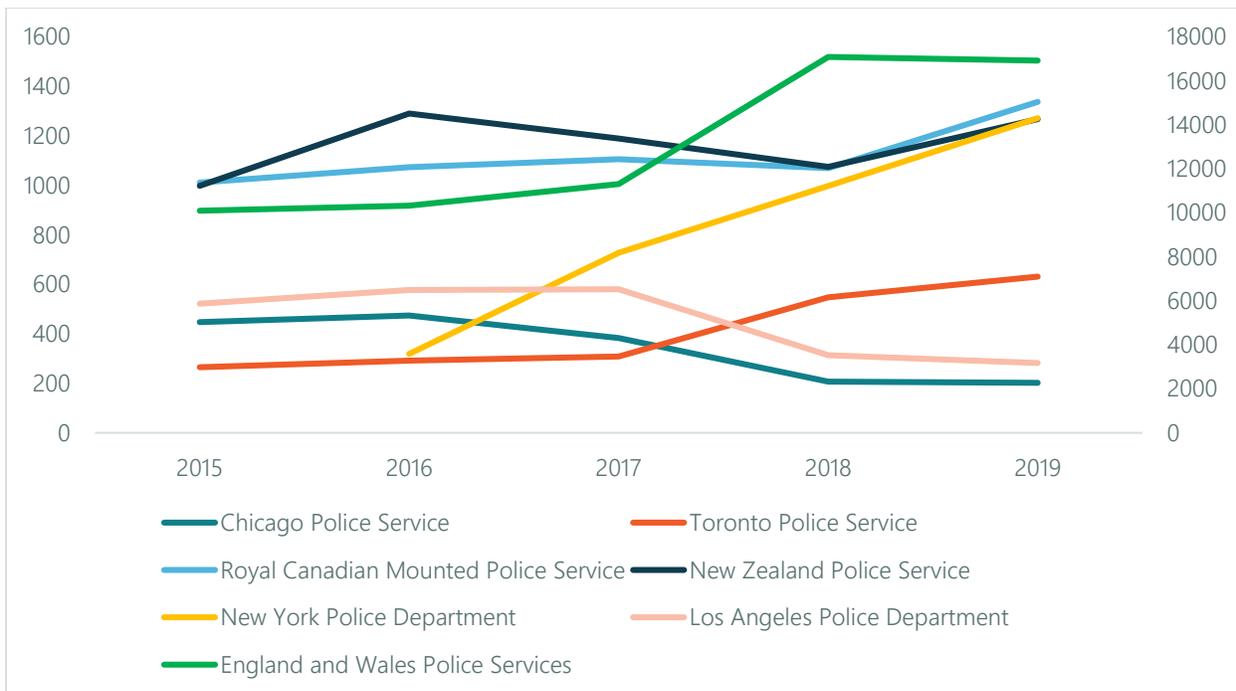
Table 3: Summary Table of CEW Type of Use Data Tracked by Police Service

Chicago Police Department	Los Angeles Police Department	New York Police Department	Toronto Police Service	New Zealand Police Service	Royal Canadian Mounted Police Service	England and Wales Police Services
<ul style="list-style-type: none"> ✓ Field deployment of a CEW 	<ul style="list-style-type: none"> ✓ Activated a CEW 	<ul style="list-style-type: none"> ✓ Probe Mode ✓ Drive-stun 	<ul style="list-style-type: none"> ✓ Full deployment ✓ Drive-stun ✓ Demonstrated force presence 	<ul style="list-style-type: none"> ✓ Discharge ✓ Contact-stun ✓ Follow up contact-stun ✓ Arching ✓ Laser painting ✓ Presentation 	<ul style="list-style-type: none"> ✓ Probe deployed ✓ Contact mode deployed ✓ Spark display activated ✓ Laser sight activated ✓ Pointed at subject ✓ Draw and display 	<ul style="list-style-type: none"> ✓ Fired ✓ Angle-driven stun ✓ Drive-stun ✓ Red-dot ✓ Arching ✓ Aimed ✓ Drawn

For comparison purposes, Figure 1 provides the total annual number of CEW uses inclusive of all types reported by each respective police service. Please note that Figure 1 presents CEW use on two axes because the total annual number of uses amongst England and Wales Police Services is significantly higher than the other four police services. There was little to no information regarding the number of officers trained in CEWs use, the total number of CEWs each respective service has, and the total number of officers for each respective service. Consequently, comparing the frequency of use on a per-officer basis was not viable.

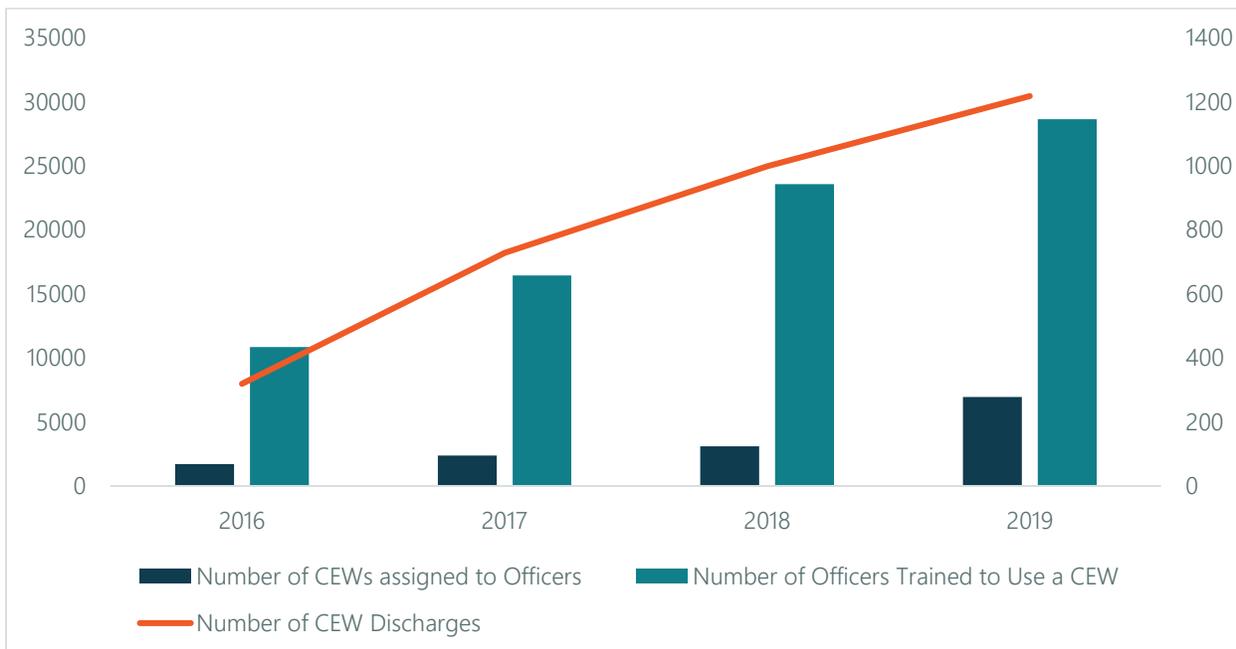
Among the police services involved in this review, CEW use has increased over time except for the Chicago and Los Angeles Police Departments. In general, the increasing use of CEWs by a police service is attributed to the increasing volume of CEW-trained officers as well as available CEWs. For example, the New York Police Department had an increasing number of CEW discharges in conjunction with an increasing number of officers trained to use the device and an increasing number of the devices available (Figure 2).

Figure 1*: Total Annual CEW Use Between 2015 and 2019 by Police Service



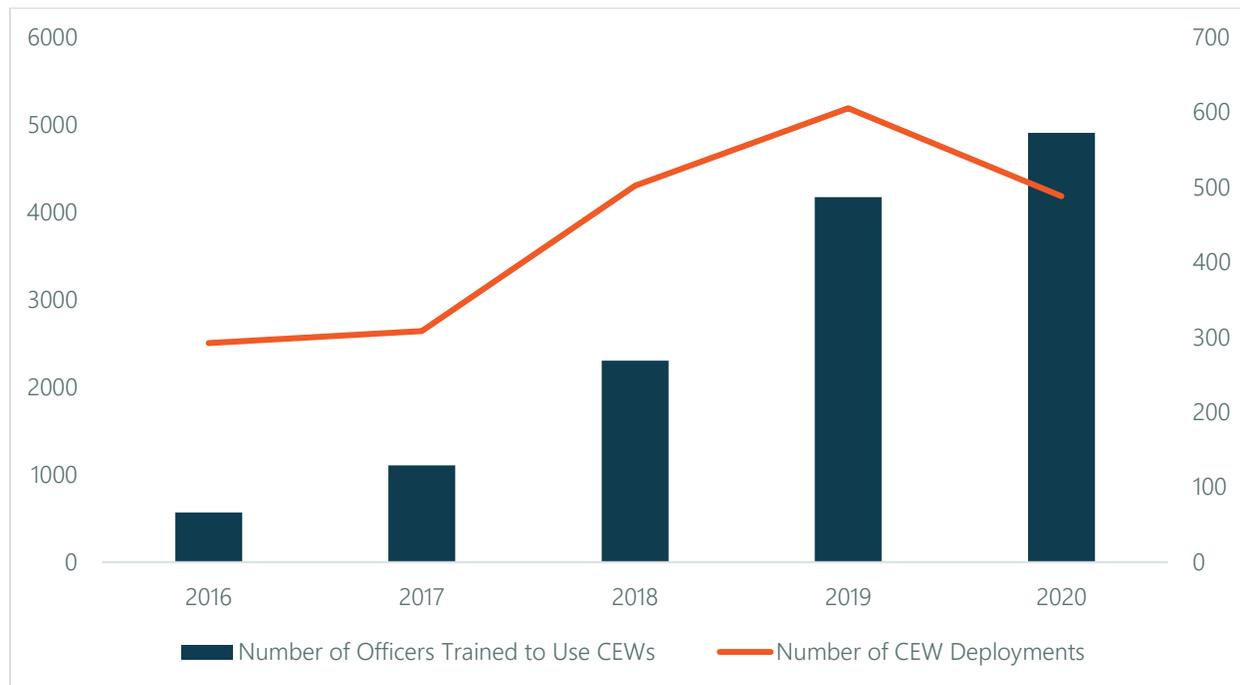
*The TPS provided CEWs as shared assets to constables in the Primary Response Unit in 2018. The increase in England and Wales Police Services in 2018 is attributed to a change in how CEW use was recorded.

Figure 2: New York Police Department Number of Officer Trained in CEWs, Available CEWs, and CEW Discharges Between 2016 and 2019



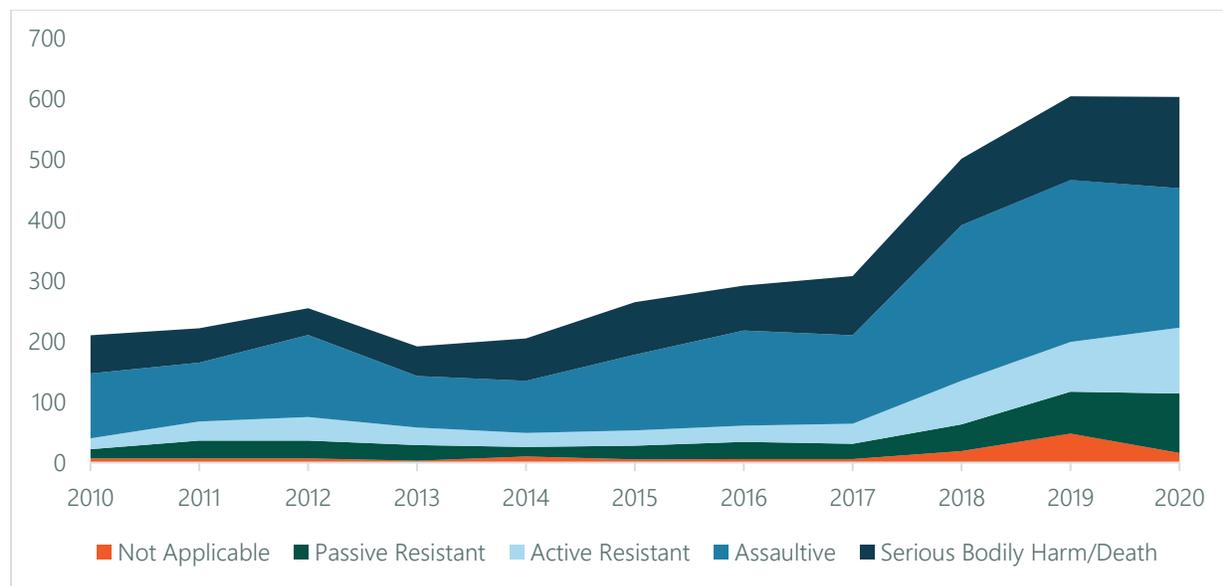
Similarly, the increasing use of CEWs by the TPS is aligned with the increasing number of officers trained to use the device (Figure 3). It is important to note that frontline officers were assigned CEWs as a shared asset in February of 2018. Also, the number of incidents that a CEW was used in by officers has decreased from 2019 to 2020. Acknowledging that this is a single-year decrease, this result may speak to other results within this report indicating that more devices and officers have led to more uses even though officers are only allowed to utilize the device when an individual is exhibiting assaultive behaviour. Therefore, the use of the CEW by officers is not explained exclusively by the availability of the device, policy and subject behaviour also dictate use.

Figure 3: Toronto Police Service Number of Officer Trained in CEWs, Available CEWs, and CEW Discharges Between 2016 and 2020



To elaborate on this point, the available information from the TPS annual CEW use reports speaks to the number of times a CEW has been utilized by the TPS being aligned with the increasing number of subjects exhibiting behaviours defined as assaultive and causing serious bodily harm (Figure 4). Furthermore, the 2019 and 2020 reports also indicate that de-escalation was utilized by officers in 97.3% and 97.8% of incidents involving a CEW respectively. These findings suggest that TPS members are using the CEW appropriately in accordance with the circumstances of the incidents that they are encountering while on duty as well as still utilizing de-escalation techniques.

Figure 4: CEW Use by TPS per Type of Subject Behaviour Between 2010 and 2020



Only three of the six police services included in this review for comparison recorded a presentation of force as well as full deployment and drive-stun modes. Even looking to other police services not included in this review, there was no other service identified that provided the level of depth regarding the type of CEW use as the TPS, RCMP, New Zealand Police Service and the England and Wales Police Services.

Table 4 shows that a CEW is most likely to be utilized as a presentation of force, while they are least likely to be utilized in drive-stun mode. However, the TPS and RCMP use the CEW proportionately less often as a presentation of force than New Zealand and England and Wales. These results suggest that the TPS and RCMP are more likely to use the full deployment and drive-stun mode once the CEW is presented. However, there is not sufficient data available to explain these differences.

Table 4: Average Annual CEW Use by Type per Police Service Between 2016 and 2019

	Toronto Police Service	Royal Canadian Mounted Police Service	New Zealand Police Service	England and Wales Police Services
Presentation of CEW	208 (62%)	553 (60%)	851 (85%)	8281 (82%)
Full Deployment	105 (31%)	308 (33%)	142 (14%)	1573 (16%)
Drive-Stun	24 (7%)	67 (7%)	9 (1%)	215 (2%)
Total	337	928	1002	10,068

With that said, the threshold for using a CEW is higher for the RCMP, TPS, New Zealand and the England and Wales Police Services compared to the New York and Chicago Police Departments. Specifically, the New York and Chicago Police Departments are able to utilize a CEW for actively resistant subjects, while the RCMP, TPS, New Zealand as well as the England and Wales Police Services are only allowed to utilize a CEW for assaultive subjects or subjects that pose an imminent threat of physical harm to the officer, themselves, or a third party (Appendix F). The Los Angeles Police Department indicates that officers are

allowed to use a CEW when the subject is violently resisting arrest, which suggests a higher threshold than the New York and Chicago Police Department. However, no specific definition is provided within the policy regarding what is defined as violent and consequently no determination can be made. With that said, these comparisons show that the TPS have a similar or higher threshold for use of the CEW compared to other police services included in this review.

Summary

The data collected for this review shows that CEW has generally increased over time. The TPS have had an increasing volume of CEW uses between 2015 and 2019. The device has become more available and more officers are trained to use the device. However, data provided by the TPS also shows that officers are utilizing CEWs on subjects that are exhibiting assaultive behaviour or behaviour associated with serious bodily harm, which is the threshold to utilize the device based on the Ontario Use of Force Model. These results are aligned with the perception by use of force experts and most stakeholders that the TPS is utilizing CEWs in accordance with the circumstances that they encounter while on duty.

Some stakeholders are concerned that TPS officers are using the CEW as an alternative to de-escalation techniques. However, since the use of de-escalation started being recorded by the TPS in 2019, de-escalation techniques are being utilized in 97% of all incidents involving a TPS member's use of a CEW. In other words, TPS is not using the CEW as an alternative to techniques meant to mitigate the volatility of an incident. Additionally, some stakeholders perceive CEW use will vary depending on the characteristics of the officer. However, research regarding factors that are associated with a higher likelihood of an officer using force, including the use of a CEW is mixed. Furthermore, there is limited research pertaining to the impact of policy changes and non-lethal use of force tactics/tools as most of the research on police use of force is focused on firearm use. As a result, it is unclear which factors are more likely to increase the use of force by police in comparison to others.

Finally, all police services that track the presentation of force, full deployment, and drive-stun mode show that CEWs are primarily being utilized as a presentation of force. However, there is a difference in the proportion of instances that TPS and the RCMP utilize the CEW as a presentation of force compared to the New Zealand as well as the England and Wales Police Services. The discrepancy between services does not appear to be explained by differing use of force model requirements, although there is limited data available to explain these differences. With that said, the TPS, RCMP, New Zealand Police Service as well as the England and Wales Police Services have a higher threshold to justify the use of a CEW in comparison to the New York, Chicago, and Los Angeles Police Departments. In conclusion, there is no definitive placement of a CEW on a police services Use of Force model, although most of the use of force experts that were consulted for this review indicated that the CEW is in the appropriate place on the Ontario Use of Force model.

Subject Demographic and Behaviour

The section below examines the characteristics of subjects that represent the majority of incidents involving police use of force in general and specifically for CEWs based on the primary and secondary research and data analysis. Demographic information pertaining to sex, age, and ethnicity is discussed in

addition to the subject being in possession of a weapon, as well as the subject's condition (e.g. under the influence of a substance or experiencing a mental health crisis).

Use of Force Experts

Most use of force experts believe that the CEW in full deployment mode is particularly useful in situations involving a subject that is armed with an edged or blunt weapon. An armed subject poses a unique risk to officers and they perceive there is great benefit in being able to address the risk from a distance by means of neuromuscular incapacitation. There is no other use of force tactic/tool available to officers that can achieve this goal.

Key Stakeholders

In general, most stakeholders did not mention any issues regarding with whom the TPS were utilizing CEWs. For example, most stakeholders did not mention or perceive that CEWs are being disproportionately utilized on youth, women, particular ethnicities or individuals experiencing a mental health crisis.

However, some stakeholders indicated that they perceived the TPS are utilizing CEWs disproportionately on individuals from marginalized populations. Specifically, these stakeholders referenced implicit bias and studies that have found that individuals are more likely to perceive the same behaviour as threatening when presented by an individual that is a different race than them. Additionally, some stakeholders believe that CEWs are most frequently utilized on individuals experiencing a mental health crisis and that a police officer may be negatively influencing the behaviour of individuals experiencing a mental health crisis by presenting the CEW.

Primary and Secondary Research

Research regarding subject behaviour influencing the use of force has shown that CEWs are more likely to be used on subjects who are violent/armed, suffering from a mental health crisis, and male (Dymond, 2020). White et al. (2012) found that out of 392 TASER-proximate arrest-related deaths that occurred in the United States from 2001–2008, the majority of the deceased individuals were males who were intoxicated and/or were suffering from mental illness. Finally, a systematic review of research on CEW use with subjects in mental distress was conducted by Hallett et al. (2021) found CEWs are more likely to be used on individuals experiencing mental distress.

Further, research indicates that use of force tactics/tools are disproportionately utilized on individuals from marginalized populations. A recent study conducted by the Ontario Human Rights Commission on the TPS found that Black community members are overrepresented in all use of force categories and instances (Wortley, Lanionu, and Laming, 2020). CEWs specifically were noted as having a statistically significant difference in being more likely to be utilized on other racialized minorities (13.5%) and Black individuals (8.7%) in comparison to white individuals (3.9%).

Generally, the use of force is discussed as a reaction to the subject's behaviour. However, a study completed in the United Kingdom used a randomized control trial involving police on duty and found a 'weapons effect' regarding the deployment of a CEW (Ariel, et al., 2019). Specifically, the visual cue of a CEW was found to be associated with more aggressive behaviour by a subject towards an officer and in turn, the officer towards them. The same study also noted a 'contagion effect' in that officers with a CEW

were 23% more likely to be involved in a use of force incident while on duty compared to an unarmed group of officers. The study concluded that enhanced training and the concealment of a CEW until it is required to be used should be considered. It should be noted that this study involved officers who do not usually carry a firearm, so these results may not apply to Canadian officers for whom the CEW is an additional device they routinely carry. Further, these effects have not been determined to be causal for aggressive behaviour by a subject or an officer. However, these results illuminate that a use of force incident is a reflection of the environment as well as the characteristics of the individuals involved.

Benchmarking

Publicly available information regarding demographic information as well as a subject’s behaviour and condition as defined by the TPS is not standardized nationally or internationally. Table 5 provides a comparison of available data points related to the subject’s demographic, behaviour, and conditions. Age, sex, and ethnicity is available for all police services/departments except for the RCMP and the TPS regarding ethnicity. As for the condition of the subject, only the Los Angeles Police Department and the England and Wales Police Services collect this information to compare to the TPS, while the New Zealand Police Service only reports on the perceived condition of the subject. Unique to the New Zealand Police Service is the collection of information regarding subjects exhibiting suicidal behaviour and officer’s use of force tactic/tool for those incidents, which will also be discussed below. Finally, the presence of a weapon is recorded by the New Zealand Police Service, Chicago Police Department, as well as the England and Wales Police Services.

Table 5: Summary Table of Publicly Available Information Regarding Demographic Information and Individual Behaviour and Conditions by Comparators

Royal Canadian Mounted Police Service	New York Police Department	Chicago Police Department	Las Angeles Police Department	New Zealand Police Service	England and Wales Police Services	Toronto Police Service
<ul style="list-style-type: none"> ✓ No publicly available information regarding subject demographics, behaviour, or condition for non-lethal use of force options. 	<ul style="list-style-type: none"> ✓ Age ✓ Sex ✓ Ethnicity 	<ul style="list-style-type: none"> ✓ Age ✓ Sex ✓ Ethnicity ✓ Presence of a weapon by sex only 	<ul style="list-style-type: none"> ✓ Age ✓ Sex ✓ Ethnicity ✓ Perceived Mental Health Crisis ✓ Perceived to be Under the Influence 	<ul style="list-style-type: none"> ✓ Age ✓ Sex ✓ Ethnicity ✓ Perceived Mental Health Crisis ✓ Exhibiting suicidal behaviour ✓ Presence of a weapon 	<ul style="list-style-type: none"> ✓ Age ✓ Sex ✓ Ethnicity ✓ Perceived Mental Health Crisis ✓ Perceived to be under the influence ✓ Presence of a weapon 	<ul style="list-style-type: none"> ✓ Age ✓ Sex ✓ Perceived Mental Health Crisis ✓ Perceived to be Under the Influence ✓ Presence of a weapon ✓ Subject behaviour (e.g. assaultive)

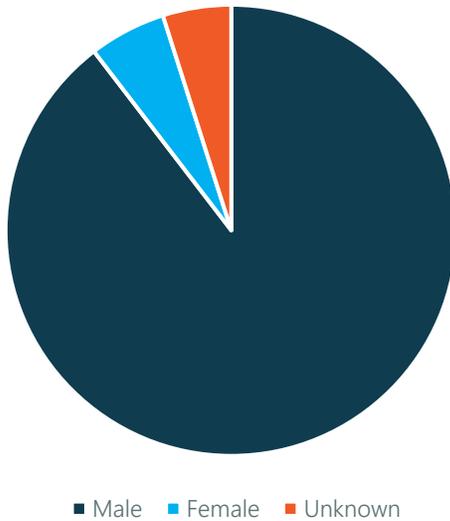
Age, Race and Gender

Based on the publicly available data collected for this review from other jurisdictions, Figure 5 to 21 below show that males make up more than 80% of the subjects on whom CEW and/or use of force tactics are utilized.

18- to 35-year-olds represent the age group with the highest proportion of involvement with use of force tactics.

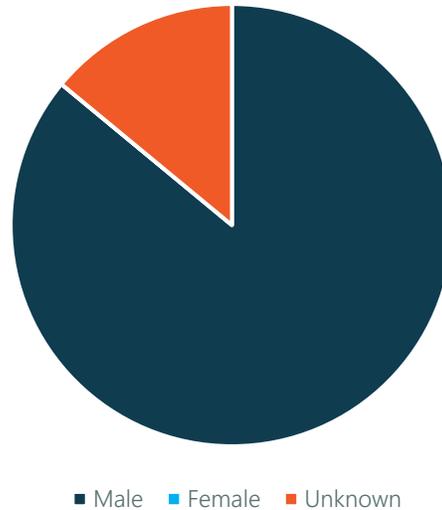
Racialized populations are the largest proportion of subjects involved in use of force incidents, with the exception of the England and Wales Police Services where the majority of individuals are white. However, Black individuals are still overrepresented in England and Wales’ use of force statistics as they account for 3% of the overall population and 16% of use of force incidents. These results are similar to ones noted by key stakeholders regarding racialized populations as well as research pertaining to age, race, and gender. The TPS did not collect race-based data prior to 2020, however, the proportion of males and the age found in other jurisdictions is similar for the TPS.

Figure 5: Toronto Police Service Sex of Subject



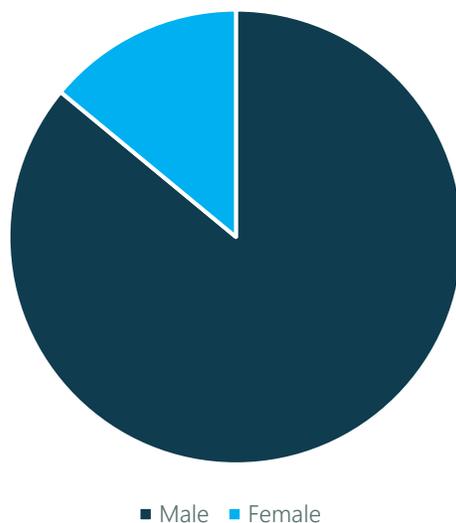
Source: Annual CEW Report Between 2010 and 2020.

Figure 6: New Zealand Police Service Sex of Subject



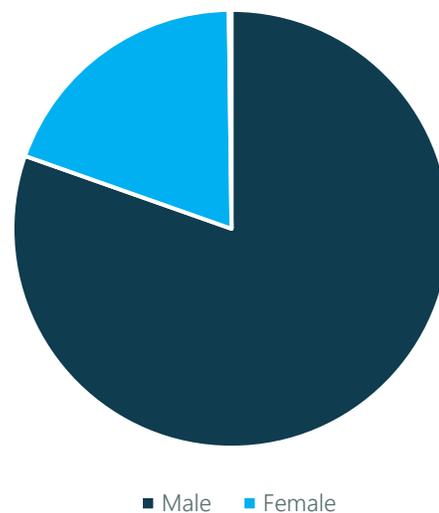
Source: Tactical Options: 2019 Annual Report. The report did not include female subjects nor sex per use of force tactic/tool.

Figure 7: New York Police Department Sex of Subject



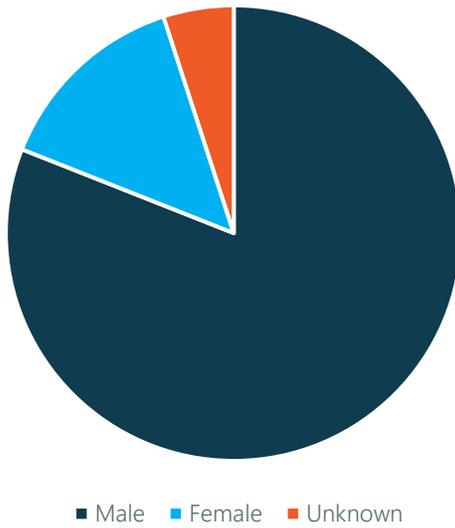
Source: NYPD Force Dashboard Between January 1st, 2020 and December 31st, 2020. The dashboard or the annual use of force reports did not include female offenders nor sex per use of force tactic/tool.

Figure 8: Los Angeles Police Department Sex of Subject



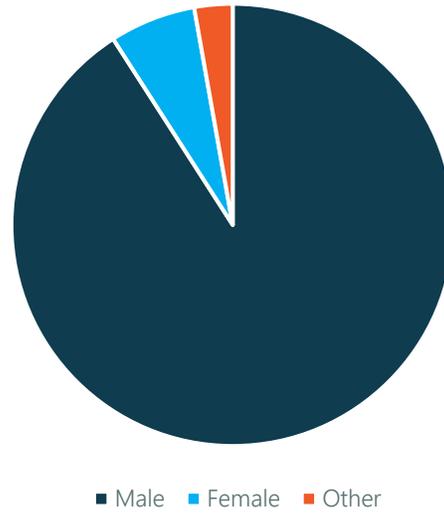
Source: Use of Force Year-End Review 2019. The report did not include female offenders nor sex per use of force tactic/tool.

Figure 9: Chicago Police Department Sex of Subject



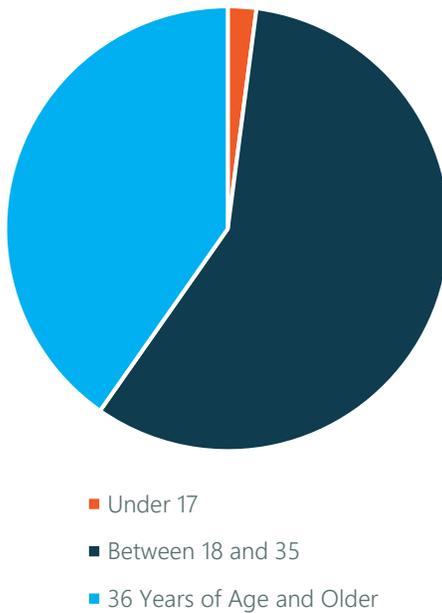
Source: Use of Force Dashboard Between January 1st, 2020 to December 31st, 2020. The dashboard or the annual use of force reports did not include female offenders nor sex per use of force tactic/tool.

Figure 10: England and Wales Police Services Sex of Subject



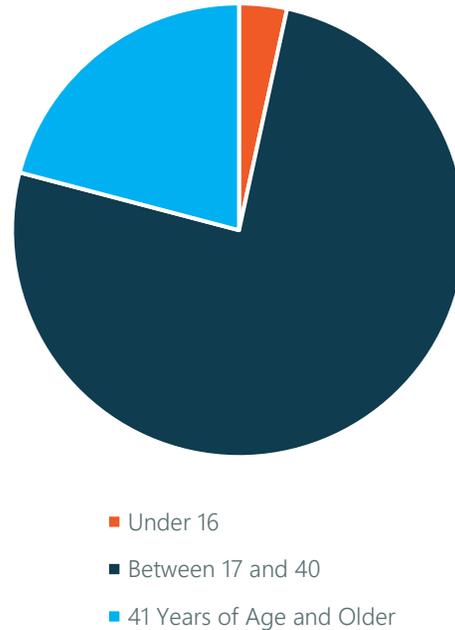
Source: Police use of force statistics, England and Wales: April 2019 to March 2020. These proportions are regarding all us of force incidents as opposed to per use of force tactic/tool.

Figure 11: Toronto Police Service Age of Subject



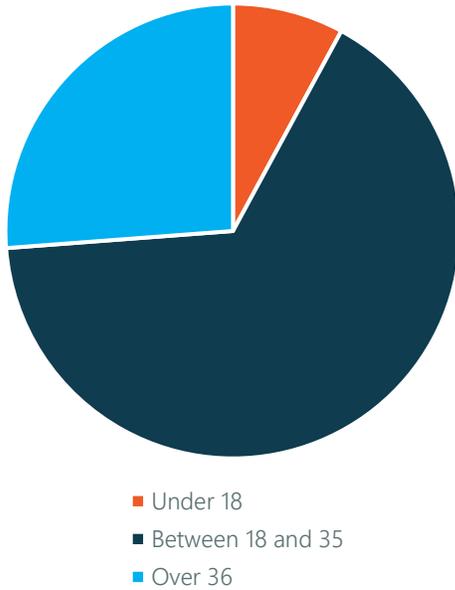
Source: Annual CEW Report Between 2010 and 2020.

Figure 12: New Zealand Police Service Age of Subject



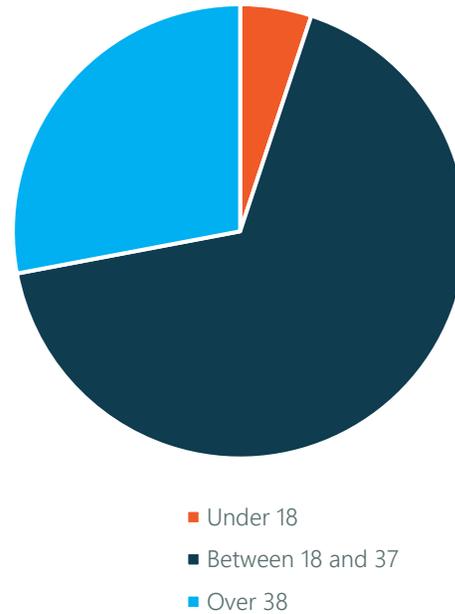
Source: Tactical Options: 2019 Annual Report. These proportions are regarding all us of force incidents as opposed to per use of force tactic/tool.

Figure 13: New York Police Department Age of Subject



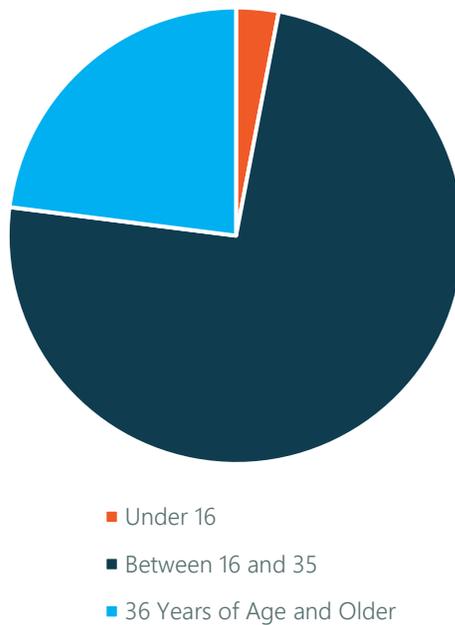
Source: NYPD Force Dashboard Between January 1st, 2020 and December 31st, 2020. The dashboard or the annual use of force reports did not include age per use of force tactic/tool.

Figure 14: Los Angeles Police Department Age of Subject



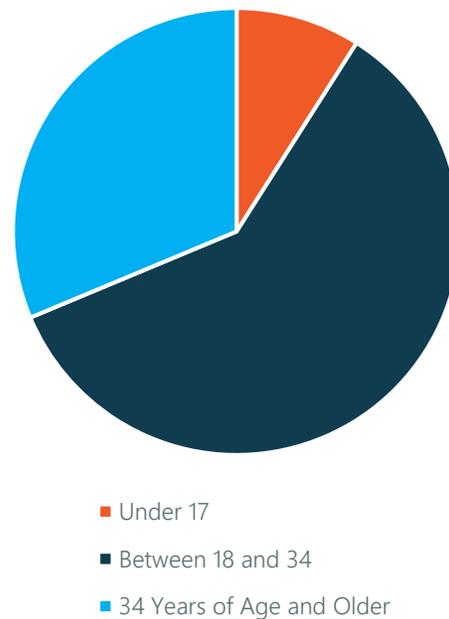
Source: Use of Force Year-End Review 2019. The annual report did not include age per use of force tactic/tool.

Figure 15: Chicago Police Department Age of Subject



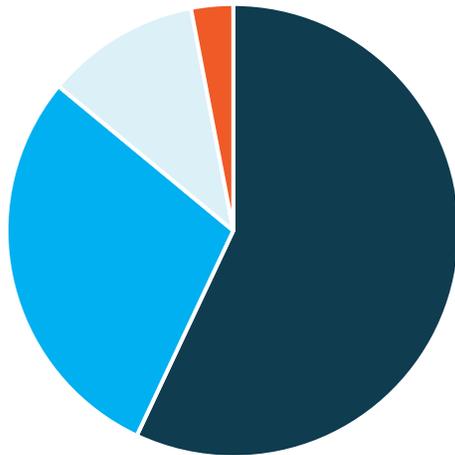
Source: Use of Force Dashboard Between January 1st, 2020 to December 31st, 2020. The dashboard or the annual use of force reports did not include age per use of force tactic/tool.

Figure 16: England and Wales Police Services Age of Subject



Source: Police use of force statistics, England and Wales: April 2019 to March 2020. These proportions are regarding all us of force incidents as opposed to per use of force tactic/tool.

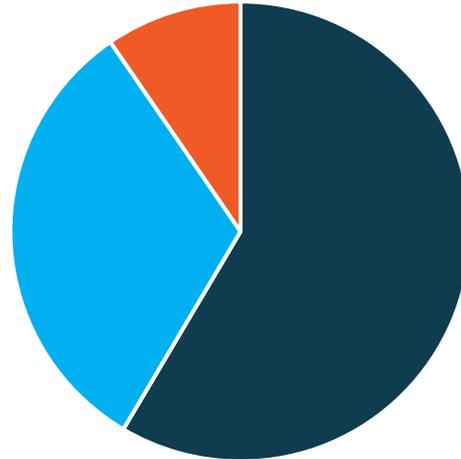
Figure 17: New Zealand Police Service Ethnicity of Subject



■ Maori ■ European ■ Pacific Peoples ■ Other

Source: Tactical Options: 2019 Annual Report. These proportions are regarding all us of force incidents as opposed to per use of force tactic/tool.

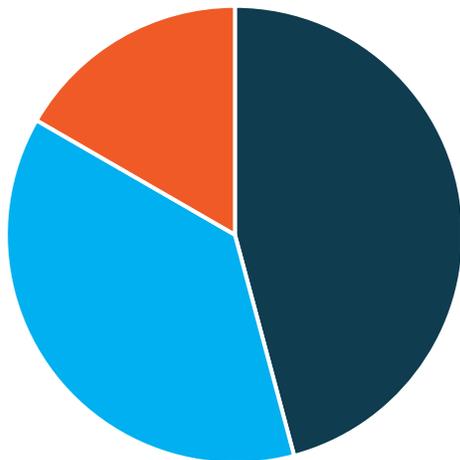
Figure 18: New York Police Department Ethnicity of Subject



■ Black ■ Hispanic ■ White

Source: NYPD Force Dashboard Between January 1st, 2020 and December 31st, 2020. The dashboard or the annual use of force reports did not include ethnicity per use of force tactic/tool.

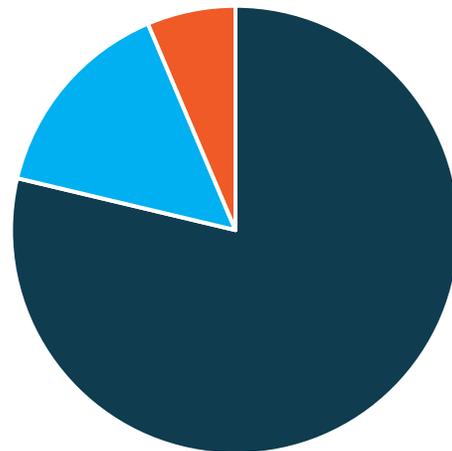
Figure 19: Los Angeles Police Department Ethnicity of Subject



■ Hispanic ■ Black ■ White

Source: Use of Force Year-End Review 2019. The annual report did not include ethnicity per use of force tactic/tool.

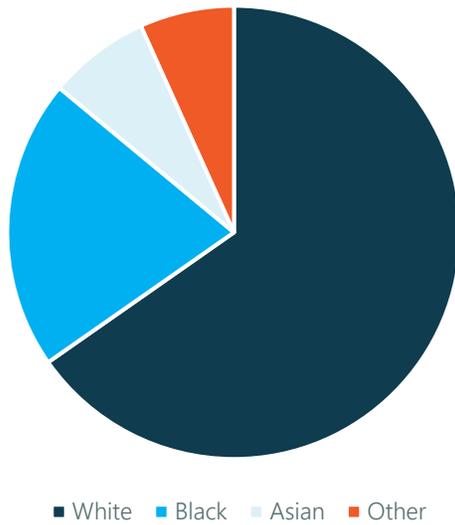
Figure 20: Chicago Police Department Ethnicity of Subject



■ Black ■ Hispanic ■ White

Source: Use of Force Dashboard Between January 1st, 2020 to December 31st, 2020. The dashboard or the annual use of force reports did not include ethnicity per use of force tactic/tool.

Figure 21: England and Wales Police Service Ethnicity of Subject



Source: Police use of force statistics, England and Wales: April 2019 to March 2020. These proportions are regarding all use of force incidents as opposed to per use of force tactic/tool.

Mental Health and Substance Abuse

Research cited earlier shows that the presence of a weapon, the perceived mental health condition of the subject, and whether the subject is under the influence of alcohol or drugs also influence the decision by police to utilize a particular use of force tactic/tool. Unfortunately, information regarding the role of these factors in a CEW deployment is limited amongst the international police services utilized for this review. For instance, four of the six other police services included in this review provide no publicly available information on a subject’s perceived mental state and/or being under the influence.

For the England and Wales Police Services, 21% of use of force incidents recorded by the police services in 2019 involved a subject perceived to be experiencing a mental health crisis. In addition, 67% of use of force incidents recorded by police involved a subject perceived to be under the influence of drugs or alcohol. These results show that substance abuse is a factor in the majority of use of force incidents, while mental health is a factor in approximately one fifth of all incidents.

Regarding use of force options, in 2019 England and Wales Police Services used a CEW in 5% of all incidents involving a subject that was perceived to be experiencing a mental health crisis in either full deployment or drive-stun mode. For incidents involving a subject perceived to be under the influence of drugs/alcohol, the proportion of CEW use recorded was 3.5%. Comparatively, officers utilized empty-hand and restraint techniques 85% of the time for subjects with a perceived mental health condition and 86% for incidents involving a subject under the influence of drugs/alcohol. These results show that the use of a CEW is relatively infrequent in comparison to other use of force tactics such as empty-hand and restraint techniques. However, CEWs are utilized in a higher proportion of incidents involving an individual experiencing a mental health crisis. These findings are similar to other police services and will be discussed within Conducted Energy Weapon Use Compared to Use of Force Tactics/Tools subsection.

The New Zealand Police Service does not track information about whether a subject is perceived to be under the influence of drugs or alcohol. However, the service does track subjects experiencing a mental health crisis and if a subject is exhibiting suicidal behaviour for each use of force incident separately. In 2019 the New Zealand Police Service found that a subject perceived to be experiencing a mental health crisis and/or exhibiting suicidal behaviour in 21% of all use of force incidents.

Table 6 shows that CEWs comprised the largest proportion of use of force tactics/tools utilized by New Zealand Police Service members in 2019 at 39%. In general, the New Zealand Police Service utilized CEWs for 25% of all use of force incidents in 2019. The 2019 Annual Tactical Report by the New Zealand Police Service stated that the disproportionately high use of CEWs for incidents involving suicidal behaviour may be due to the device’s ability to prevent an individual from harming themselves and/or others from a distance. However, this statement was noted as being only conjecture and not corroborated as the reason based on an analysis performed by the service.

Table 6: Use of Force Tactic/Tool Rates at Mental Health Incidents, Suicidal Behaviour Incidents, and All Use of Force Incidents

	All Use of Force Incidents	Mental Health Incidents	Suicidal Behaviour Incidents
Empty-Hand	40%	38%	30%
OC Spray	28%	17%	11%
CEW	25%	27%	39%
Handcuffs/Restraints	13%	31%	31%
Firearm	8%	2%	4%
Dog	8%	3%	1%
Baton	1%	1%	0.4%
Other	0.4%	2%	1%

Comparatively, the TPS has recorded that 69% of all use of force incidents between 2010 and 2020 involved an individual either under the influence of drugs/alcohol and/or experiencing a mental health crisis (Table 7).

Table 7: Perceived Subject Condition at time of CEW Use Between 2010 and 2020 by TPS Officers

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Proportion (%)
Alcohol Only	31	37	40	31	18	44	46	29	61	62	50	13%
Drugs Only	17	7	10	14	8	11	18	20	54	50	51	7%
Drugs and Alcohol	7	11	11	8	8	9	14	7	35	47	24	5%
Person in Crisis	61	64	82	51	79	81	90	98	108	138	122	28%
Person in Crisis and Alcohol	14	12	18	13	14	11	12	15	29	22	19	5%
Person in Crisis and Drugs	11	9	3	6	11	20	28	23	49	42	38	7%
Person in Crisis and Drugs and Alcohol	6	8	8	9	4	9	12	9	21	19	17	3%
No Apparent Influences	63	74	83	60	63	80	72	107	145	177	167	31%
Total	210	222	255	192	205	265	292	308	502	557	488	

Presence of a Weapon

Research shows that the presence of a weapon is an additional factor in police officers utilizing a use of force tactic/tool. In 2019, the possession of a weapon was recorded by New England and Wales Police Services in 16% of all use of force incidents. However, there are no statistics to speak to the number of armed suspects specific to CEW use. The Chicago Police Department also tracks the presence of a weapon, although only by the sex of the subject. Between 2015 and 2019, male subjects accounted for a total of 88% of all subjects recorded to be armed.

For the New Zealand Police Service, 20% of all use of force incidents in 2019 involved an armed suspect. In general, the New Zealand Police Service noted that officers are more likely to use higher levels of force in response to armed subjects than in response to unarmed subjects. Specifically, an analysis completed by the New Zealand Police Service shows that firearms were the most common option deployed in response to subjects armed with a firearm or replica firearm; a CEW was the most common option deployed in response to subjects armed with a knife; and OC spray was the most common option deployed in response to subjects armed with a bludgeoning weapon.

Additionally, the New Zealand Police Service has found that armed subjects are more likely to be considered under mental distress and be suicidal compared to subjects not perceived to be experiencing mental distress. This finding is based on an analysis of use of force incidents completed by the New Zealand Police Service in 2016 that found subjects that were perceived to be under mental distress were

twice as likely to be in possession of a weapon than subjects that were not perceived to be under mental distress.

The TPS has experienced similar intersections between mental health and armed subjects. Specifically, between 2010 to 2020 an average of 61% of CEW deployments involved a perception by officers that the subject was armed with a weapon; of which the subject(s) were confirmed to be armed 33% of the time. Comparatively, an average of 76% of instances involving a subject perceived to be experiencing a mental health crisis and were perceived to be armed with a weapon; of which the subject(s) were confirmed to be armed 48% of the time. These results suggest that subjects perceived to be in crisis are more likely to be perceived to have a weapon as well as confirmed to have a weapon in comparison to subjects who are not perceived to be experiencing a crisis.

Due to the lack of standardized data collection, it is difficult to compare the use of CEWs or use of force tactics/tools in general between services. Taken collectively, these statistics from other jurisdictions and the TPS reinforce what has been found in the research regarding an intersection between use of force incidents involving a male that is armed and is experiencing a mental health crisis.

Summary

Based upon the studies and data shown above, CEW and use of force tactics/tools are most likely to be used on males between the ages of 18 and 35, who are experiencing a mental health crisis, are under the influence of drugs/alcohol, and/or are assaultive/armed. These findings are reflective of the TPS as well as all other police services/departments included in this review. Furthermore, subjects from marginalized populations are overrepresented in all instances involving use of force by police. There is no official race-based data to compare the TPS to other police services/departments regarding this finding. However, a multivariate analysis completed for the Ontario Human Rights Commission on the TPS found that Black community members are overrepresented in all use of force categories and instances including CEWs.

Although limited, data from the TPS and the New Zealand Police Service show that subjects who are experiencing a mental health crisis are more likely to be armed and/or perceived to be armed by police. Information from the New Zealand Police Service as well as use of force experts involved in this review indicate that CEWs are most likely to be utilized by officers to respond to subjects armed with a blunt or edged weapon. It is important to note that these findings do not definitively say that individuals experiencing mental health issues are more prone to violence or a threat to society. Mental health is a complex issue and no generalizable statements or findings can be made based on the data collected related to this topic to complete this review.

Further, data collected by the New Zealand Police Service shows that CEWs are utilized by officers disproportionately in response to suicide incidents. One possible explanation for this disproportionate use of a CEW stated by the New Zealand Police Service in the 2019 Tactical Options Research Report is that the device enables officers to incapacitate a subject from a distance. Understanding that this is not a definitive explanation, the statement is consistent with the comments made by use of force experts regarding the use of CEWs for subjects armed with a blunt or edged weapon. However, limited information is available to corroborate this purported explanation. Unfortunately, the TPS does not track this type of data for comparison.

Finally, a recent study has found a ‘weapons effect’ regarding an increase in aggressive behaviour by a subject with the presence of a CEW; as well as a ‘contagion effect’ where officers were more likely to be involved in a use of force incident when equipped with a CEW in comparison to officers that were not. The results of this study are not generalizable, nor do they establish a causal relationship between the presence of a CEW and aggressive behaviour by an officer and a subject. However, the results do illuminate the fact that a use of force incident is a reflection of the environment as well as the characteristics of the subject.

Overall, the results indicate that use of force incidents in Toronto are similar to trends found internationally. These findings collectively speak to a multitude of societal and economic factors that coalesce to increase the likelihood of certain individuals coming into contact with the police and being involved in use of force incidents.

Injuries and Death

Only the New Zealand Police Service provides information regarding the number and the severity of injuries specific for each use of force tool/tactic. All other police departments included in this review either do not provide any information or only the total injuries suffered by subjects or the police as an annual total (Table 8). Therefore, the information regarding injuries and death associated with CEWs will be limited to New Zealand and the secondary research completed for this review.

Table 8: Summary Table of Publicly Available Information Regarding Injuries Recorded by Police Services/Departments

Royal Canadian Mounted Police Service	New York Police Department	Chicago Police Department	Las Angeles Police Department	New Zealand Police Service	England and Wales Police Services	Toronto Police Service
<ul style="list-style-type: none"> ✓ No publicly available information regarding subject demographics, behaviour, or condition for non-lethal use of force options. 	<ul style="list-style-type: none"> ✓ Total injuries for all recorded use of force incidents. 	<ul style="list-style-type: none"> ✓ Total injuries for all recorded use of force incidents. 	<ul style="list-style-type: none"> ✓ Total injuries for all recorded use of force incidents. 	<ul style="list-style-type: none"> ✓ Total injuries for all recorded use of force incidents. ✓ Injuries of an individual and the officer provided for all use of force tactics/tools. 	<ul style="list-style-type: none"> ✓ Total injuries for all recorded use of force incidents. 	<ul style="list-style-type: none"> ✓ Total injuries for all recorded use of force incidents. ✓ Injuries of an individual and the officer specific to CEW use.

Use of Force Experts

All use of force experts perceived the benefits of the CEW to outweigh the risks associated with injury and death. However, all use of force experts acknowledged that CEWs are not infallible devices and do pose a threat to the health and wellbeing of individuals that they are used on. All use of force experts indicated that annual CEW recertification and clear policies and comprehensive accountability processes are required by a police service to ensure negative outcomes are limited.

Key Stakeholders

Most of the stakeholders consulted for this review did not express specific concerns regarding injury or death related to the use of CEWs. Primarily, these stakeholders noted research that they had reviewed, the TPS CEW report findings regarding injury and death, and/or inquests completed within Ontario.

A small number of stakeholders noted that there are important caveats for determining the role a CEW plays in a death as well as how injuries are defined and reported. These stakeholders noted that determining the cause of deaths associated with CEWs is challenging. The use of firearms, batons, physical strikes/chokes produce distinct markings and injuries that are more likely to establish a link to cause of death. CEWs may leave no indication of cause of death for pathologists. The only marks may be burn marks from a drive-stun or probe marks from a full deployment. Furthermore, pre-existing heart conditions and being under the influence of drugs/alcohol at the time of death add to the complexity of isolating a cause of death. Additionally, no definitive test exists to confidently determine that a CEW was the cause of the death. As a result, the finding of police services, including the TPS, that have no attributable deaths to the use of a CEW needs to be understood with these caveats.

These same stakeholders were also concerned that a CEW may retraumatize subjects because it puts them into a vulnerable situation with a person in a position of authority. For example, a police officer in a position of authority using a CEW on a subject that leads to neuromuscular incapacitation effectively results in the subject being placed in a helpless position. Being placed in this helpless position may elicit flashbacks to previous traumatic events. This perspective illuminates that not all forms of injury resulting from use of force tactics/tools can be measured physically.

Primary and Secondary Research

Some stakeholders told us that the CEW is one of the most researched and scrutinized use of force tools utilized by police. To this end, its manufacturer Axon Enterprise Inc. has partially or fully funded more than 880 studies on the device. Additionally, secondary research has been plentiful regarding the use of CEWs by police services and the rate of injury or death.

Generally, research shows that CEWs are associated with fewer instances of injury amongst officers and subjects in comparison to other use of force options (Public Safety Canada, 2015). Research has found that fatalities are extremely rare for incidents involving CEWs (The Council of Canadian Academies and the Canadian Academy of Health Sciences, 2013). A systematic review of the health risks of CEWs was published very recently (Baliatsas et al., 2021). This review identified 33 studies that used an experimental design. Outcomes of these studies typically included factors such as “physiologic stress responses, heart rate, blood pressure, arrhythmias, blood acidity, or cognitive performance” (p. 4). The review concluded that while there were minor effects, there were no consistent negative impacts on health.

However, these findings must be interpreted cautiously. A major weakness with the studies is that they almost all used healthy volunteers – often police officers. We know that in the field CEWs are often used on subjects who are not necessarily in good physical condition. Baliatsas et al. found 163 cases where an autopsy report concluded that a CEW was a cause of death or a contributing factor. Many of these cases involved people who were under the influence of drugs or had cardiovascular problems. Thus, the experimental studies may not be generalizable to real-life conditions. Ethical and practical considerations mean that future research will require systematic tracking of real-life cases of CEW use and systematically

assessing the health impact on actual subjects. Baliatsas et al. recommended that even though the research data suggest that CEWs have a low risk of adverse health outcomes, the generalizability issues support the view that police agencies be cautious regarding CEW use.

Benchmarking

Information regarding use of force incidents involving injury and death is not standardized across police services. Specifically, the RCMP does not provide publicly available information regarding injuries and deaths except for officer involved shootings. The Chicago Police Department do not provide a consistent source of this information by use of force incident or as an annual total. The England and Wales Police Services, Los Angeles Police Department, and New York Police Department only provide a total number of injuries for both police officers and individuals with no distinction made by use of force tactic/tool.

In consideration of these limitations, the most comprehensive information regarding injuries by use of force comes from the New Zealand Police Service. Figure 22 shows that CEWs only account for 2% of all injuries reported by individuals subjected to a use of force tactic/tool. In comparison, empty-hand techniques accounted for 50%, while dogs accounted for an additional 29%. Table 9 shows the severity of injury per use of force tool in 2019. For CEWs, 73% of all injuries were moderate, meaning hospitalization was not required. However, 24% of injuries from CEWs did require hospitalization which is a proportion only surpassed by a firearm at 50%. CEWs account for 4% of all officer injuries recorded in 2019.

Public complaints regarding the use of CEWs is the lowest amongst use of force options for the New Zealand Police Service. Specifically, out of a total of 433 complaints made in 2019, 9 were for CEWs, while 364 were for either empty-hand or handcuffing, 30 were for OC spray, and the remaining 30 were for a combination of firearms, dogs, batons, and other tactics. The New Zealand Police Service noted in the 2019 Tactical Options Annual Report that they are reconsidering the appropriate use of force tactics/tools for different situations based on the lower injury and complaints rates for the CEW in comparison to empty-hand techniques.

Figure 22: Average Proportion of Use of Force Tactic/Tool Used by the New Zealand Police Service for Instances Involving an Injury

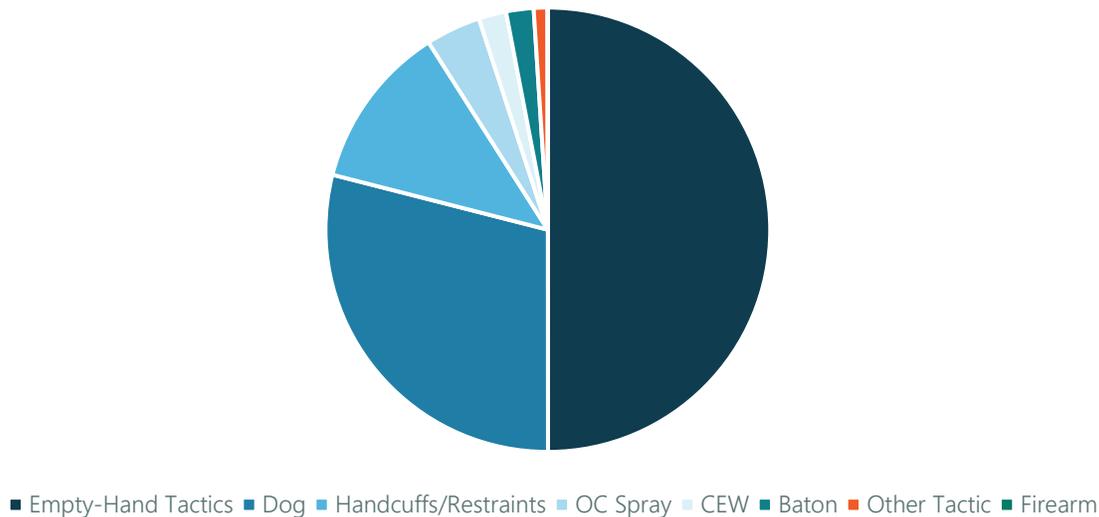


Table 9*: Proportion of Minor, Moderate, Serious, and Fatal Injuries by Use of Force Tool for the New Zealand Police Service

	Mild	Moderate	Serious	Fatal
Empty-Hand Techniques	68%	26%	6%	0%
Other Tactic	68%	26%	6%	0%
Handcuffs/Restraints	69%	15%	16%	0%
OC Spray	78%	8%	14%	0%
Baton	57%	29%	14%	0%
CEW	24%	52%	24%	0%
Dog	7%	83%	10%	0%
Firearm	0%	0%	50%	50%

*Minor injuries required no treatment or self-treatment only; moderate injuries required medical treatment, but not hospitalization; serious injuries required hospitalization.

The TPS has recorded an annual average of 4.7 subject injuries and two civil action cases due to CEW use between 2010 and 2020. The expansion of the CEW to frontline officers in 2018 has been followed by a reduction in SIU cases from 76 to 64 (-16%) and officer injuries from 138 to 107 (-22%) between 2018 and 2020. This suggests that the TPS has been doing a good job of ensuring that citizens were not put at risk by the expansion of CEWs that has already occurred.

While these positive figures may be attributed to factors unrelated to CEW expansion, it is acknowledged that many injuries to officers and subjects have been caused by utilizing empty-hand techniques to control assaultive subjects. In many instances, the use of a CEW as a demonstration of

force is all that is required to safely resolve some volatile situations that once required the use of empty-hand techniques or more potentially lethal tools when attempts to de-escalate were unsuccessful. However, the TPS does not have information regarding the severity of injuries per use of force tactic to compare to the New Zealand Police Service.

The TPS has not attributed any deaths to the use of CEWs nor have the New Zealand Police Service or the England and Wales Police Services.

Summary

In summary, most stakeholders did not state specific concerns regarding injuries and deaths related to the use of CEWs. Additionally, all use of force experts perceived the benefits of the CEW outweigh the risks associated with using the device. However, to mitigate the risks associated with using a CEW, use of force experts agreed that there should be clear policies in place regarding testing, annual recertification, and comprehensive accountability processes regarding the use of the device.

Research has found that CEWs are associated with fewer injuries compared to the use of force tactics/tools and CEWs are rarely officially named as a cause of death. The TPS is no different than other police services/departments in the low number of injuries associated with CEW use. However, these devices are a use of force tool and carry the risk of serious injury or death when used by the police. Further, no definitive test exists to confidently determine that a CEW was the cause of the death. As a result, the finding of police services, including the TPS, that have no attributable deaths to the use of a CEW needs to be understood with these caveats.

Research regarding the use of CEWs has focused on physical health with the psychological impact of CEW on subjects identified by some stakeholders being a topic that requires further investigation to determine the prevalence and degree of these impacts. This point does speak to the importance of considering the psychological impacts of the device as well as the physical impacts.

Conducted Energy Weapon Use Compared to Other Use of Force Tactics/Tools

Internationally or nationally, there are no standards regarding use of force tactics/tools utilized by police services/departments. Most police services/departments will train/equip officers in empty-hand tactics, handcuffs, batons, and OC spray. CEWs and firearms are not standard issue for all police services/departments. For example, the New Zealand Police Service as well as the England and Wales Police Services do not equip officers with a firearm. CEWs are not standard issue for police services either.

Use of force statistics are also not standardized across police services/departments nationally or internationally. As a result, the benchmarking subsection below will include caveats regarding how data from different services/departments regarding use of force tactics/tools is being reported on and compared.

Use of Force Experts

Consultation with stakeholders indicate that there is a perception that the CEW has a distinct place in the use of force model. The supporting rationale for this perception is the ability to use the CEW from a distance to achieve neuromuscular incapacitation, preferable to other use of force tactics/tools in cases where subjects are armed with a blunt or edged weapon or are exhibiting potentially self-harming behaviour. In comparison to other use of force tactics/tools, neuromuscular incapacitation from full deployment mode is not perceived to be a quality that can be replicated by other available use of force tactics/tools.

With that said, all use of force experts stated that every tactic/tool that police officers are equipped with in Canada serves a specific function. For example, empty-hand techniques are an effective means of addressing a volatile incident when the officer is within striking distance of a subject and does not have time to use another tactic/tool. Another example is OC spray when an officer is confronted by multiple subjects. In general, even if not utilized often, no use of force expert felt that existing use of force tactics/tools should be removed from officers. In terms of alternatives, some use of force experts did perceive the BolaWrap could be added to help officers in certain circumstances including a subject wearing heavy clothing that would reduce the probability of a successful CEW deployment or a subject armed with a knife walking away from officer(s). However, no existing or available use of force tactic/tool is seen as a replacement for the CEW.

Key Stakeholders

Some stakeholders indicated that CEWs were initially marketed as a replacement for the use of firearms. As a result, these stakeholders are gauging the value of CEWs based on a reduction in the use of firearms. However, these stakeholders indicated that they have not seen evidence to suggest that the use of firearms has been reduced with the implementation of CEWs. All stakeholders consulted believed that a CEW is a preferred option in comparison to a firearm since its use is less likely to lead to the death of an individual. Nevertheless, some stakeholders believe that other use of force options should continue to be explored by the TPS and implemented if deemed to be valuable. To this point, these stakeholders indicated that they found it valuable for the TPS to pilot and implement the SOCK rounds as well as investigate the use of the ballistics shield. All stakeholders agreed that the TPS should continue to research and implement use of force tactics/tools to reduce injury and death resulting from volatile police/citizen interactions

Primary and Secondary Research

Baldwin et al. (2017) analyzed approximately 6,000 use of force events in Canada to determine various intervention options related to officer/subject injury and how effective these options are perceived to be by the reporting officer. The results indicated that the perception of effectiveness must be balanced with safety concerns. To this point, certain intervention options (e.g. CEWs and OC spray) were not perceived as being particularly effective relative to empty-hand techniques. However, intervention options such as CEWs and OC spray were less likely to cause injuries to both the subject and police officers in comparison to empty-hand techniques. These results suggest that officers prefer to use empty-hand techniques over use of force tools such as CEWs and OC spray. To this end, the benchmarking section

below demonstrates that the most utilized use of force tactic/tool by all police services/departments included in this review is empty-hand techniques.

However, among the existing use of force tools utilized by police including OC spray, baton, and CEW, there appears to be a preference for CEWs. To this point, a randomized control trial in a field-training experiment found that officers equipped with a CEW were less likely to use their baton and OC spray in response to aggressive physical resistance (Sousa, Ready, and Ault, 2010). Similarly, the benchmarking section below shows that CEWs are the second most frequently utilized use of force tool by the police services included in this review, except for the New Zealand Police Service. These results suggest that CEWs are a preferred use of force tool compared to other existing use of force tools regardless of jurisdiction.

Finally, limited evidence has been found establishing the inverse relationship between firearm and CEW use. For example, one study completed in 2018 found no reduction in the use of firearms after the introduction of CEWs to frontline officers of the Chicago Police Department (Ba and Grogger, 2018). In March of 2010, the Chicago Police Department expanded the use of CEWs from issued only to Sergeants and field training officers to the provision of 400 CEWs to patrol officers. A total of 36,112 use of force incidents were analyzed between 2005 to 2015 to complete a before and after comparison of CEW use after the policy change in 2010. The results found that CEW use reduced the number of officers' injuries. No difference in the use of firearms was found. Generally, the use of firearm and a CEW serve different purposes and are not to be used in replacement of one another. To this point, the South Wales Police Force (2016) Use of Conducted Electrical Weapons policy states "the Taser is not a replacement for a conventional firearm. It is a less lethal option which should be deployed and managed alongside conventional firearms and other tactical options" (p. 16). The New Zealand Police Service (2020) also has a disclaimer within their CEW use policy that states, "police firearms remain the most appropriate tactical response for situations where a subject is armed with a firearm..." (p.13). These two examples illuminate the distinctive uses of a CEW and firearm and help to explain why the use of one is not necessarily correlated with the other.

Benchmarking

Comparing use of force incidents between different police services/departments is challenging due to the significant variation in how these statistics are collected and made available. For instance, physical tactics are only recorded by the TPS if they result in an injury to the individual they are applied to. The Chicago Police Department does not include instances such as wristlocks, control holds, or pressure compliance techniques. Presentation of a CEW is not recorded by the Chicago, Los Angeles, or New York Police Departments. Finally, consistent data related to the number of sworn officers for each police service/department is not publicly available. As a result, calculating a rate of use of force tactic/tool per officer is not a viable option.

Acknowledging these limitations, a comparison of the frequency of different use of force tactics/tools has been completed using publicly available data with the following notes:

- Physical Tactics: below are the noted data collection differences for each police service/department:

- TPS: physical tactics of any kind are only recorded by the TPS if they result in serious injury. Since the majority of physical tactics do not cause serious injury, the TPS will be underreported in this category in comparison to other services/departments. No distinction in physical tactics is made by the TPS for recorded uses.
- RCMP: physical tactics are categorized by the RCMP as either soft or hard. Soft techniques include pressure points, joint locks, escort/come along, as well as takedowns. Hard techniques include stuns/strikes, takedowns, and carotid control/vascular neck restraints. Similar to the TPS, RCMP officers are only required to record the use of a physical tactic when a subject or officer is seriously injured.
- New York Police Department: all physical tactics used by officers are recorded regardless of injury to the subject. Physical tactics recorded by the department include the use of hand strikes, foot strikes, forcible takedowns, and wrestling/grappling.
- Los Angeles Police Department: all physical tactics used by officers that are either on or off-duty are recorded when used to compel a person to comply with an employee's direction; defend themselves; defend others; effect an arrest/detention; prevent escape; or overcome resistance. Physical tactics recorded by the LAPD include body weight, firm grip/joint lock, physical force, strike/kick/punch, and takedown/leg sweep.
- The Chicago Police Department: records incidents involving a subject who is injured or alleges injury resulting from the officer's use of force or physical tactics used in response to active resistance.
- New Zealand Police Service: All instances involving the use of force by an officer are included regardless of injury. Empty-hand techniques as well as handcuffs-restraints are recorded.
- England and Wales Police Services: officers are required to report any incident where they utilized a use of force tactic regardless of injury. Physical tactics, handcuffing, limb/body restraints, ground restraints, hand/feet strike, pressure points, as well as joint locks are recorded.
- CEWs: the TPS, New Zealand Police Service, RCMP, as well as the England and Wales Police Services record the presentation as well as discharge (i.e. full deployment and drive-stun) of a CEW. Alternatively, the Chicago Police Department, Los Angeles Police Department, and New York Police Department only include discharges of a CEW (i.e. full deployment and drive-stun).
- Firearms: the TPS, New Zealand Police Service, RCMP, as well as the England and Wales Police Services record the presentation and discharge of a firearm by officers. The Chicago Police Department, Los Angeles Police Department, and the New York Police Department only record incidents when an officer discharges their firearm.
- Baton, OC Spray and Dogs: Each application/use of a baton, OC spray, and dog is recorded. However, the England and Wales Police Services do record the presentation of batons and OC spray (i.e. the display of the tool without its use by the officer).

Table 10 provides a summary of the average number of use of force instances by type for each police service/department between 2017 and 2019. The table shows that physical tactics are the number one use of force tactic for all police services/department included in this review. The second by volume of use is the CEW, with the exception of the New Zealand Police Service. These results show that the CEW is a

prominent use of force tool utilized by police, regardless of jurisdiction, serving as an indication of the utility of the device for officers on the use of force spectrum.

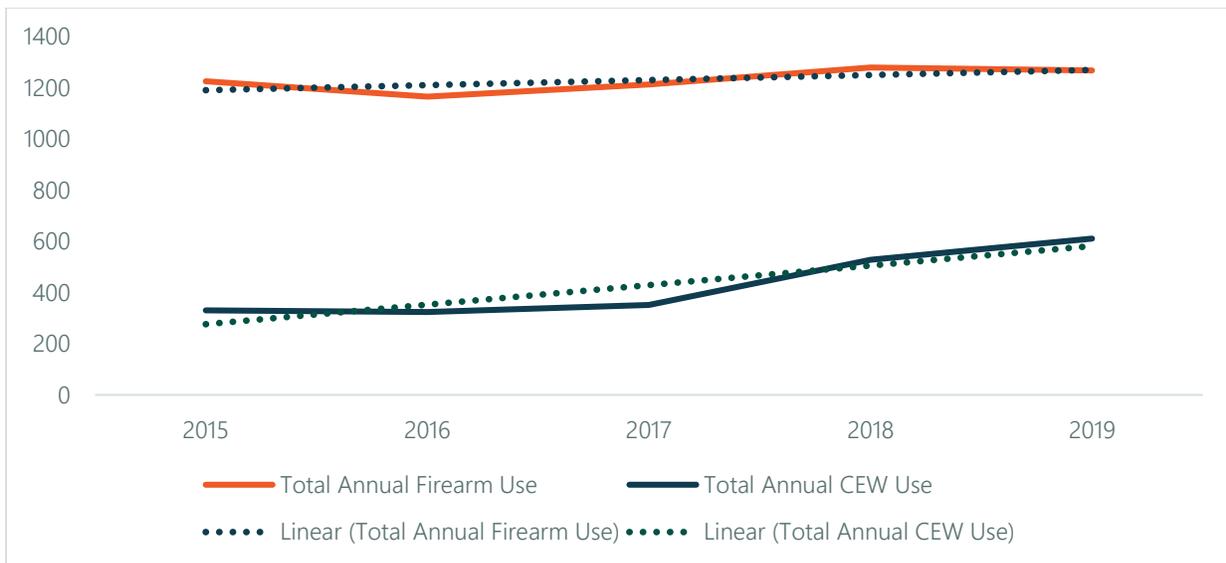
Table 10: Average Annual Number of Use of Force by Type Between 2017 and 2019 for Comparable Police Services

	Chicago Police Department	Toronto Police Service	Los Angeles Police Department	New Zealand Police Service	Royal Canadian Mounted Police Service	New York Police Department	England and Wales Police Service
Population*	2,693,976	2,956,024	3,979,576	5,040,900	8,055,165	8,336,817	66,796,807
Physical Tactics	4,003	531	5,940	3,367	1,401	6,530	518,801
CEW	264	497	392	1,190	1,171	999	24,198
Firearm	41	19	34	7	27	46	9
Baton	40	48	26	46	49	88	2,730
OC Spray	31	42	24	1,354	328	233	8,072
Dog	Not Recorded	11	3	323	431	8	503

*Population data obtained from <https://www.census.gov/quickfacts/fact/table/losangelescitycalifornia,newyorkcitynewyork,chicagocityillinois,US/PST045219>, <https://www.toronto.ca/city-government/data-research-maps/toronto-at-a-glance/>, <https://www.stats.govt.nz/topics/population>; <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2019estimates>

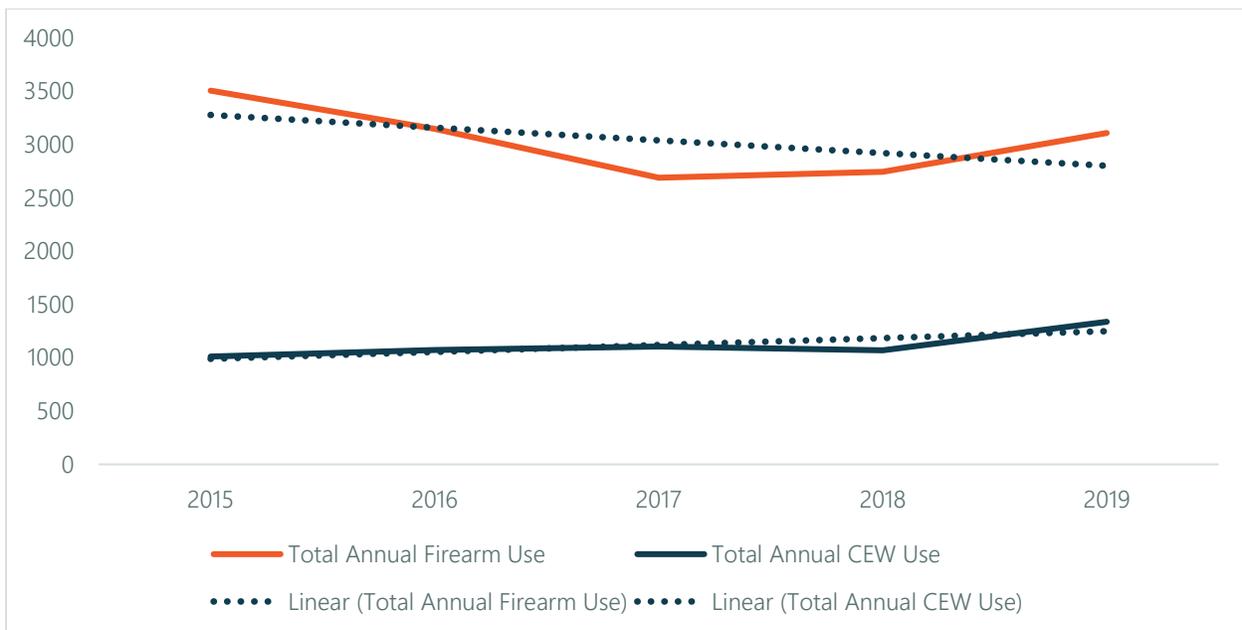
The Chicago Police Department, New York Police Department, Los Angeles Police Department, and England and Wales Police Services only provide the total annual number of firearm discharges by officers. As a result, the RCMP and New Zealand Police Service have been included as comparators to the TPS for CEW and firearm use since they both include the number of times an officer unholster their firearm as well as discharge the weapon. It is important to note that the New Zealand Police Service do not equip patrol members with firearms. Figure 23, Figure 24, Figure 25 include a line of best fit and show that there is no discernable proportionate relationship between CEW use and firearm use. Essentially, the introduction of the CEW has not led to a proportionate decrease in the use of firearms. These results are consistent with the secondary research completed for this review.

Figure 23: Toronto Police Service Total Annual CEW and Firearm Use Between 2015 and 2019



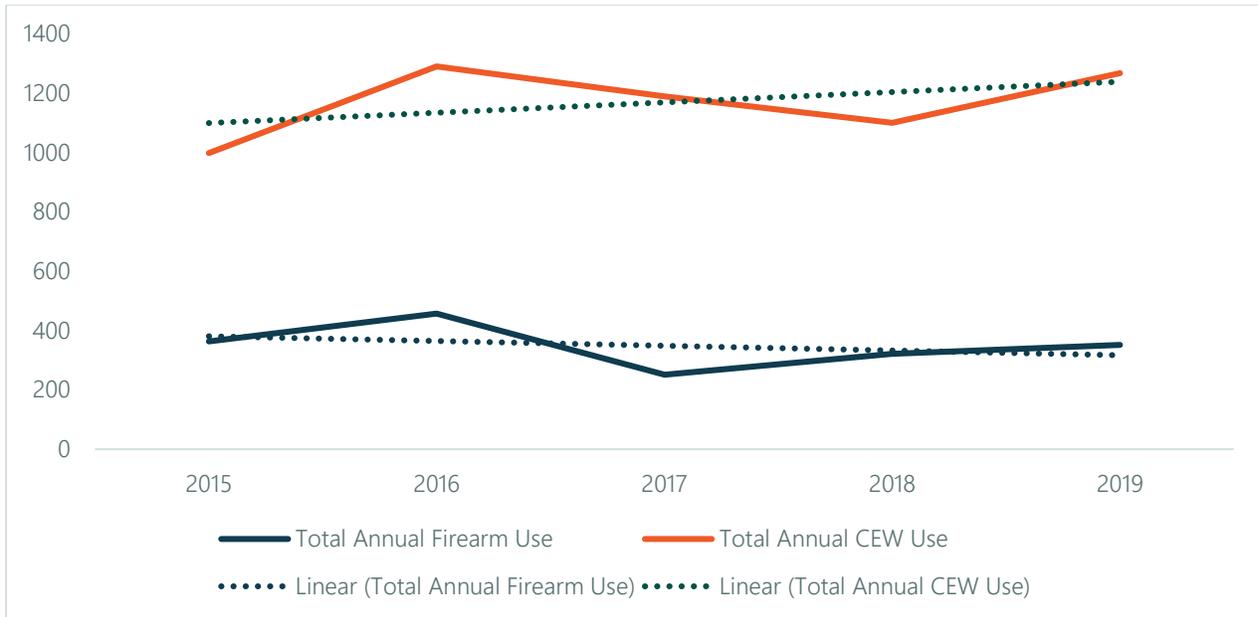
Source: Toronto Police Service Corporate Risk Management Annual Reports 2015 to 2019 as well as the 2015 to 2019 Use of Conducted Energy Weapons annual reports.

Figure 24: Royal Canadian Mounted Police Total Annual CEW and Firearm Use Between 2015 and 2019



Source: Royal Canadian Mounted Police 2010 to 2019 Police Intervention Options Report.

Figure 25: New Zealand Police Service Total Annual CEW and Firearm Use Between 2015 and 2019



Source: 2015 to 2019 Annual Tactical Options Research Reports.

Summary

Among existing use of force tactics/tools, physical tactics are the most utilized use of force tactic/tool by all police service/department including the TPS. This finding should be noted with the caveat that physical tactics are still the most frequently utilized use of force tactic by the TPS even though these instances are only recorded if they result in serious injury. The CEW is the second most utilized use of force tactic/tool for every police service with the exception of New Zealand. These results are an indication of the utility of the CEW for officers. Further, these results show that the TPS is not unique in its volume of CEW use compared to other police services/departments.

Most use of force experts indicated that CEWs have a distinct place on the Use of Force Model because of the ability of the device to be used at a distance to achieve neuromuscular incapacitation. This result was stated by use of force experts as being preferable for addressing individual's armed with a blunt or edged weapon or exhibiting potentially self-harming behaviour. Use of force experts acknowledged that other use of force tactics/tools, such as the BolaWrap, would be able to be utilized in certain circumstances as an alternative to a CEW. However, no existing use of force tools would be a viable replacement.

The TPS has not explored the use of the BolaWrap but the TPS has implemented the use of the soft-nosed impact rounds in 2016. This tool is available to specifically trained constables. As a result of the Loku inquest, the TPS piloted the use of a ballistic shield in 2020 to address individuals experiencing a mental health crisis. However, the shield was not deemed a viable option for Primary Response Unit members. Alternatively, the recommendation was to build upon and refine existing de-escalation strategies.

Finally, the available research and data collected for this review show that CEWs are not a replacement for firearms nor do they lead to a reduction in the use of firearms. CEWs and firearms serve two distinct

purposes and are not replacements or alternatives to one another. The tactical advantages and distance requirements of a CEW limit the ability for the device to be a viable alternative or replacement of a firearm during circumstances that would require its use by police.

Effectiveness of CEW Use

The effectiveness of a CEW is not an agreed-upon metric by police services nor is it tracked by all police services. Only the TPS, New York Police Department, and Los Angeles Police Department provide any information regarding the effectiveness of CEWs and all three have different definitions of effectiveness. Consequently, the TPS will be compared to the New York Police Department below.

Use of Force Experts

Most use of force experts indicated that CEWs are an effective device if the gauge of effectiveness is defined as enabling an officer to restrain a subject that is being assaultive and/or exhibiting behaviour associated with serious bodily injury or death. The perceived strengths and weaknesses of the CEW included:

The perceived strengths of the CEW by use of force experts include:

- Neuromuscular incapacitation enabling officers to restrain an individual and/or prevent them from harming themselves and/or others
- Compliance with the presentation of a CEW
- Fewer injuries for subjects and officers
- Easy to use and portable
- Ability to be used at a distance
- Associated with fewer complaints by the public in comparison to other use of force tactics/tools

The perceived weaknesses of the CEW by use of force experts include:

- Perception by the public of injury/death involving CEW use
- Optimal range is limited
- Restricted use in certain situations (e.g. flammable environments, heights, vehicles)
- Cannot fully control where the probes ultimately attach

Key Stakeholders

Most stakeholders perceive that the CEW is effective in its operation and use by the TPS in accordance with federal and provincial legislation as well as TPS policies and procedures. From a governance perspective, most stakeholders perceive that the effective use of a CEW is dependent upon a police service having clear policies, recurring training that is scenario-based, as well as oversight procedures that ensure accountability and transparency. To these points, most stakeholders perceived the TPS to be providing effective training for officers, utilizing comprehensive oversight processes and procedures, as well as collecting robust data regarding CEW use to inform policy development.

Primary and Secondary Research

Research regarding the effectiveness of CEWs is mixed based on the definition of “effective”, which is not standardized across different studies or police services (White and Ready, 2010). Gilbert (2019) found that 12 large United States police departments reported an average CEW successful usage rate of 68.4%. The CEW success rates for the 12 departments ranged from 54.7% to 79.5%. CEWs were less successful on heavy subjects, on those who were under the influence of drugs and alcohol and when the CEW was deployed from a short distance from the subject (Brandl and Stroshine, 2017).

The ineffective deployment of a CEW is very important because it may result in an officer resorting to a firearm. It is not uncommon for police-involved firearm deaths to follow an unsuccessful CEW deployment. Gilbert reported that between 2015 and 2017 over 250 deaths followed a CEW failure. CEW failure also puts officers’ lives at risk, particularly if officers are working alone and do not have a back-up or lethal overwatch when using a CEW.

Several other studies have examined the effectiveness of CEWs. In den Heyer’s (2020) New Zealand study, 82% of events in which the CEW was shown and 73% of events where it was discharged were classified as effective in resolving an incident. The U.K. study by Stevenson and Drummond-Smith (2020) found that firearms were viewed as effective 97% of the time, CEWs 68% of the time, batons 67% of the time, and OC spray 54% of the time. However, limited research has been conducted on the effectiveness of different use of force tactics/tools under different circumstances.

Benchmarking

The TPS defines an effective use of the CEW as the ability of an officer to use the tool to gain control of a subject. With that definition in mind, Table 11 provides a summary of the number of effective, not effective, and not applicable CEW deployments between 2010 and 2020. Not applicable is defined as unintentional deployments of the CEW, which is generally caused by officers having a misfire while testing the CEW before their shift begins. Overall, the effectiveness rate of the TPS is 85%. The same effectiveness rate has been achieved in instances involving subjects experiencing a crisis (

Table 12).

Table 11: Effective Deployment of CEWs by the TPS Between 2010 and 2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average (%)
Effective	183	198	213	173	177	232	258	264	421	480	512	85%
Not Effective	26	17	35	16	18	28	28	38	62	77	91	12%
Not Applicable	1	7	7	3	10	5	6	6	19	48	1	3%
Total	210	222	255	192	205	265	292	308	502	605	604	

Table 12: Effective Deployment of CEWs by the TPS Between 2010 and 2020 Involving Persons in Crisis

	2015	2016	2017	2018	2019	2020	Average (%)
Effective	125	120	179	192	134	125	85%
Not Effective	17	25	28	29	37	17	15%
Total	121	142	145	207	221	171	

The other police services in this comparison do not include statistics regarding the effectiveness of CEWs, and when they do, there is a lack of definition for “effectiveness”. For instance, the Los Angeles Police Department defines an effective deployment of a CEW as the probes connecting and completing a circuit successfully. With this definition, the Los Angeles Police Department CEW effectiveness rate between 2015 and 2019 is 55% (LAPD, 2019). The New York Police Department changed its definition of CEW effectiveness in 2019 to:

Any immediate reaction, even if momentary, that causes a change in the actively aggressive subject’s or emotionally disturbed person’s physical actions and/or psychological behaviour as the result of a pre-deployment verbal warning, activation, laser warning arc, or discharge of a CEW (p.48).

With this definition, the effectiveness rate for CEWs was 94% (i.e. 759 out of 808 instances). However, this definition excludes 463 instances that are considered unintentional discharges and includes events when the probes missed the subject, the probes fell out of the subject, probes had poor spread, probes were removed by the subject, subject fought through the pain, probe wires broke, or the deployment was ineffective for an unknown reason. If these instances were included, the effectiveness rate would be 60% as opposed to 95%. In 2018, the effectiveness rate for the New York Police Department was 75% with effectiveness defined as “a discharge that led to members rapidly gaining control of the subject immediately after its use” (NYPD, 2019, p.48). Again, if unintentional discharges were included in 2018, with the applicable definition of effectiveness, the effectiveness rate would be 58% as opposed to 75%.

Summary

In the absence of an agreed-upon definition of “effective”, research and input from stakeholders for this review suggest that the effectiveness of the CEW should be defined by the ability to momentarily stop assaultive behaviour by a subject to gain control/compliance. This is essentially the definition of effectiveness that has been adopted by the TPS.

With this definition of effectiveness, the TPS has the highest effectiveness rate of 85% compared to the other police services, both generally and with persons in crisis, when unintentional deployments by the New York Police Department are included in their effectiveness rate. Further, the effectiveness rate for TPS CEW deployment is higher than found within the research as well. However, due to differing definitions of effectiveness and differing recording practices amongst police services, this finding needs to be understood with the noted caveats.

Finally, the perceived strengths by use of force experts are aligned with the data and research completed for this review. Weaknesses noted for CEWs in the research indicated that the device is less successful on heavy subjects, on those who were under the influence of drugs and alcohol, and when the CEW was deployed from a short distance from the subject. The unsuccessful or ineffective deployment of a CEW is significant as it may result in an officer using their firearm. The TASER 7™ has made multiple improvements in comparison to the existing X2™ model to address some of these noted weaknesses of a CEW. These improvements are discussed in more detail within the TASER 7™ subsection of the report below.

Key Findings

The following points are the key findings based on secondary research, benchmarking, and stakeholder consultations completed for this review:

Frequency and Type of Use

- The research conducted for this review show that CEW use increases as the device becomes more available and more officers are trained to use the device. Similar trends have been found by the TPS based on CEW annual reports. The data suggests that the TPS uses the CEW in accordance with incident circumstances (i.e. subjects that are assaultive) and within the guidelines of existing policies and training for the device. These findings illuminate that the frequency of CEW use by a police service is not just a function of its availability to officers but is also a function of policy and subject behaviour.
- The 2019 and 2020 annual reports also indicate that de-escalation was utilized by officers in 97.3% and 97.8% of incidents involving a CEW respectively. These results show that de-escalation techniques are being utilized by the TPS in incidents involving the use of a CEW. In other words, CEW use by the TPS is not utilized as an alternative to techniques meant to mitigate the volatility of an incident.
- There is a difference in the proportion of instances that TPS and the RCMP utilize the CEW as a presentation of force compared to the New Zealand and the England and Wales Police Services. The discrepancy between services does not appear to be explained by differing use of force model requirements. However, there is limited data available to explain these differences.
- The TPS, RCMP, New Zealand Police Service and the England and Wales Police Services have a higher threshold to justify the use of a CEW compared to the New York and Chicago Police Departments. There is no definitive answer for when a CEW should be utilized by police (i.e. where the device should be placed on a jurisdictions Use of Force Model). Most use of force stakeholders indicated that the Ontario Use of Force Model has situated the CEW in the appropriate place.
- Data from police services that track presentation of force, full deployment, and drive-stun mode demonstrate that CEWs are primarily being utilized as a presentation of force.

Subject Demographics and Behaviour

- CEW and use of force tactics/tools are most likely to be used on males between the ages of 18 and 35, who are experiencing a mental health crisis, are under the influence of drugs/alcohol, and/or are assaultive/armed.

- Information collected from other police services/departments as well as research show that individuals from marginalized populations are overrepresented in all instances involving use of force by police. A multivariate analysis completed for the Ontario Human Rights Commission found that Black community members in Toronto are overrepresented in all use of force categories and instances by the TPS. CEWs specifically were noted as being significantly more likely to be utilized on other racialized minorities (13.5%) and Black individuals (8.7%) in comparison to White individuals (3.9%).
- Data from the TPS and the New Zealand Police Service show that subjects who are experiencing a mental health crisis and/or are under the influence of drugs/alcohol are more likely to be armed and/or perceived by police to be armed. It is important to note that these findings do not definitively say that individuals experiencing mental health issues are more prone to violence or a threat to society. Mental health is a complex issue and no generalizable statements or findings can be made based on the data collected to complete this review.

Injuries and Death

- Research and data collected from other police services/departments show that CEWs are associated with fewer injuries compared to other use of force tactics/tools and rarely officially attributed as a cause of death. To this point, the TPS has recorded zero deaths, an average of 4.7 subject injuries, and two civil action cases annually due to CEW use between 2010 and 2020. The expansion of the CEW to frontline officers in 2018 has been followed by a 15% reduction in Special Investigations Unit (SIU) cases (from 76 to 64) and a 22% reduction in officer injuries (from 138 to 107). These results suggest that the TPS has done a good job of ensuring that citizens were not put at risk by the expansion of CEWs that has already occurred. However, these devices are a use of force tool and still present a risk of serious injury or death.
- Best practices dictate that clear policies are required regarding testing, training, use, and supervision of CEWs. Recurring training for officers that is scenario based, and oversight ensuring accountability and transparency to reduce instances involving injury or death regarding CEWs are also necessary. The TPS has clear policies regarding CEW use, comprehensive supervision and training, as well as fulsome accountability mechanisms/processes and transparency in comparison to other police services.

Conducted Energy Weapon Use Compared to Use of Force Tactics/Tools

- Physical tactics are the most utilized use of force tactic/tool by police services/departments including the TPS.
- CEWs are the second most utilized use of force tactic/tool for the TPS and all other police services/departments included in this review apart from New Zealand. These results are an indication of the utility of the device for officers on the use of force spectrum. Further, these results demonstrate that TPS use of CEWs compares to other police services/departments.
- Most use of force experts indicated that CEWs have a distinct place on the Use of Force Model due to the ability of the device to be used at a distance to achieve neuromuscular incapacitation, preferable for addressing subjects armed with a blunt or edged weapon or exhibiting potentially self-harming behaviour.
- CEWs are not a replacement for firearms nor do they lead to a reduction in the use of firearms. CEWs and firearms serve two distinct purposes and are not replacements or alternatives to one

another. The tactical advantages and distance requirements of a CEW limit the ability for the device to be a viable alternative or replacement for a firearm during circumstances that would require its use by police as referenced in the use of force model and policies and procedures of respective jurisdictions.

Effectiveness of CEW Use

- Based on input from subject matter experts and research collected for this review, the effectiveness of the CEW should be defined by the ability to momentarily stop assaultive behaviour by an individual to gain control/compliance. Essentially, the definition of effectiveness should focus on the outcome of an individual being safely restrained or complying with officers and no longer posing a threat. This is the definition of effectiveness used by the TPS regarding CEWs.
- The TPS CEW effectiveness rate of 85% both generally and with persons in crisis appears higher than other police services. However, it is acknowledged that there are discrepancies in the definition of 'effective' between services and a lack of national or international standards in that definition.

Alternative Use of Force Tactics/Tools

This section provides a review of possible alternatives to CEWs as well as de-escalation tactics to reduce the intensity of interactions with subjects experiencing a mental health crisis. To contextualize alternatives to CEWs and de-escalation tactics, a brief history of police use of force tactics/tools is provided followed by a summary of the current use of force tactics/tools utilized by the TPS. Subsequently, input provided by use of force experts and key stakeholders regarding alternatives to CEWs will be discussed and followed by primary and secondary research and a summary subsection as was done in the previous sections of this report.

Finally, a brief overview of the current use of force tactics/tools utilized by the TPS will be provided including relevant federal and provincial legislation as well as TPS policies. Alternative use of force tactics/tools will be separated into two parts with the first being a comparison of a CEW to current use of force tactics/tools including de-escalation. Second, new use of force tactics/tools will be compared to the CEW. Afterwards, there will be a summary section speaking to the viability of alternatives to a CEW as well as brief section on the new TASER 7™ model.

History of Police Use of Force Tools and Tactics

In 2008, William Beahen completed a paper outlining the evolution of use of force by police in Canada for the Commission for Public Complaints Against the RCMP. Key milestones identified in the paper by Beahen include:

- During the late 19th century and early 20th century historical accounts suggested that police in Canada were equipped with, "...badges, handcuffs and billy clubs or batons, and that guns were issued or available to certain officers or to all officers in some circumstances" (Beahen, 2008, p.8).
 - Beahen notes that little information is available on how these use of force tools were utilized by police. However, one historical example mentioned by Beahen is of the Toronto Police Service being cautioned to only use their batons when necessary when arresting or dealing with individuals under the influence. Patience and persuasion were noted in the example as recommended tactics to compliment the use of force tools. To this end, a Toronto Police Service officer was suspended by the Commissioner at the time for kicking a prostitute that verbally abused him. The Commissioner stated that officers were to use force when necessary against those resisting arrest and not against those who verbally abuse police officers.
- In the 20th century, the Canadian Police College, Canadian Police Information Centre, and increased standards of hiring were implemented with an emphasis on education in both recruiting and training.
- In the late 1970s and early 1980s some police services banned chokeholds since they were deemed to be too dangerous and found to result in serious injury or death.
- In the 1980s police services in Canada began to equip officers with aerosol sprays. One such aerosol was mace, which was banned in 1989 with the exception of particular circumstances by the Ontario Police Act.

- During the 1990s, Oleoresin Capsicum (OC) spray became a prominent less lethal use of force option. For example, in 1992 Ontario Solicitor General Allen Pilkey revealed that the province considered allowing the use of OC spray to replace the use of guns in volatile situations involving an unarmed individual.
 - The Toronto Police Service at the time was quoted as saying that, “OC is a medically harmless incapacitant which reduces the incidence of more physical and injurious force” (Beahen, 2008, p.16), also that OC spray “can serve the public for greater police restraint while also giving the police a valuable tool” (Beahen, 2008, p.16). To this point, a 1994 annual report by the Manitoba Office of the Commissioner Law Enforcement Review Agency, noted that the use of OC spray should reduce the need for police to use more injurious weapons, such as batons, or deadly weapons such as guns.
 - Beahan also noted that OC resulted in fewer injuries to police officers. However, some concern existed regarding the misuse of OC spray by officers.
 - Beahen states that in 1999 Amnesty International estimated that OC spray led to the death of 3,000 people in the United States. by police. Although, autopsies regularly supported the position that the deaths were caused not by the weapon, but some underlying condition or drug use.
- Conducted Energy Weapons began to being piloted and utilized various by Canadian police services in the early 2000s, however, in 2007 the incident involving the RCMP and Robert Dziekański led to an independent investigation into the use of CEWs by the RCMP. The report concluded that the RCMP used the CEW too often and did not classify the tool as potentially lethal.

This brief history of police use of force in Canada shows that all use of force tools and techniques have faced scrutiny from the public and professionals. The CEW is not unique in being perceived as a potentially dangerous use of force tool that requires further research and critical analysis to ensure its safe and proper use. To this point, critical analysis and scrutiny are positive aspects in the process of ensuring safe practices by police services.

Stakeholder Input and Secondary Research

Use of Force Experts

Although there are alternatives, CEWs were perceived by all use of force experts as having no viable replacement. The ability to induce neuromuscular incapacitation with a low injury rate is perceived to provide officers with a unique option that no other use of force tactic/tool can replicate. For example, the TPS has completed evaluations for both the Soft-Nosed Impact Round (SOCK) and Shield as an alternative to CEWs, and both studies concluded that neither would be a viable replacement for the CEW. This general sentiment was corroborated through stakeholder engagement in this review as none saw these options – as well as others such as the BolaWrap, E-Gloves, Spider Wrap, Sasumata, or Vector Shields – as tools that would be suitable for broad use within policing.

While discussing use of force alternatives, use of force experts identified the value of de-escalation for all training and uses of any tactic/tool by officers. With that said, use of force experts consistently indicated that de-escalation is reliant on the subject complying with the police, as well as the training and

experience of the officer involved. To this point, the police officer can do and say everything consistent with best practices of de-escalation. However, ultimately it is the subject that complies or does not comply, willfully or otherwise, with what the officer is asking. Furthermore, use of force experts indicated that de-escalation techniques will have varying degrees of effectiveness when utilized by an officer with a subject experiencing a mental health crisis, even if they have proper training and experience. Essentially, even if executed in an ideal manner, no use of force expert consulted for this review indicated that de-escalation would guarantee non-lethal outcomes when police interact with citizens. However, all use of force experts indicated that de-escalation techniques increase the likelihood of a safe outcome for the officer and subject.

Key Stakeholders

Key stakeholders generally focused on de-escalation techniques when discussing alternatives to CEWs. Specifically, key stakeholders spoke about the elements of time, distance, and communication when discussing de-escalation in the sense that officers should use time and distance to communicate with an individual and to alleviate the volatility of the incident. For example, officers should avoid using language that was directive and authoritative to command a subject to behave in a particular manner. Alternatively, officers should assess a subject and the environment then take their time to communicate with the subject at a safe distance to build a rapport with them and attempt to come to a non-violent resolution.

Generally, these stakeholders indicated that de-escalation should be a primary focus on TPS training and utilized in conjunction with all use of force tactics/tools to avoid their use whenever possible. There is a perception by these stakeholders that de-escalation techniques may be utilized most effectively during incidents when there is no immediate threat to life, the subject is not armed with a weapon, and the subject is able to communicate with the officers effectively to help resolve the situation safely.

With that said, these stakeholders also acknowledged that this is not always possible. For instance, if an officer is chasing a subject through a building and then is physically attacked when they come around the corner, it was perceived to be reasonable for the officer to use force to protect themselves. Additionally, if a subject is armed with a weapon, then de-escalation techniques were acknowledged as being part of the response by an officer; however, an officer was not expected to avoid using their tools/weapons to protect themselves or others.

Primary and Secondary Research

Use of force tactics/tools are not standardized among police services. In general, police services will issue a baton and OC spray. However, firearms are not provided to all uniform members for police services in the United Kingdom or the New Zealand Police Service. Additionally, CEWs are not currently provided to all uniform members in many police services. There are various reasons for the discrepancies amongst use of force tactics/tools between police services that include legislation, policies, and public sentiment.

There has been little field research assessing the relative strengths and weaknesses of different use of force tactics. A recent United States study by Brandl and Strohshine (2017) conducted a comparison between OC spray and CEWs based on use of force reports completed by officers involved in these incidents. Because this study is unique, it will be discussed in detail. Over the study period, OC spray was used in 259 incidents and a CEW was used in 245 incidents. Twenty-four of these incidents involved the

use of both OC spray and a CEW. While all officers carried OC spray, CEW were issued to a limited number of certified officers.

The study first looked at factors related to the use of OC spray and CEWs. Multivariate analysis showed that CEWs were more likely to be used on subjects believed to be experiencing a mental health crisis; when a subject was fleeing on foot; and when there were more officers at the incident. OC spray was more likely to be used when more subjects were involved. Thus, they were used in different circumstances.

The study also looked at the effectiveness of OC spray and CEWs. OC spray and the CEWs were judged to be effective if it was the only type of force used to subdue or handcuff the subject and also if the OC spray or the CEW was the last type of use of force used prior to the suspect being subdued. Thus, if OC spray was used and if this was followed by a CEW deployment, the OC spray would be considered to be ineffective and the CEW to have been effective. The analysis showed that the effectiveness rate was 73.8% for OC spray and 90.2% for the CEW. Thus, the CEW was more effective at incapacitating the subject than OC spray. Analysis of incidents where both were used reinforces this conclusion. Of the 24 incidents, the CEW was the last method used in 22 (91.7%) cases indicating that it was much more effective than OC spray. OC spray was particularly ineffective in situations where the subject resisted. The researchers concluded that CEWs were more effective on resistant subjects and suggested that OC spray and CEWs should not be considered equivalent on the use of force continuum.

Along with use of force tactics/tools, de-escalation has been proposed as a tactic for reducing the need for officers to use force. However, to date there has been very little systematic evaluation to establish the impact of de-escalation techniques on the frequency and severity of uses of force by officers. Engel, McManus, & Herold (2020) note that, “we know little about the effects of de-escalation training on officers and police–citizen interactions” (p. 721). The most robust evaluation regarding the impact of de-escalation to date was conducted by the International Association of Chiefs of Police in partnership with the University of Cincinnati Centre for Police Research and Policy on the implementation of the Integrating Communication, Assessments, and Tactics (ICAT) training program by the Louisville Metro Police Department (Engel et al. 2020). The purpose of ICAT training is to teach officers de-escalation tactics as well as critical thinking skills to manage potentially volatile police-citizen interactions that utilize crisis recognition/intervention, communication skills, and operational tactics. ICAT training is meant to help officers address subjects in crisis that are unarmed or armed with anything other than a firearm.

Prior to the ICAT training, officers were asked to complete a survey to establish baseline information. Of the responding officers, 85% agreed or strongly agreed that there is a good chance that they would be assaulted while on the job, whereas 75% agreed or strongly agreed that they worked in a dangerous jurisdiction. After receiving training:

- 64% of officers noted that they sometimes, often, or frequently used some ICAT strategies
- 62% of officers noted that they sometimes, often, or frequently used the ICAT critical decision-making model
- 68% of officers noted that they sometimes, often, or frequently used the ICAT communication skills
- 69% of officers noted that they sometimes, often, or frequently used the reaction gap strategy
- 57% of officers noted that they sometimes, often, or frequently used the tactical pause strategy

Following the ICAT training, there was a reduction in use of force incidents of 28%, citizen injuries of 26%, and officer injuries of 36%. Noting these results, the conclusion of the evaluation also highlighted the importance of reinforcing de-escalation within policies of the police department through direct field supervision and an established accountability system.

Summary

All use of force experts stated that there is no viable replacement for a CEW. Further, use of force experts acknowledged that there are alternative use of force tactics/tools to the CEW such as the baton or empty-hand techniques. However, these tactics/tools are more likely to cause injury for the subject and/or the officer. De-escalation is supported by use of force experts as well as key stakeholders. Specifically, both stakeholder groups perceive de-escalation to be valuable and recommend that it be utilized by officers whenever possible. Several stakeholders have noted that there are limitations to de-escalation techniques and agree these tactics are not guaranteed to resolve every incident nor are they always applicable. There has been little systematic evaluation regarding the impact of de-escalation and there has been little field research comparing the strengths and weaknesses of available use of force tactics/tools to one another. Complicating a comparison of use of force tools/tactics is a lack of standard tactics/tools utilized by police services nationally and internationally.

Overall, there is simply no tactic or tool that will optimally address every incident that a police officer will encounter while on duty. As a result, police officers should be equipped with the range of tactics and tools necessary to the safety of themselves and the public with continual evaluation of existing tools as well as the assessment of innovative ones.

Current Use of Force Tools and Tactics Utilized by the Toronto Police Service

Current use of force tactics/tools utilized by the TPS include:

- **Empty-Hand or Physical Control:** these are self-defence techniques generally utilized to incapacitate or gain control of individuals that provide a low risk of serious injury or bodily harm to the police or others.
- **Batons:** Originally, these were large pieces of wood that have evolved to smaller batons that are easier to use, carry, and can be quickly utilized by an officer.
- **OC Spray:** an inflammatory agent that causes an immediate burning sensation around the eyes.
- **CEW:** this device is designed to lead to neuromuscular incapacitation in full deployment mode and provide pain compliance in drive-stun mode.
- **Extended Range Impact Weapon (ERIW):** introduced in 2016, these rounds provide officers with the ability to use a non-lethal use of force option, from varying distances that can range depending on the projectile used.

The use of the various tactics/tools is made by TPS members within the Ontario Use of Force Model (Figure 26) as well as the following governing documents as outlined within the TPS CEW policy (2021):

Federal

- Criminal Code of Canada
- Firearms Act: Storage, Display, Transportation and Handling of Firearms by Individuals Regulations (SOR/98-209)

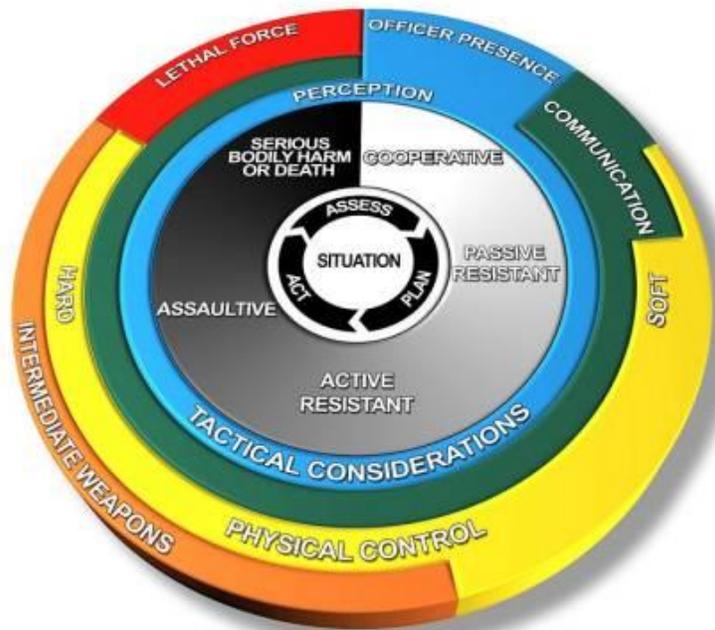
Provincial

- Police Services Act
 - Police Services Act – Part VII Special Investigations
 - Police Services Act, O. Reg. 267/10. Conduct and Duties of Police Officers Respecting Investigations by the Special Investigations Unit
 - Police Services Act, O. Reg. 926/90, Equipment and Use of Force
 - Police Services Act, O. Reg 3/99, Adequacy and Effectiveness of Police Services
- Ontario Use of Force Model

Toronto Police Service and Board

- TPSB Rule 4.4 Use of Force
- TPS Procedure 15-01 Use of Force
- TPS Procedure 15 Injury/Illness Report
- TPS Procedure 15-15 Shared Equipment
- TPS Procedure 15-16 Uniform Equipment and Appearance Standards
- TPS Procedure 08-06 Hazardous Materials, Decontamination, and De-infestation
- TPS Procedure 13-03 Uniform Internal Complaint Intake/Management
- TPS Procedure 13-05 Police Services Act Hearings
- TPS Procedure 13-16 Special Investigations Unit
- TPS Procedure 13-17 Notes and Reports
- TPS 105 Injury/Illness Report
- TPS 584 Conducted Energy Weapon Use Report
- TPS 594 Location of Issued Conducted Energy Weapon
- TPS 649 Internal Correspondence
- TPS 901 Policy, Service or Conduct Report
- Use of Force Report (pp.7-8).

Figure 26: 2004 Ontario Use of Force Model



The officer continuously assesses the situation and selects the most reasonable option relative to those circumstances as perceived at that point in time.

Source: Unknown graphic designer. (n.d.). [Ontario Use of Force figure provided by the TPSC to include in this report].

Comparison of CEW to Current TPS Use of Force Tools and Tactics

Two categories of alternative tactics to the CEW have been considered:

1. Existing Use of Force Tactics/Tools

- De-escalation and Disengagement/Containment: tactics/tools based on verbal communication, time, and distance.
- Empty-hand and close-quarter use of force tools (i.e. shield)
- Intermediate use of force tools such as the Baton, OC Spray, and Extended Range Impact Weapon (ERIW).

2. New Less Lethal Weapons including the BolaWrap, Spider Wrap, Sasumata, E-Gloves, and Vector Shield

To compare the CEW to other tactics/tools the following criteria have been utilized:

- Strengths: the unique benefits of the applicable tactic/tool will be identified and discussed.
- Training and Recertification Required: educational requirements to effectively utilize the tool will be identified.
- Portability: the degree that the tool can be carried and utilized by a uniformed police officer.
- Injury of Officers and Subjects: information regarding the potential for injury regarding the tool will be identified.
- Environmental Conditions: factors that influence the utility and/or effectiveness of tactic/tool will be identified.
- Use on Multiple Subjects: the ability for the tactic/tool to be utilized on multiple subjects or not will be identified.
- Limitations: specific challenges or constraints will be identified.

Since there is no standard for comparing use of force tactics/tools, the seven criteria above have been developed for the purpose of this review utilizing the expertise in use of force tactics/tools of the team members. One additional row within each of the tables below, excluding the new less lethal weapons, is TPS Members Trained and Utilizing the Tactic/Tool that will disclose the degree to which TPS officers are trained and able to use the tactic/tool, or if not, which units are. Finally, the Intermediate Use of Force Tools and New Less Lethal Weapons will include an optimal distance category specifying the range that the tool is utilized most effectively by an officer.

To be clear, any tactic/tools discussed below are not replacements for CEWs as much as they are other options that are situationally dependent based on the totality of the circumstances. For example:

Situation A: A trained police officer is 6'2", 240 lbs, physically fit and is confronted by an assaultive subject (i.e. physical threat is imminent, and the officer is not able to disengage). The subject is 5'8", 145 lbs, physically fit and unknown to the officer. In this situation, the officer may make a choice and use physical control to deal with the assaultive subject as opposed to using an intermediate weapon such as a CEW or other use of force tactic. This choice would be based on the officer's

perception and tactical considerations which include that they may believe they can control this situation with either physical control or an intermediate weapon. It should be noted that once a situation reaches the point that a threat is imminent and officer presence and communication has been exhausted, then an officer will have to deal with the subject presenting a threat consistent with the Ontario Use of Force Model.

Situation B: Reverse the size and strength factors in Situation A. The trained officer is 5'8", 145 lbs, physically fit and is confronted by an assaultive subject (i.e. physical threat is imminent, and the officer is not able to disengage). The subject is 6'2", 240 lbs, physically fit and unknown to the officer. Size, strength, and a host of other factors determine who generally wins and who loses a confrontation. In this situation the officer may feel that they will lose control of the situation and put themselves at risk of injury if they only use physical tactics. Using an intermediate weapon that is consistent with the Ontario use of Force Model such as a CEW, OC spray, or baton would be other options available to the officer. Once a threat is imminent and officer presence and communication has been exhausted, then the officer will have to deal with the subject presenting a threat. Acknowledging that OC spray and a baton are viable options, the officer may choose to use a CEW. Utilizing a CEW would provide this officer with the least chance of injury to themselves and the subject on a successful deployment and is consistent with the Ontario Use of Force Model.

These two situations speak to the fact that different officers may attend the same situation, with different strengths, capabilities and perceptions that result in dealing with a subject using different force options. The key is that the force used is reasonable. The Criminal Code and case law support this standard of reasonableness. In *R. v. George*, the Court of Appeal examined the issue of reasonable force, quoting from the judgment in *R. v. Baxter* (1975), 27 C.C.C. (2d) 96, where Martin J.A. stated (Department of Justice, 2016):

The sections of the Code authorizing the use of force in defence of a person or property, to prevent crime, and to apprehend offenders, in general, express in greater detail the great principle of the common law that the use of force in such circumstances is subject to the restriction that the force used is necessary; that is, that the harm sought to be prevented could not be prevented by less violent means and that the injury or harm done by, or which might reasonably be anticipated the force used, is not disproportionate to the injury or harm it is intended to prevent ... (p.113)

There is no "one size fits all" use of force tactic/tool that can be relied upon by officers to always address factors such as an individual's size, age, gender, physical capability, and the presence of a weapon. As a result, all instances involving the use of force by an officer need to be assessed by means of the reasonableness of the use of force considering the factors of the situation.

Existing Use of Force Tactics/Tools

De-escalation and Creating Space/Disengagement

The two primary tactics to utilize before and in conjunction with use of force tools and tactics available to TPS members while on duty are de-escalation and disengagement/containment and are defined as:

- De-escalation: reduce the intensity of (a conflict or potentially violent situation).
- Creating Space/Disengagement: specific actions taken by an officer to utilize space and time to increase the likelihood of a safe outcome. Regarding de-escalation, the 2019 Annual TPS report on the use of CEWs states:

TPS training emphasizes that before a CEW is used against any subject, officers should consider de-escalation as a priority whenever it is safe and practical to do so. De-escalation begins with the TPS communications. The call taker is trained to reduce the person's anxiety while eliciting information about the situation for responding officers (p.26).

As previously noted in this report, the 2019 and 2020 TPS annual CEW reports also indicate that de-escalation was utilized by officers during 97.3% and 97.8% of the incidents requiring the use of a CEW. The mutually reinforcing tactic of creating space/disengagement is something that is not tracked by the TPS. As a result, the extent to which these tactics are utilized is unknown.

Presently, the TPS provide knowledge-based training regarding creating-space/disengagement for CEW use. Further expansion of this training to include reality-based scenarios may help to reduce the number of incidents involving a use of force tactic/tool, including the CEW, by the TPS. These tactics could be considered for a variety of situations when the TPS is attending a call with or without a weapon involved, including if a subject is in crisis, to ensure officers' tactics, when possible, contribute to avoiding or mitigating the subject's ability or opportunity to carry out an assault. The purpose of these techniques is to reduce containment pressure felt by an individual.

For clarification, containment pressure is where a subject in crisis feels he/she has lost their ability to freely move within an area which increases their anxiety to the point they feel they must act in some manner that may or may not escalate the incident. Essentially, the goal of creating space/disengagement techniques is to find an optimal balance between the proximity of the officer and the subject to release their anxiety to ensure that no one involved feels compelled to act in an irrational or violent manner.

Disengagement is identified in the Ontario Use of Force Model as a tactical option that must always be considered by the officer. Further, the experiential learning provided by scenario-based training allows officers to draw on their training experience to assist in making decisions during a real-world encounter. Use of force experts interviewed for this study spoke of reality-based training being the "gold standard" of training. This belief is due to experiential learning which cannot take place during a lecture-based presentation. Essential skills like disengagement should be delivered using high fidelity scenarios. Consequently, it would be pertinent to include creating space/disengagement as part of the TPS CEW reality-based training scenarios as a primary objective of the testing/training. Specifically, presenting a scenario that reveals contextual information, so the officer identifies creating space/disengagement as the best solution based on the totality of the circumstances.

Creating space/disengagement may take several forms and the scenarios should be designed to reflect the most appropriate level of disengagement. Scenarios should include a spectrum of disengagement options, for example:

1. Complete Disengagement: a scenario where the officer identifies that the police have no lawful authority to continue staying engaged with a subject who has expressed no desire to continue interacting with the police.
2. Full Structure Disengagement: a scenario where the totality of the circumstances would suggest the best course of action is to remove themselves from the structure, contain and request special resources (Tactical team, Crises Counselor etc.).
3. Disengagement Through Tactical Repositioning: a scenario where it is recognized that the containment of a subject experiencing a mental health crisis can be safely expanded to provide more time/distance for officers and lower the containment pressure on the individual experiencing a mental health crisis.

The training needs to focus on the officer's understanding of the balance between the safety of the subject, third parties and officer(s) on scene by utilizing these tactics. Additionally, the safety and security of other third parties must always be considered by the officer prior to disengagement.

One main objective of all additional reality-based training scenarios would include the officers "priming the scene". Priming the scene by removing third parties, ensuring the officer has an exit for them if required, utilizing the environment to their advantage, containing the scene at a place the officers have a position of advantage would also be pertinent. While priming the scene the officer would rely on their de-escalation training to continue to address the incident.

Essentially, the goal of creating space/disengagement techniques would be to find an optimal balance between the proximity of the officer and the subject combined with the officer's, subject's and third-party's safety. The optimum result of this tactic would be to release anxiety felt by a subject or officer to ensure that, if possible, no one involved feels compelled to immediately act and thus resolve the situation without force.

Two examples for reality-based training could be considered. A person in crisis situation where the police officer(s) themselves are the stimulus for the escalation of the subject's physical and mental anxiety simply because they are the "police". Another scenario could include the subject displaying pre-"suicide by cop" behaviour and verbal cues. Optimizing time and distance along with disengagement in theory seems simple. However, further expanding reality-based training scenarios in which TPS officers practice these skills will help improve the utilization of these tactics in the field and ideally the use of force by officers.

Summary

De-escalation and disengagement tactics are supplements to the use of force tactics/tools available to police that have the capacity to reduce the need to use force in certain circumstances. With that said, de-escalation and disengagement tactics are not infallible nor universal approaches that can be utilized in every circumstance. Based on information collected for this review, the TPS is increasingly incorporating de-escalation into their training and on-duty practices. Further expansion of the existing

reality-based training scenarios involving creating space/disengagement training by the TPS may help to reduce the number of incidents involving a use of force tactic/tool including the CEW by the TPS. These tactics could be considered for various situations including when the police themselves are the stimulus for the subject's increase in anxiety and when they are armed or not armed. The additional scenarios would help to ensure that TPS officers understand when these tactics could be used and when they should not be used. A critical aspect of both tactics that always needs to be considered is the balance between the safety of the subject, third parties and the officers on scene. Ultimately, continual knowledge and reality-based training for officers will increase the propensity with which these tactics are utilized by officers on-duty.

Empty-Hand and Close Quarter Use of Force Tactics/Tools

Table 13 provides a comparison of CEWs to empty-hand and close-quarter use of force tools including the shield. To justify the use of empty-hand techniques and or the use of a shield an officer should be able to articulate the following:

- Higher levels of force would not be justified.
- Taking the totality of the circumstances into account, the officer's actions were reasonable, proportionate, and necessary.

Table 13: CEW Compared to Empty-Hand and Team Tactics, as well as a Shield

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	Empty-Hand	Team Tactics	Shield
Strengths	The successful full deployment will cause neuromuscular incapacitation of a subject enabling officers the ability to restrain/handcuff the subject. No other use of force tool currently utilized by the TPS can provide a similar effect.	In close quarters an officer can utilize the CEW as a pain compliance tool to gain distance from an assaultive subject. Additionally, in close quarters an officer can use drive-stun mode to complete the connection if only one of two probes connect to achieve neuromuscular incapacitation.	These tactics are available to all officers and with continual training, officers may use these tactics to improve their confidence as well as better control situations requiring the use of force when they are situated within arms length of a subject.	Officers may use a team approach to control situations avoiding the utilization of other use of force tools (e.g. CEW or Baton).	The shield is most effective as a defensive tool for officers during incidents such as riots or specific tactical exercises such as entry into a potentially dangerous indoor area.
TPS Members Trained and Utilizing the Tactic/Tool	Only certified members of the TPS are eligible to utilize a CEW. Additionally, the CEW is a shared asset meaning that not all certified members will be equipped with the device while on-duty.	Training regarding the use of drive stun would be done in conjunction with full deployment so Officers understand by drive stun as a pain compliance tool. Training is also required for the drive stun to complete a two or three-point contact causing neuromuscular incapacitation which may be a complicated action to complete requiring effective and continuous training.	All members of the TPS are provided with empty-hand training.	Continual training is encouraged due to the coordinated nature of this approach that is grounded in empty-hand tactics.	Training in the use of the shield is limited to members of the ETF as well as the Emergency Management & Public Order.

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	Empty-Hand	Team Tactics	Shield
Training and recertification required	Effective training to use a CEW involves both knowledge and scenario-based assessments. Specifically, training regarding judgement in using the tool. Annual recertification is required by TPS officers to ensure the proper and effective use of the device.	Training regarding the use of drive-stun would be done in conjunction with full deployment so officers understand drive-stun as a pain compliance tool. Training is also required for the drive-stun to complete a two or three-point contact causing neuromuscular incapacitation, which may be a complicated action to complete requiring effective and continuous training.	Capabilities such as size, strength, combative training are a significant factor in the successful utilization of empty-hand tactics. As a result, continual training is encouraged to ensure officers are confident and capable of using these tactics.	Continual training is encouraged due to the coordinated nature of this approach being grounded in empty-hand tactics.	Training would require both knowledge and scenario-based assessments. Depending on the application of the shield, coordinated training with other officers may also be required.
Portability	CEWs are easy to carry and handle by officers.	CEWs are easy to carry and handle by officers.	Highly portable.	Highly portable.	The length and weight of the tool makes it non-portable for routine calls.
Injury of Officers and Subjects	International research as well as statistics provided by the TPS show that there is a low rate of injury compared to other use of force tactics/tools.	If successfully deployed, drive-stun mode may leave burn marks from the device on the subject.	Research indicates that empty-hand tactics are associated with one of the highest rates of injuries for both subjects and officers.	No specific injury rates were found regarding team tactics.	No specific injury rates were found regarding the use of shields.
Environmental Considerations	A CEW cannot be utilized around flammable chemicals vehicles, and subject's at risk of falling from elevated heights.	A CEW cannot be utilized around flammable chemicals vehicles, and subject's at risk of falling from elevated heights.	Officers must be within striking distance of a subject to utilize applicable tactics.	Multiple officers have to be within striking distance of a subject to utilize this tactic.	Officers must be within striking distance of a subject to utilize this tool for an offensive application. However, the

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	Empty-Hand	Team Tactics	Shield
					shield can be effective for projectiles at a distance.
Use on Multiple Individuals	The CEW in full deployment mode is limited to be used on a single subject.	The CEW in drive-stun mode may be utilized on multiple subjects.	Empty-hand tactics are limited to being utilized on a single subject at a time. However, the transition from one person to another can be achieved.	Team tactics are limited to being utilized on a single subject at a time. However, the transition from one person to another can be achieved or the team may split up to address multiple subjects.	A shield is limited to being utilized on a single subject for an offensive application however it can be effective for projectiles of multiple subjects.
Limitations	The officer should be seven to 15 feet away from the subject. Furthermore, tactics can be taken to render the device ineffective such as wearing thick or very loose clothing. Finally, the CEW is not as effective in comparison to other use of force tools when there are multiple subjects.	Drive-stun requires the officer to be close to the subject to be utilized.	There can be a lower probability of safely using empty-hand tactics to resolve an incident when size, strength, and capabilities are not in an officer's favour. Additionally, empty-hand tactics are not suggested approaches in many incidents involving the presence or suspected presence of a weapon.	Team tactics require enough officers to overcome the size, strength, and capabilities of the subject(s) involved.	Shields require an officer to be close to a subject to utilize. They require certain physical strength to operate and can lead to the officer losing control of the tool. Also, the length/weight is prohibitive to using on routine calls for service.

Summary

- Strengths: The strength of the shield is associated with specific tactical exercises and incidents (e.g. riots), while team tactics, empty-hand, and CEWs can be utilized in a wider breadth of incidents to control a situation.
- Training and Recertification Required: All tactics/tools are recommended to have continual training by an officer. However, the CEW does require mandatory annual recertification to be able to utilize the tool.
- Portability: The shield is the only tactic/tool that is not deemed to be portable due to the size and weight of the tool.
- Injury of Officers and Subjects: There is no information for injuries associated with the shield and team tactics. With that said, CEWs are associated with less injuries in comparison to empty-hand tactics.
- Environmental Conditions: The CEW has the most considerations regarding the environment in comparison to the other empty-hand and close quarter tactics/tools. These are discussed in more detail within the Safety Best Practices section of the report.
- Use on Multiple Subjects: Generally, all these tactics/tools are to be utilized on a single subject at a time. However, transitioning from one subject to another is more readily available for empty hand and team tactics.
- Limitations: Empty-hand tactics are not a suggested approach for individuals armed with a weapon, while team tactics require multiple officers to be on scene. Shields are limited by the size and weight of the tool as well as the dependency on physical strength by the officer. Comparatively, the CEW is not as effective in comparison to other tactics/tools for multiple subjects and may be less effective in certain circumstances (e.g. a subject that is overweight).

Overall, a CEW would be the best choice if a subject posed a threat with a medium to high potential for injury. Specifically, the ability to use the device at a distance to achieve neuromuscular incapacitation and subsequently restrain a subject with a lower probability of injury is not replicated by alternative tactics/tools outlined in Table 13. The TPS had determined that the use of a shield is not a viable option for frontline officers to address subject(s) exhibiting assaultive behaviour or subject(s) experiencing a mental health crisis. Further, the tool requires officers to be very close to a subject and a higher degree of strength is required by the officer(s) to overpower a subject. With that said, providing TPS frontline officers with regular team tactic training may decrease the use of intermediate use of force tools such as the CEW. Additionally, empty-hand and team tactics provide other alternatives for scenarios when a subject is wearing heavy clothes that reduce the likelihood of an effective CEW deployment.

The value of TPS officers regularly training and being confident in empty-hand techniques cannot be overlooked and is vital to their safety. However, there are occasions where no amount of empty-hand training will overcome a large discrepancy in size, strength and capabilities of the officer and the subject they encounter and would be more effectively or safely addressed than using a CEW. Acknowledging these differences, the CEW is a unique use of force tool that cannot be replicated by empty-hand or close-quarter tactics/tools.

Intermediate Use of Force Tools

The following table provides a comparison of CEWs to other available intermediate use of force tools utilized by the TPS. To justify the use of the CEW, Baton, ERIW, or OC Spray, an officer should be able to articulate the following:

- Lower levels of force were either inappropriate or ineffective
- Higher levels of force would not be justified
- The officer’s intent is to cause temporary incapacitation and not serious bodily harm or death
- Taking the totality of the circumstances into account, the officer’s actions were reasonable, proportionate, and necessary

It is important to note that all intermediate tools may be used intentionally or unintentionally in a manner that could cause the subject grievous bodily harm or death. For example,

- ERIW – a projectile that strikes an individual in the trachea or the head
- CEW – probes that hit an individual who is on an elevated platform could have lethal consequences
- OC Spray – spraying an individual in the eyes from less than three feet away with a continuous stream may cause eye damage
- Baton – application of a baton strike to the trachea or the head

The above instances are only examples are not meant to be interpreted as an exhaustive list of possible fatal incidents. Tragic incidents may result from a multitude of possible factors in using any one or combination of these use of force tools.

Table 14: CEW Compared to a Baton, OC Spray, and the ERIW

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	Baton	OC Spray	ERIW
Strengths	The successful full deployment will cause neuromuscular incapacitation of a subject enabling officers the ability to restrain/handcuff the subject. No other use of force tool currently utilized by the TPS can provide a similar effect.	In close quarters an officer can utilize the CEW as a pain compliance tool to gain distance from an assaultive subject. Additionally, in close quarters an officer can use drive-stun mode to complete the connection if only one of two probes connect to achieve	Strike(s) to the mid-thigh, mid-calf, upper arm muscles, and upper forearm muscles may cause physiological incapacitation, elimination of the subject’s will to fight, and disorientation or a combination of all three. A baton is quick to draw	The effective use of OC spray may restrict a subject’s vision and deep lung breathing as well as influence an inward focus on pain. Additionally, OC spray may be utilized on multiple subjects. OC Spray may also be used for area contamination to limit access to enclosed spaces or coerce a	The successful deployment of an ERIW round may deter a subject from further action by means of pain compliance. Distances of the projectile can be tailored to the situation required.

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	Baton	OC Spray	ERIW
		neuromuscular incapacitation.	and may be utilized on multiple subjects.	subject out of an enclosed space.	
TPS Members Trained and Utilizing the Tactic/Tool	Only certified members of the TPS are eligible to utilize a CEW. Additionally, the CEW is a shared asset meaning that not all certified members will be equipped with the device while on-duty.	Only certified members of the TPS are eligible to utilize a CEW. Additionally, the CEW is a shared asset meaning that not all certified members will be equipped with the device while on-duty.	All members from the TPS are trained and provided with a baton.	All members of the TPS are trained and provided OC spray.	The use of the device in the field by officers requires annual recertification.
Training and recertification required	Effective training to use a CEW involves both knowledge and scenario-based assessments. Specifically, training regarding judgement in using the tool. Annual recertification is required by TPS officers to ensure the proper and effective use of the device.	Training in the use of drive-stun would be done in conjunction with full deployment so officers understand drive-stun as a pain compliance tool. Training is also required for the drive-stun to complete a two or three-point contact causing neuromuscular incapacitation, which may be a complicated action to complete, requiring effective and continuous training.	Effective training to use the baton involves both knowledge and scenario-based training. Recertification is required, although not to the degree of CEWs or ERIW.	Minimal training is required to use OC spray effectively.	Effective training to use the ERIW involves both knowledge and scenario-based assessments. Specifically, training regarding judgement in using the tool is required. Regular recertification is required to ensure the proper and effective use of the device.
Portability	CEWs are easy to carry and handle by officers.	CEWs are easy to carry and handle by officers.	A baton is easy to carry and handle by officers.	OC spray is easy to carry and handle by officers.	The length of the tool makes suitability to take on all calls difficult. In other words, it is difficult

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	Baton	OC Spray	ERIW
					to carry the tool on an officer's person.
Injury of Officers and Subjects	International research as well as statistics provided by the TPS show that there is a low rate of injury compared to other use of force tactics/tools.	If successfully deployed, drive-stun mode may leave burn marks from the device on the subject.	Research and statistics provided by the TPS show that there is a higher risk of injury to both the subject and officer compared to other use of force tactics/tools.	Research and statistics provided by the TPS show that there is a low rate of injury compared to other use of force tactics/tools.	Research and statistics provided by the TPS show that there is a higher risk of injury to the subject compared to other use of force tactics/tools.
Optimal Distance	The officer should be 7 to 15 feet away from the subject.	An officer would be required to be within 3 feet of a subject.	The baton may be used close quarters and will add the length of the baton to the officer's striking distance.	OC spray must be utilized within 3 to 15 feet of the subject.	The optimal distance of the ERIW is dependent on the round used. For instance, a SOCK round should be used 15 to 30 feet away from a subject.
Environmental Considerations	A CEW cannot be utilized around flammable chemicals vehicles, and a subject at risk of falling from elevated heights.	A CEW cannot be utilized around flammable chemicals vehicles, and a subject at risk of falling from elevated heights.	Due to the ability of the baton to be used in an extended or collapsed mode there no environmental considerations for this tool.	Wind, rain, snow, small rooms, hospitals, and populated areas may cause cross contamination.	The ERIW cannot be utilized within confined spaces.
Use on Multiple Individuals	The CEW in full deployment mode is limited to be used on a single subject.	The CEW in drive-stun mode may be utilized on multiple subjects.	A baton may be utilized on multiple subjects successively.	OC spray may be utilized on multiple subjects.	The ERIW may be utilized on multiple subjects.
Limitations	The officer should be seven to 15 feet away from the subject. Furthermore, tactics can be taken to render the device ineffective such as	Drive-stun requires the officer to be close to the subject to be utilized.	Using a baton is associated with a higher risk of injury to the subject and the officer	OC spray may not stop or prevent a subject from engaging in violent activities (e.g. firing a weapon or swinging a	Multiple rounds may be required to stop a subject. Additionally, the ERIW would not be appropriate when a

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	Baton	OC Spray	ERIW
	wearing thick or very loose clothing. Finally, the CEW is not as effective in comparison to other use of force tools when there are multiple subjects.		compared to other use of force tools.	knife). Furthermore, OC spray may indirectly affect officers or the public. Finally, the use of OC spray within certain jurisdiction requires contamination clean-up.	subject is able to reduce the distance between themselves and the officer quickly.

Summary

- Strengths: The baton and OC spray are both tools that are quick to draw and may be utilized on multiple subjects, while the ERIW is a less lethal device that may be utilized by officers at a distance greater than the CEW.
- Training and Recertification Required: The CEW and ERIW require annual certification, the baton does not require the same degree of training/recertification with OC spray requiring the least amount of training to use out of the four tools.
- Portability: All tools are easy to carry, with the exception of the ERIW that would be required to be in the officer’s vehicle.
- Injury of Officers and Subjects: The ERIW and baton have a higher risk of injury of the subject in comparison to OC spray and the CEW. Regarding officer safety, the baton would have the highest risk of injury as it places officers within striking distance of a subject.
- Optimal Distance: The baton requires the officer to be closest to a subject in comparison to the other tools with the OC spray and CEW having similar ranges, and the ERIW has the longest. With that said, the CEW may also be utilized in drive-stun when an officer is close to a subject.
- Environmental Conditions: The CEW and OC spray has multiple environmental considerations, while the ERIW is not as effective in confined spaces. Comparatively, the baton is a versatile tool that can be utilized in multiple environments.
- Use on Multiple Subjects: All tools can be utilized on multiple subjects, however the CEW is limited in this capacity to be used in drive-stun mode.
- Limitations: OC spray may not stop or prevent an individual from engaging in violent activities, while the ERIW may require multiple rounds and has a high potential for injuring the subject. A baton also has a high potential for injury for both the officer and the subject.

Ultimately, if a subject is exhibiting assaultive behaviour or if the officer believes an assault is imminent and is within five to twenty feet of a subject an intermediate use weapon is required. Under these circumstances, utilizing the CEW will generally result in less injury to both the officer and the subject. Further, the officer does not need to be concerned about cross contamination, multiple strikes of the baton causing bruising, or the size, strength and physical capabilities due to the neuromuscular incapacitation offered by a successful deployment of the CEW.

Should there be multiple subjects, OC Spray provides officers with the ability to quickly use the spray on them all from a distance with little skill/training. OC spray cannot incapacitate subjects unless the subject decides to stop and comply with officers due to the pain. However, by using OC spray the officer

can gain tactical advantages that they would not have had if they did not use the spray. An officer may ultimately need to transition to another intermediate weapon or empty-hand tactic after using OC spray.

Finally, an ERIW does provide officers with a less lethal option compared to a firearm at a greater distance than a CEW with distances varying with the type of projectile used. It is more likely to be a viable option for a situation occurring outdoors. The injury potential from the projectile hitting a subject would be higher than that of a CEW deployment, yet the distances from which this is able to be used effectively can offer the officer more time to deal with a subject that is armed with an edged weapon and eliminate the need for an officer to use lethal force.

Essentially, these tools serve different purposes and are applicable in different circumstances. Overall, all non-lethal weapons have limitations and are situationally dependent. The CEW allows an officer to overcome the discrepancies in strength, size and physical capabilities between the subject and the officer better than any other non-lethal weapon. In comparison to existing intermediate use of force tools, the CEW may allow the officer to achieve neuromuscular incapacitation of a subject which results in a lower probability of injury to both the officer and subject.

Assessment of New Less Lethal Tools

Table 15 is a comparison matrix that contains seven criteria identified by use of force experts to help compare the CEW to new less lethal use of force tools including the:

- BolaWrap
- E-Gloves
- Spider Wrap
- Sasumata
- Vector Shield

A description for each device may be found below. It should be noted that the use of force experts in the field determined the only possible situationally dependant alternative to a CEW of the below devices was the BolaWrap and Spider Wrap. The E-gloves, Sasumata and Vector Shield would not be recommended in any manner. Images of the devices can be found online.

BolaWrap

The device deploys a lasso-type line that is intended to go around a subject's legs or torso. The lasso-type line is secured by a hook on either end. The BolaWrap is not a pain compliance tool. It is not available in Canada at the time of writing this review and is current going through the firearms classification process. The BolaWrap is stated as being an option that may be utilized early in an encounter to decrease the potential for injury of a subject (Wrap Technologies Inc., n.d.). Examples of situations where the BolaWrap is suggested include, but are not limited to, a passively resistant and non-compliant subject as well as persons in crisis and/or a subject under in the influence of alcohol and drugs (Wrap Technologies Inc., n.d.). The following are product details provided on the company website (Wrap Technologies Inc., n.d.):

Device

- Weight - less than 12 oz. with a loaded cartridge
- Dimensions - 6 x 2.5 x 1 inches
- External material - proprietary plastics
- Laser - green laser for accuracy

Cartridge

- Weight - 3.6 oz. loaded cartridge
- Size - 2.6" length Material - recyclable aluminum
- Cover - polycarbonate plastic, adhesive backing
- Pellets - (2) stainless steel pellets, 1.1" length
- Bola cord (recyclable) - 380-pound strength
- Entangling barbs - 4 per pellet

Features

- Discharge speed - 640 feet per second
- Distance - 10-25 feet (best 10-18)
- Sound volume - 105/110 dB

- Number of wraps - 1-3 times
- Reload time - 3-8 seconds
- Distance required around subject - 2-4 feet (p.2)

Spider Wrap

Deploys two tether lines that are intended to go around a subject's legs or torso similar to the BolaWrap. However, unlike the BolaWrap, this device is not considered a firearm as it utilizes a CO₂ cartridge. The Spider Wrap is manufactured in Canada and is still in the testing stages of development and no publicly available information is available for this device by the manufacturer at the time of writing this review. With that said, consultation with a company representative has provided the following information:

- Uses a 16g CO₂ cartridge
- Best range of use 16.4-26.2 feet
- Max range 32.8 feet
- Tether length when fully deployed 7.8 feet
- Discharge speed 131.2 feet per second
- Very low noise level
- Green line laser for aiming
- Overall shape, looks like a flashlight
- Made in Canada

E-Gloves

These are tactical gloves with sensors that will emit an electric shock of low voltage to temporarily incapacitate an individual. There are no barbs or spark of electricity using the gloves. The following are the product details available for the G.L.O.V.E, which stands for Generated Low Output Voltage Emitter, which can be found on the Compliant Technologies website (n.d.):

- High-grade leather gloves with various styles/purposes
- Sizes: M, L, XL, XXL
- Weight: 9-23 ozs. or 260-650 grams
- Activation: 3-second switch on glove
- Duration of use: 2.0 hours
- Duration of charge: 2 days to months
- Battery: 3.7v Lithium Ion battery
- Charge time: 2 hours
- Maximum Voltage: 210-320V (cannot go above 380V)
- Maximum Current: 0.9-1.5A
- Pulse Duration (μ s): 105-115 (.000115 Second)
- Pulse Charge (μ C): 84-125 (.000125 Amp-Second)
- Pulse Repetition Rate (pps): 29.7 - 30.8
- Duty Cycle (%): 0.32 - 0.35
- Operation Temperature: 14°F to 122°F (-10°C to 50°C)

- 105 micro/s
- Pulse repetition 30 pps
- Operating temp -10 + 50°C
- In the final stages of development (The G.L.O.V.E Specifications).

Sasumata

Also referred to as a “Chinese Fork”, this tool is utilized to corral a person that is in crisis or posing a threat to a third party with or without a weapon. Specific uses involve restraining an assailant with an edged weapon or in a riot situation. Unfortunately, no manufacturing information has been found for this tool to include in this review.

Vector Shield

The guards are affixed to an officer’s arms to provide a protective cover for an officer from an attack. The shield can be utilized by an officer in combination with use of force tools such as OC spray or a baton. The following are some, but not all, of the features listed about the tool on the Vector Shield website (n.d.):

- Defeats blunt force impacts from baseball bats, knives, and needles;
- Makes traffic stops and building searches safer;
- Makes controlling a combative suspect easier (Vector Shield Features).

Table 15: CEW Compared to a BolaWrap, E-Glove, Spider Wrap, Sasumata, and Vector Shield

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	BolaWrap	E-Gloves	Spider Wrap	Sasumata	Vector Shield
Strengths	The successful full deployment will cause neuromuscular incapacitation of a subject enabling officers the ability to restrain/handcuff the subject. No other use of force tool currently utilized by the TPS can provide a similar effect.	In close quarters an officer is able to utilize the CEW as a pain compliance tool to gain distance from an assaultive subject. Additionally, in close quarters an officer is able to use drive-stun mode to complete the connection if only one of two probes connect to achieve neuromuscular incapacitation.	The device can be utilized by an officer at a distance, the device does not rely on pain compliance, and is specifically designed to be deployed early in an engagement.	Due to a limited field tests and studies, the strengths of this device are not clear.	Similar benefits to the BolaWrap. However, it is less expensive and not considered a firearm.	Successful use of a Sasumata will restrain a subject by means of pinning them to the ground or against a flat surface such as a wall.	The Vector Shield may be beneficial in defending against an initial attack on an officer by an assailant.
Training and recertification required	Effective training to use a CEW involves both knowledge and scenario-based assessments. Specifically, training regarding judgement in using the tool. Annual recertification is required by TPS officers to ensure the proper and	Training regarding the use of drive-stun would be done in conjunction with full deployment so officers understand drive-stun as a pain compliance tool. Training is also required for the drive-stun to complete a two or three-point contact	Comparatively simple training to use the tool with no special skills required. Knowledge and scenario-based training would be required to ensure officers know when and how to use the device.	Training would require both knowledge and scenario-based assessments as well as recertification.	Training considerations for the Spider Wrap are the same as the BolaWrap.	Team training is required for this tool to be utilized effectively.	Training requirements for the tool are low if the Vector Shield is utilized as a defensive tool.

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	BolaWrap	E-Gloves	Spider Wrap	Sasumata	Vector Shield
	effective use of the device.	causing neuromuscular incapacitation, which may be a complicated action to complete requiring effective and continuous training.					
Portability	CEWs are easy to carry and handle by officers.	CEWs are easy to carry and handle by officers.	The tool is highly portable due to its small size and light weight.	The tool is highly portable as it may be worn by the officer or kept on their persons.	The tool is highly portable due to its small size and light weight.	The length of the tool makes portability difficult. The tool cannot be carried on an officer's person.	The tool is highly portable as it may be worn by the officer.
Injury of Officers and Subjects	International research as well as statistics provided by the TPS show that there is a low rate of injury compared to other use of force tactics/tools.	If successfully deployed, drive-stun mode may leave burn marks from the device on the subject.	Limited information is available regarding the injury rate of officers and subjects.	Limited information is available regarding the injury rate of officers and subjects.	Limited information is available regarding the injury rate of officers and subjects.	Limited information is available regarding the injury rate of officers and subjects.	Limited information is available regarding the injury rate of officers and subjects.
Optimal Distance	The officer should be 7 to 15 feet away from the subject.	An officer would be required to be within 3 feet of a subject.	The range request of the tool is between 10 and 25 feet from the subject.	An officer would be required to be within 3 feet of a subject.	The range request of the tool is between 10 and 25 feet from the subject.	Depends on the length of the tool but must be near enough to subject to use as intended.	Not applicable.

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	BolaWrap	E-Gloves	Spider Wrap	Sasumata	Vector Shield
Environmental Considerations	A CEW cannot be utilized around flammable chemicals, vehicles, or a subject at risk of falling from elevated heights.	A CEW cannot be utilized around flammable chemicals, vehicles, or a subject at risk of falling from elevated heights.	The device cannot be utilized in a crowded area or within confined spaces.	The tool can only be utilized when an officer is within striking distance of a subject.	The device cannot be utilized in a crowded area or within confined spaces.	The Sasumata cannot be utilized by officers within confined spaces due to the length of the tool.	The tool can only be utilized when an officer is within striking distance of a subject.
Use on Multiple Individuals	The CEW in full deployment mode is limited to be used on a single subject.	The CEW in drive-stun mode may be utilized on multiple subjects.	A BolaWrap cannot be utilized on multiple subjects.	E-gloves may be utilized on multiple subjects.	The Spider Wrap cannot be utilized on multiple subjects.	The Sasumata cannot be utilized on multiple subjects.	The Vector Shield may be utilized to defend strikes from multiple assailants.
Limitations	The officer should be seven to 15 feet away from the subject. Furthermore, tactics can be taken to render the device ineffective such as wearing thick or very loose clothing. Finally, the CEW is not as effective in comparison to other use of force tools when there are multiple subjects.	Drive-stun requires the officer to be close to the subject to be utilized.	This tool is being used in hundreds of United States Police Departments including Los Angeles, Cincinnati, Minneapolis, and Fort Worth. However, the device is not available in Canada. The device is considered a firearm and is currently going through the firearms classification process. There is	To use the gloves, the officer has to be within striking distance. The glove is reliant on the subject giving in to the pain. However, there is a risk that the pain applied to a subject may cause them to act out aggressively towards an officer. The gloves must be turned off after use to ensure no further applications are applied to the subject. The gloves	The Spider Wrap is in the testing stages at the time of writing this review. As a result, no information regarding the effectiveness of this device is available.	The effective use of the tool requires at least two officers. The officer using the tool can be in a vulnerable position if a subject can defeat an initial attempt to get them in a trapped position/area.	Arm shields are inherently a defensive tool for unexpected attacks with minimal other uses.

Criteria	CEW: Full-Deploy	CEW: Drive-Stun	BolaWrap	E-Gloves	Spider Wrap	Sasumata	Vector Shield
			limited information regarding the effectiveness of the tool in the field.	make it difficult for officers to transition to other use of force tools.			

Summary

- Strengths: The BolaWrap and Spider Wrap are devices that may be utilized by an officer at a distance that do not rely on pain compliance. If successfully deployed, the Sasumata provides officers a means of restraining an individual against a wall or on the ground. Finally, the Vector Shield may provide an officer protection against an attack from a subject in certain circumstances.
- Training and Recertification Required: As a defensive tool, the training required by officers to use a Vector Shield would be minimal in comparison to the other new less lethal weapons. The BolaWrap and Spider Wrap would require similar training and recertification of the CEW. The Sasumata be the only tool that would require team training by officers, while the E-Gloves would require both knowledge and scenario-based assessments as well as re-certification.
- Portability: The Sasumata would be the only tool that would not be easily transported due to its length.
- Injury of Officers and Subjects: There is limited information regarding the injury of individuals for the new less lethal weapons identified in Table 15.
- Optimal Distance: The E-Gloves, Sasumata, and Vector Shield require an officer to be close to a subject to be utilized effectively. Alternatively, the BolaWrap and Spider Wrap may be utilized at a further distance from a subject than a CEW.
- Environmental Conditions: The BolaWrap and Spider Wrap cannot be utilized in a crowded space, while both of these tools as well as the Sasumata cannot be utilized within a confined space. The Vector Shield and E-Gloves require an officer to be within striking distance to utilize. The CEW is the only tool that may be utilized close to the subject as well as from at a distance.
- Use on Multiple Subjects: Only the E-Gloves and Vector Shield are able to be utilized on multiple subjects, while the CEW is limited to be utilized on multiple subjects in drive-stun mode.
- Limitations: The Vector Shield is a defensive tool that is beneficial for officers to prevent unexpected attacks with minimal other uses. The E-Gloves have multiple limitations and minimal information regarding the effectiveness of the tool in the field. For the Sasumata, the tool places officers in a vulnerable position to be attacked by a subject if the tool is not successfully deployed. Limitations regarding the BolaWrap and Spider are discussed below.

The BolaWrap and Spider Wrap provide officers with a tool to immobilize a subject. Additionally, since the BolaWrap and Spider Wrap do not result in neuromuscular incapacitation, a subject would be able to use their arms to break their fall. Also, the BolaWrap and Spider Wrap would make it easier for officers to gain control of a subject. Finally, these two tools can be utilized by officers at a distance. However, since a subject is still able to use their arms

and upper body strength, they would still pose a threat to officers if they were armed or unarmed. Considering these points, the BolaWrap or Spider Wrap would be a viable alternative but not a replacement for a CEW under certain circumstances. However, the Spider Wrap is still in the testing stages of development and would require field tests to confirm the applicability of the device. Alternatively, the BolaWrap is not available in Canada at the time of writing this review. With that said, the BolaWrap has been tested and implemented by hundreds of police services in the United States. As a result, the BolaWrap is the most promising alternative of the two.

Based on the findings of an evaluation of the tool completed by the LAPD as well as input from use of force experts, generally the BolaWrap is utilized outside on subjects that are exhibiting aggressive behaviour or are not complying with officers. Specific examples of when the BolaWrap may be used include a subject wearing a heavy jacket to wrap up their ankles or a subject that is walking away from officers and would not warrant the deployment of a CEW.

The E-Gloves, Sasumata, and Vector Shield are not viable alternatives or replacements for a CEW. The E-Gloves simply have no place at this time in law enforcement. There are safer methods of addressing aggressive subjects that are unarmed or armed with a knife or blunt instrument than the Sasumata, such as a CEW. The Sasumata would put an officer in a vulnerable position if defeated by a subject that is stronger than the officer or able to evade the tool. Finally, Vector Shields are a defensive tool that would not provide an alternative or replacement for a CEW.

In consideration of the strengths and weaknesses of these new less lethal force tools, only the BolaWrap and Spider Wrap provide a viable alternative to a CEW under certain circumstances, with noted caveats for both. Ultimately, there are no viable replacements for a CEW being utilized by other police departments or in development/available within the existing use of force market.

Summary Comparison of CEW to Other Use of Force Tactics/Tools

De-escalation techniques (referred to as 'communication' on the Ontario Use of Force Model) should be attempted upon arriving at every call and are applicable throughout a use of force incident. One unique quality of de-escalation is that it can be utilized by an officer in tandem with all other use of force tactics/tools. However, the ultimate impact of the technique is reliant on the cooperation of the subject. Furthermore, de-escalation techniques cannot be utilized by police in certain situations such as ones involving a subject that is threatening individuals with a weapon or assaulting someone.

If de-escalation techniques do not work, then officers may decide that physical control tactics are their best option. Physical control techniques are shown on the Ontario Use of Force Model as "soft and hard". It is the potential for injury that determines the "level of force used". The higher the potential of injury, the higher the threat assessment needs to be. Soft physical control would include an officer applying a wrist lock on a subject to the point of immobilization, whereas hard physical control would include the officer performing a dynamic take down on the subject. Physical control tactics are used by police more than any other use of force option. It needs to be noted that this is not always by choice. Should a subject spontaneously attack an officer, or an officer faces resistance breaking up an altercation, there may not be time to use any other use of force options. The effectiveness of physical control tactics can be reliant upon the size, strength and physical capabilities of the officer compared to the subject.

A baton is an intermediate weapon use of force tool that is an option for police to help overcome size, strength, and physical capabilities. If used successfully, a baton may cause physiological incapacitation, eliminate the subject's will to fight, and/or disorient the subject so the officer can gain control. However, a baton is also associated with a high likelihood of injury for both the officer and the subject compared to other use of force tactics/tools.

OC spray is an intermediate weapon use of force tool that is used to give the officer a tactical advantage over the subject. It is less likely to result in injury to the officer and the suspect in comparison to physical control techniques or the baton. Proper application of OC spray causes the subject to have a hard time "locating" the officer due to the spray hampering their vision. It also causes the subject pain. It does not have the ability to incapacitate a subject. It should be noted that an officer may have to utilize an additional use of force tactic/tool in conjunction with OC Spray. For example, the situation where an officer sprays a subject and the subject keeps attacking the officer who then transitions to their baton. Environmental conditions such as the wind, rain or snow can reduce the effectiveness of this tool.

The newest intermediate less lethal weapon to be implemented by the TPS is the Extended Range Impact Weapon. This device has been shown to provide officers with another option for addressing assaultive subjects from a distance through pain compliance of the projectile strike. However, this device is associated with a higher likelihood of injury in comparison to other use of force tools. Additionally, this tool is less effective if a subject can close the gap between themselves and the officer quickly.

Finally, CEWs, which are also intermediate weapons, are the second most utilized tool by officers from departments/services involved in this review. The most frequent type of CEW used by police is as a demonstration of force. The tactical benefit of a successful deployment of a CEW is that it is capable of neuromuscular incapacitation of the subject. This provides the officers with an opportunity to restrain a subject and consequently prevent any or further actions that may have led or may lead to injury.

Research and information gathered from other departments/services involved in this review indicate that CEWs are utilized by officers most frequently to address subjects armed with a blunt or edged weapon and experiencing a mental health crisis. Additionally, the New Zealand Police Service utilizes CEWs disproportionately for dealing with subjects that are suicidal. Anecdotal evidence suggests that officers may be utilizing CEWs for subjects armed with a knife, that are experiencing a mental health crisis or individuals that are suicidal because they provide officers with the best opportunity to immediately stop the subject from harming themselves or others with the lowest risk of injury to the subject and the officer in comparison to other use of force tools.

The most promising alternative to a CEW is the BolaWrap. This tool shoots out wires that wrap up a subject's arms or legs thus decreasing the subject's ability to assault officers. An increasing number of police services in the United States are testing the tool and/or providing officers with them. At the time of writing this review, the BolaWrap is not available in Canada. Due to its limited application it cannot be viewed as a viable replacement for a CEW. However, a BolaWrap may be an alternative in specific situations that officers could consider. There is no pain associated with the BolaWrap unless it is a secondary action such as the subject falling. With that said, no use of force expert or research found in the course of this review indicated that there is a use of force tactic/tool available that would be able to replace the CEW.

Ultimately, if a subject is exhibiting assaultive behaviour or the officer believes an assault is imminent and is within five to twenty feet of a subject an intermediate use weapon is required. Under these circumstances, utilizing the CEW will generally result in less injury to both the officer and the subject than other use of force tactics/tools. Additionally, with a CEW the officer does not need to be concerned about cross contamination, multiple strikes of the baton causing injury, or the subject's size, strength and physical capabilities for empty-hand techniques. Neuromuscular incapacitation offered by a successful deployment of the CEW allows the officer to gain control of the subject. The CEW allows an officer to overcome the discrepancies in strength, size and physical capabilities between the subject and the officer better than any other non-lethal weapon.

Overall, a CEW is a highly utilized tool officers use to address assaultive subjects, primarily as a demonstration of force. Further, the TASER 7™ is able to provide in-depth information regarding the use of the device and is now capable of linking to a body-worn camera to further improve the accountability and transparency of the device - unparalleled by other use of force tactics/tools. This point will be discussed further in the following subsection.

TASER 7™

The TPS is transitioning from the TASER X2™ to the TASER 7™ because the X2™ model is being phased out by Axon Enterprise Inc. A pilot of the new device is scheduled for June 2021. In comparison to older models, the TASER 7™ has two cartridge types including a “close quarter” as well as “standoff” configuration. The close quarter cartridge is effective within ranges between 4 feet and 12 feet (Weimer, 2020). While, the new standoff cartridge was found to impact a target at 25 feet (Dstl, 2020). The Taser 7™ also has an increased pulse rate in comparison to previous models of the device (Weimer, 2020). In the TASER 7™, the wires that carry the electrical current unspool from inside the probes rather than from inside the cartridge. As a result of these changes, the darts are faster and have a straighter trajectory resulting in an improved connection for a successful deployment (Axon, n.d.). All these features are additional features to the X2™ and may address issues found in previous models of the device; that were found to be less successful on heavy subjects, those who are under the influence of drugs/alcohol or deployed from a short distance from the subject. However, more field testing and evaluation results would be required to verify this possibility.

In 2020, the Defense Research and Development Canada Agency completed a technical evaluation of the TASER 7™. Part of the evaluation was input from end-users (i.e. law enforcement personnel) that noted the TASER 7™ is simpler to operate than the X2™ (Weimer, 2020). Additional comments from end-users included the availability of the close quarter and standoff cartridges, improved velocity of the probes, and brighter flashlight. Finally, electrical testing showed that the device functioned within the parameters of the manufacturer. However, the bottom probe close quarter cartridge had a lower success rate hitting a stationary target due to the bottom probe missing the target’s lower leg. Furthermore, the tilt feature enabling an officer to switch between the two cartridge types by turning the device 90 degrees was not available for the evaluation. As a result, the evaluation noted that agencies should assess this feature to inform the selection of which cartridges are loaded in the device for active members (e.g. one close cartridge and one standoff cartridge or two standoff cartridges, etc.).

A similar evaluation of the TASER 7™ has been completed in the United Kingdom by the Defence Science and Technology Laboratory (Dstl) Counter Terrorism and Security Division. Findings from the evaluation include the following (2020):

- The TASER 7™ Adaptive cross-connect feature, if it operates in the way that the manufacturer claims, is an improvement over the current devices and would provide an improved tactical option by increasing the likelihood of achieving neuromuscular incapacitation (NMI) in instances where three or four probes are in contact with the subject.
- The pulse charge delivered by the TASER 7™ is said by the manufacturer to be similar to that delivered by the TASER X2™, however, the TASER 7™ reportedly delivers these pulses at a slightly higher pulse rate, which may improve the robustness of NMI. The claimed electrical output characteristics of the TASER 7™ are currently being independently confirmed by Defence Research and Development Canada (DRDC).
- The TASER 7™ is likely to effectively deliver a wider probe separation at shorter ranges and in confined spaces when using the Close Quarter cartridge than the current devices, hence improving effectiveness at close ranges compared with the currently authorized devices.

- The TASER 7™ has a two-shot capability while the TASER X26™ requires reloading to take a second shot.
- The accuracy and consistency of the Standoff cartridge are better than current devices giving better capability at longer ranges and extending the maximum effective range.
- The TASER 7™ has a dual laser sight, with the top probe sight being green and the bottom probe sight being red. The green laser is likely to be more visible than the red laser used in earlier devices to sight the top probe.
- The TASER 7™ has a rechargeable battery, which is one of the Police Operational Requirements.
- The training cartridges are representative of the operational cartridges in terms of their accuracy and consistency.
- Drop testing of the system does not reveal any robustness concerns.
- The user groups expressed predominantly positive comments on the TASER 7™ and stated in the main that the device was likely to be suitable for use in their current roles, although there were a small number who disagreed.
- At a firing distance of 3 m, the TASER 7™ fitted with the Close Quarter cartridge showed a higher miss rate than the X2™. This was in part due to the increased probe separation of the TASER 7™ increasing the likelihood of the lower probe missing the legs of the target. Without mitigation, this could reduce the effective operational range, particularly around 3 m.
- A high proportion of users reported accuracy issues where the bottom probe did not impact the laser point of aim. It was established that this was not due to the intrinsic accuracy of the devices and is therefore likely to be due to the interface between the firer and the weapon.
- Trapped ejectors result in the potential of disconnection/obstruction problems (this was observed at least 1 in every 42 firings or 2.4%).
- Probes detaching from the wire at full extension producing an additional risk to bystanders (including other officers), a risk that is not present with the X2™ or X26™. It is difficult to quantify this risk using data from the trial and injury potential will be affected by a number of factors such as where the probe hits on the body and the probe's kinetic energy.
- The safety lever was observed to be difficult to operate in some cases.
- During the Dstl assessment, a total of 1,981 cartridges were fired. Eight cartridges (0.4%) were faulty and failed to fire. This has operational implications that should be considered before acceptance (pp.1-3).

From a medical perspective, the Scientific Advisory Committee on the Medical Implication of Less-Lethal Weapons (SACMILL) in the United Kingdom noted that due to its effectiveness the TASER 7 may be more painful than the X2™ (2020). This statement is based on anecdotal evidence provided in a peer-reviewed paper. However, no other supporting information was provided.

Another feature available for the TASER 7 is the wireless link with Axon body cameras. Specifically, whenever the TASER 7™ is drawn, the Axon body camera will automatically turn on and begin to record. Additionally, a signal may be sent that the device had been unholstered and begin to track the officer's location. When the device is deployed, the recording system will automatically flag the time of the deployment in the video to make it easier to reference. Furthermore, information regarding the number

of pulses, charge, and duration of the electric shock are all recorded and available for review (Axon, n.d).

Regarding body worn cameras, the Canadian Association of Chiefs of Police states that these devices were introduced to improve (2019):

- Police response
- Transparency of police services
- Quality of evidence presented as well as the functioning of the judicial process (p.1)

A 2020 systematic literature review found that it is uncertain if body worn cameras cause a reduction in officer use of force or change behaviour of citizens and officers (Lum et al. 2020). As for transparency and quality of evidence, body cameras will provide additional evidence to investigate incidents of police use of force. However, Boivin (2019) notes that there have been concerns raised regarding when police officers turn on these cameras, based on a key assumption that “the officer chooses what they wish to record”. However, Boivin notes that police services have policies and disciplinary processes for addressing these types of issues if they arise. To this point, the TPS have developed a body worn camera policy that states that a TPS member equipped with the device will start a recording (2021):

- Prior to arriving at a call for service
- At the earliest opportunity, prior to any contact with a member of the public, where that contact is for an investigative or enforcement purpose (including, but not limited to; an apprehension under the *Mental Health Act* or an interaction with a person in crisis), regardless of whether or not the person is within camera view;
- To record statements that would normally be taken in the field including utterances and spontaneous statements;
- To record interactions with a person in custody or member of the public while in a Service facility, if the officer believes it would be beneficial to do so;
- To record Protective Search (Formally Level 1) and Frisk Search (Formerly Level 2) in the field; and
- To record any other interaction where the officer believes a body worn camera would support them in the execution of their duties (p.6).

Lastly, the TPS body worn camera policy states, “when your body worn camera is recording, the recording shall not be stopped, muted, or deliberately re-positioned until the event has concluded or your involvement in that event has concluded...” (Toronto Police Service, 2021, p. 7).

In general, body cameras are perceived to be a welcomed tool to help provide more evidence and information regarding police-citizen interactions and potentially to help reduce use of force incidents and public complaints.

Overall, the TASER 7™ has unique qualities as well as the ability to improve accountability and transparency regarding its use in conjunction with the AXON 3™ body camera. However, there are additional tests required by police services regarding the miss rate of close quarter cartridges, failure to fire from incorrectly loaded cartridges, and the tilt feature of the device.

Safety Best Practices

The objective of this section is to determine the degree of alignment between the TPS safety practices and those of other jurisdictions regarding full deployment and drive-stun mode. Although, additional factors will be utilized to compare the TPS to Public Safety Canada and the Province of Ontario.

To start, input from use of force experts and key stakeholders regarding safety best practices for CEWs will be discussed. Subsequently, primary and secondary research will be provided, followed by a summary section similar to the previous two sections of this report.

Subsequently, other jurisdictional safety best practices regarding full deployment and drive-stun mode are provided. The following police services and government departments have been included due to the absence of national or international safety standards regarding the use of CEWs:

- Ontario Ministry of Community and Correctional Services
- British Columbia Provincial Policing Standards
- Public Safety Canada
- New York Police Department
- Los Angeles Policy Department
- Chicago Police Department
- New Zealand Police Service
- New South Wales Police Force
- Queensland Police Service
- England and Wales Police Services
- Five Canadian police services from major municipalities (these services will not be identified due to confidentiality agreements)

The Queensland Police Service and New South Wales Police Force, both in Australia, have been included in this section of the review because they were the only police services to have publicly available policies for CEW use. Further, CEW use policies from British Columbia have been included to provide specific policies that augment ones outlined by Public Safety Canada as per input provided by key stakeholders in this review. Lastly, the TASER Handheld CEW Warnings, Instructions, and information for Law Enforcement document by Axon Enterprise Inc. are included. The primary reason for this inclusion is that all services and government departments included in this review had specific information regarding the use of a CEW in full deployment and drive-stun mode as outlined by Axon Enterprise Inc. These findings reflect the importance of including the warnings, instructions, and information regarding the CEW from the company developing and manufacturing the device.

Additionally, the current TPS procedures, policies, and protocols regarding the use of CEWs are provided. Finally, other jurisdictional safety best practices are compared to those utilized by the TPS to identify similarities and differences as well as opportunities for improvement.

Stakeholder Input and Secondary Research

TPS CEW safety policies were not identified as an issue by any of the stakeholders consulted for this review, although, not all stakeholders consulted for this review were familiar with or knowledgeable about all TPS safety protocols for CEWs.

Use of Force Experts

Experts in the use of force consulted for this review were from other Canadian police services and perceived the safety protocols of the TPS to be aligned with their respective police services. Some practices of other Canadian police services that were not reflected within the TPS policies included:

- Allowing officers to remove the probes deposited within an individual's clothes and skin if they are not deposited on sensitive areas of the body.
- Incorporating language within existing policies that officers should only apply the number of cycles reasonably necessary to allow for the safe restraint of a subject. Furthermore, if circumstances require extended duration or repeated discharges then the officer should observe the subject and provide breaks when practical.

Every use of force expert consulted for this review agreed that the more training opportunities officers have regarding the effective and safe use of the CEW, the better. Further to this point, use of force experts spoke to the importance of including reality-based training scenarios that provided officers with an opportunity to improve their judgement in using a CEW or making note of not only the subject's behaviour, but environmental conditions as well (e.g. someone at the top of a staircase). With that said, use of force experts acknowledged that training opportunities and requirements are often balanced with the need to keep officers on-duty. This balance is dependent on the service and jurisdiction.

Key Stakeholders

Stakeholders did not perceive there to be any issues regarding the CEW safety policies and procedures of the TPS. However, a few stakeholders suggested some perceived opportunities for improvement including:

- i. One stakeholder indicated that the TPS allows officers to take as long as they need on a call to try to de-escalate a volatile or potentially volatile situation.
- ii. Providing a clear definition of active resistance, specifically regarding individuals that are fleeing a scene or running away from police.
- iii. Requiring debrief sessions with officers who have used a CEW or any other use of force for the purpose of learning and professional development.
- iv. Providing more opportunities for training in use of force tactics/tools for officers that are assigned to districts with little to no use of force related calls for service. Essentially, this is a suggestion out of a perceived concern that officers get "out of practice" regarding use of force tactics/tools in districts that have comparatively few use of force incidents compared to districts with a high volume of use of force incidents.
- v. Finally, some stakeholders suggested that an individual who has experienced mental health crises and/or an individual who has been the recipient of a CEW deployment while in crisis

(lived experience) is involved in the development of training for CEWs. This is directly related to scenario training and de-escalation from the perspective of someone with lived experience to provide officers with insights into how their actions are interpreted by individuals in crisis versus how they may think their words or actions are perceived.

Primary and Secondary Research

To address the five points made by other stakeholders, a document review of existing policies and procedures found that:

- i. There are no policies or procedures that prohibit officers from taking as long as they deem necessary on a call for service. Further, the existing de-escalation and disengagement/containment training provided by the TPS teach officers to use time to help diffuse a potentially volatile or volatile situation.
- ii. TPS Procedure 15-01 Appendix B has a clear definition of active resistance that specifies an individual running away from police.
- iii. In accordance with the Ontario Special Investigations Unit jurisdiction, all incidents involving serious injury, death, allegation of sexual assault or discharge of a firearm are to be investigated. An SIU investigation requires that the officer involved is unable to speak with other officers regarding material pertinent to the investigation until it has been complete. As a result, a CEW deployment that falls under the jurisdiction of the SIU would not be eligible for a debrief session. With that said, the TPS has recorded an average of 4.7 injuries sustained by subjects between 2010 and 2020 as the result of a CEW deployment. Consequently, the restriction of these debriefing sessions due to an SIU investigation would be only for a small number of incidents.
 - o The TPS has averaged 339 CEW deployments a year between 2010 and 2020. As a result, requiring a debrief session every time a CEW is deployed would equate to a significant amount of time officers would be off the street.
 - o Only the South Wales Police Force had a specific mention of a debrief process regarding CEW use. Specifically, the South Wales Police Force limited to debrief process to instances involving full deployment and drive-stun with demonstrated use of force incidents only being required for a debrief session under exceptional circumstances. Unfortunately, no information regarding the debrief process could be sourced. Therefore, information regarding the debrief process is limited to knowing that the officer would meet with a Region/Command Professional Standards manager. If a similar threshold for these debrief sessions were adopted by the TPS to only incidents involving full deployment and drive-stun then the average annual number of instances would be 129 as opposed to 339 between 2010 and 2020.
- iv. The Toronto Police College provides all service members with an opportunity for additional voluntary structured training sessions throughout the year including:
 - o Firearm sessions that provide fundamental skill development and live-fire sequences/drills
 - o Defensive tactic sessions that provide physical skill development as well as transitions in use of force and technique confidence and assessment.

- Both sessions include discussions regarding the use of de-escalation. To accommodate service members' schedules, these sessions are offered at various times and days throughout the year. Additionally, these sessions are facilitated at the TPSC training facility by accredited instructors and are focused on skills development, confidence and proficiency.
- v. Training opportunities for new and current TPS officers are being updated to reflect relevant factors and knowledge from marginalized communities in response to recommendations 52 to 58 of the Andrew Loku, Inquest. Specifically, the TPS is working on the following activities:
 - Developing a plan for providing a permanent training program (including refresher training) to all TPS members to supporting an organizational culture committed to the delivery of fair and unbiased police services to Toronto's diverse communities and populations
 - Meaningful engagement with members of racialized, Indigenous, LGBTQ2S+, immigrant and refugee communities by way of development of CAP Strategy for Training
 - Enhanced and updated training curricula/content ensure this training is developed and updated based on best practice and through the active engagement of the Confronting Anti-Black Racism (CABR) Unit, Anti-Racism and Advisory Panel (ARAP), subject matter experts in anti-racist curriculum design and community representatives with expertise in systemic racism and anti-Black and anti-Indigenous racism, community representatives with experience in addressing discrimination and prejudice against people with mental health and addictions issues and with a focus on utilizing adult-oriented training methods that are proven to lead to high achievement and demonstrated applied practice by those who experience the curriculum;
 - Building a framework to evaluate the effectiveness of TPC training, which will be the first of its kind in Canadian policing
 - A final report of these efforts will be provided to the TPSB outlining the new curriculum and how it was developed. The combination of these efforts speaks to the willingness and progress being made by the TPS to improve their interactions with marginalized community members.

Summary

Based on the input provided from use of force experts, key stakeholders as well as secondary research, the policies and procedures regarding CEW use by the TPS are perceived to contain no glaring issues. Further, the opportunities for improvement identified by key stakeholders regarding the use of CEWs by the TPS are either already covered by existing policy or are in the process of being addressed by the TPS with one exception - formal debriefing sessions following a use of force incident.

Presently, debriefing sessions occur with officers for instances when the use of a CEW is not in accordance with existing policies and procedures. However, there are no formal debriefing sessions required for learning and professional development following the use of force by a TPS officer. With that said, the impact or value of these sessions has not been well established. Additionally, the time constraints as well as restrictions of these debrief sessions due to SIU requirements are a potential challenge. Therefore, an alternative for the TPS to explore is the incorporation of a similar session into

the annual in-service training for officers. Specifically, officers would be able to ask questions from a use of force expert instructor as well as talk with other members and share their experiences and lessons learned regarding decisions to utilize use force tactics/tools or alternatives to them. Once incorporated into annual in-service training sessions by the TPS, the value of these sessions could be evaluated to establish the effectiveness of this approach. For instance, monitoring the level of confidence officers have in using use of force tactics/tools, a reduction in injury for both officers and individuals, or a reduction in use of force incidents by the service.

Provincial and Other Jurisdictional Safety Best Practices

The safety and overall policies and procedures regarding CEW use will be discussed below and separated into the following subcategories for organizational purposes under the Public Safety Canada CEW guidelines:

- General Safety Principles
- Training
- Testing
- Supervision
- Reporting

All the policies noted below have been taken directly from TPS and other jurisdictional police service policies that have been sourced for this review.

General Safety Principles

- “Whenever force is used by any person in Canada it shall be used in compliance with the Canadian Charter of Rights and Freedoms and the Criminal Code” (Public Safety Canada, 2016, paras.4).
- “Officers should, in all instances, use an appropriate and reasonable level of force, given the totality of circumstances” (Public Safety Canada, 2016, paras. 5). Similar language is utilized within the Ontario Police Services Act.
- “The use of a CEW, or any use-of-force option, should be consistent with a federally or provincially recognized use-of-force framework, particularly with respect to having considered or applied de-escalation techniques or other use-of-force options, as appropriate. Prior to using a CEW, officers should consider whether de-escalation techniques or other force options have not, or will not, be effective in diffusing the situation” (Public Safety Canada, 2016, paras. 6). Similar language is utilized with the Ontario Police Services Act.
- “The TASER must not be utilized in situations where the sole purpose is the gathering of digital video and audio evidence” (New Zealand Police Service, 2020, p. 8). Similar language is utilized by the New South Wales Police Force.

Training

- All police service training material should at minimum include requirements for officers who are equipped with a CEW, supervisors of officers equipped with a CEW, and professionals providing training for CEWs (Public Safety Canada, 2016):
 - Training policies should be in alignment with the appropriate federal, provincial, and municipal authorities.
 - Trainers and officers trained in the use of CEWs should be recertified once every two years at minimum.
 - All training and re-certification related material and processes should be reviewed regularly to ensure content is up to date and relevant and consistent (paras. 13-14).
- “Operator training must be a minimum of 12 hours with 4 hours devoted to judgement training in accordance with Ontario CEW Trainer’s Manual” (Ontario, 2014, Appendix B p.1).

Testing

- “CEWs in police inventories should undergo regular testing” (Public Safety Canada, 2016, paras. 15). Although, the specific tests are not publicly available, consultation with a member of the RCMP for this review confirmed that testing referred to by Public Safety Canada is the same as the testing outlined within the British Columbia Provincial Policing Standards. In British Columbia, testing of the device is required two years after a CEW was purchased and every year thereafter. Testing of the device is to be completed independently from the manufacturer to test the manufacturers specifications including (British Columbia, 2021, p.2):
 - Pulse repetition rate
 - Peak voltage
 - Peak current
 - Net charge
 - Pulse duration
- “Only those CEWs that test within approved operating parameters should be used for field deployment” (Public Safety Canada, 2016, paras. 16). Similar language is utilized with the Ontario Police Services Act.
- “Any CEW that has been used proximal to an incident resulting in death or serious injury should be immediately sent for testing, while respecting appropriate legislated police service obligations or practices related to such investigations” (Public Safety Canada, 2016, paras. 17). In accordance with the standards of the province of British Columbia the testing of the device should be completed independently from the manufacturer to test the manufacturers specifications including (British Columbia, 2021, p.2):
 - Pulse repetition rate
 - Peak voltage
 - Peak current
 - Net charge
 - Pulse duration

Supervision

- Policies and procedures should be established to describe supervisory duties for monitoring CEW storage, maintenance, reporting, and use. Additional policies should be established to (Public Safety Canada, 2016):
 - Ensure that officers meet all training and recertification requirements
 - Maintain an accurate inventory of all devices, including the operational status and current location of each CEW.
 - Establish a system to track CEW product notifications and, as necessary, notify all CEW users. One police service involved in this review indicated that they have a team that is responsible for ensuring all product notifications are sent to applicable members of the service using internal memos.
 - Ensure that officers conduct appropriate pre-shift and post-shift CEW checks and maintenance and submit a report in all instances where a CEW is deployed (paras. 19-20).

Reporting

- “Police services should establish and maintain a comprehensive reporting system that captures CEW use” (Public Safety Canada, 2016), paras. 21)
- “Supervisors of police officers employing CEWs operationally should receive training on how to monitor their subordinates for, and report on instances of, excessive force and appropriate individual member performance in CEW-related use of force incidents” (Public Safety Canada, 2016, paras 22)
- “Police officers should, in all instances where a CEW is deployed, submit a use of force report. The use of force report should include all relevant information on the incident such as surroundings, subject behaviour, officer perceptions and other considerations” (Public Safety Canada, paras 23)
- “Reports on CEW use, in an appropriate form, should be available to the public” (Public Safety Canada, 2016, paras. 24).

Full Deployment and Drive-Stun Mode

Most safety guidelines or procedures to reduce the risk of injury or death associated with the use of a CEW apply to both full deployment and drive-stun mode. As a result, the following are safety practices related to the use of CEWs in either mode with notable differences made where applicable:

- “Where tactically feasible, officers should issue a verbal warning so the subject is aware that a CEW is about to be deployed” (Public Safety Canada, 2016, paras 9). Similar language is utilized within policies written by the Ontario Ministry of Community Safety and Correctional Services, New York Police Department, British Columbia Provincial Policing Standards, Chicago Police Department, England and Wales Police Services, Los Angeles Police Department, New Zealand Police Service, New South Wales Police Force, and the Queensland Police Service. The Chicago Police Department and the England and Wales Police Services have further information regarding verbal warnings specifying that officers should provide an individual with a

reasonable amount of time to comply following a verbal warning. For example, “allow a subject a reasonable amount of time to comply with a warning prior to using or continuing the use of a Taser, unless doing so would compromise the safety of a Department member or another person” (Chicago Police Department, 2019, p 3).

- “Do not discharge a CEW against a person in water where there is a danger of the person drowning due to incapacitation from the CEW, unless the officer has reasonable grounds to believe the potential for death or grievous bodily harm is justified” (British Columbia, 2015, p.2). Similar language is utilized within policies written by the Chicago Police Department, Los Angeles Police Department, and the New Zealand Police Service.
- “Multiple or extended cyclings should be avoided unless a single deployment is ineffective in eliminating the risk or in allowing the officer(s) to gain physical control of the subject” (Public Safety Canada, 2016, paras.10). Similar language is utilized within policies written by the New York Police Department, British Columbia Provincial Policing Standards, Chicago Police Department, New Zealand Police Service, New South Wales Police Force, and the Queensland Police Service. Some other police services have additional conditions on multiple or extended cycling. For instance, the New South Wales Police Service states, “the use of multiple cycles should only be considered in exceptional circumstances and after reassessment of the situation which caused the initial use of the Taser. Notwithstanding this, after 3 cycles police must reconsider the effectiveness of the Taser as the most appropriate tactical option and must consider alternative tactical options” (New South Wales Police Force, 2019, p.24). Although, not explicitly stated within these policies, the specification of three cycles is aligned with the warning from Axon Enterprise Inc. regarding the minimization of the number and duration of CEW exposures. Specifically, this warning from Axon Enterprise Inc. states that most human CEW lax tests have not exceeded 15 seconds of CEW application (Axon Enterprise Inc., 2018, p.2).
- “Do not use multiple CEWs or multiple completed circuits at the same time without justification. Multiple CEWs or multiple completed circuits at the same time could have cumulative effects and result in increased risks.” (Axon Enterprise Inc., 2018, p.2). Similar language is utilized within policies written by the New York Police Department, Chicago Police Department, Los Angeles Police Department, New Zealand Police Service, New South Wales Police Force, and the Queensland Police Service.
- “Where possible, CEW use should be avoided on a restrained subject” (Public Safety Canada, 2016, paras. 11). Similar language is utilized within policies written by the Ontario Ministry of Community Safety and Correctional Services, New York Police Department, Chicago Police Department, Los Angeles Police Department, and the Queensland Police Service.
- “Where possible, CEW use should be avoided on a woman known to be pregnant, elderly person, young child or visibly frail person” (Public Safety Canada, 2016, paras. 11). Similar language is utilized within policies written by the Ontario Ministry of Community Safety and Correctional Services, New York Police Department, Chicago Police Department, England and Wales Police Services, Los Angeles Police Department, New Zealand Police Service, New South Wales Police Force, and the Queensland Police Service.
- “Where possible, CEW use should be avoided on sensitive areas of the body (e.g. head, neck, genitals)” (Public Safety Canada, 2016, paras. 11). Similar language is utilized within policies

written by the Ontario Ministry of Community Safety and Correctional Services, New York Police Department, British Columbia Policing Service Standards, Chicago Police Department, England and Wales Police Services, Los Angeles Police Department, New Zealand Police Service, New South Wales Police Service, and the Queensland Police Service. The preferred target area for a CEW is consistent across all police services. For example, CEW use by the LAPD state, "The area of the suspect/subject's back, just below the neck, remains the preferred target area when practical. For frontal applications, officers should attempt to target the naval area in an effort to place one probe above the waist and one probe below the waist for optimal effectiveness" and "...forearm, outside of the thigh, calf muscle for drive-stun/direct-stun" (LAPD, 2018, p.3-5).

- "Where possible, CEW use should be avoided on a subject in control of a moving vehicle, bicycle, snowmobile or other conveyance" (Public Safety Canada, 2016, paras.11). Similar language is utilized within policies written by the Ontario Ministry of Community Safety and Correctional Services, New York Police Department, British Columbia Policing Service Standards, Chicago Police Department, Los Angeles Police Department, New Zealand Police Service, New South Wales Police Force, and the Queensland Police Service.
- "Prohibited use on an individual that is known to have been in contact with flammable liquids, or a flammable atmosphere (e.g. natural gas leak, drug lab)" (Ontario, 2014, p.2). Similar language is utilized within policies written by the New York Police Department, British Columbia Provincial Policing Standards, Chicago Police Department, England and Wales Police Services, Los Angeles Police Department, New Zealand Police Service, New South Wales Police Force, and the Queensland Police Service.
- "Do not discharge a CEW against a person where the person is at risk of a fall from an elevated height, unless the officer has reasonable grounds to believe that the potential for death or grievous bodily harm is justified" (British Columbia, 2015, p.2). Similar language is utilized within the policies written by the New York Police Department, Los Angeles Police Department, New Zealand Police Service, New South Wales Police Force, and the Queensland Police Service. The Chicago Police Department (2020) has a similar guideline as well as the following noting, "when practical, department members should avoid the use of a Taser on subjects who:
 - Could fall and suffer an impact injury to the head or other area;
 - Could fall on a sharp object or surface (e.g. holding a knife, falling on glass);
 - May be less able to catch or protect themselves in a fall (e.g. restrained, handcuffed, incapacitated, or immobilized);
 - May have impaired reflexes (e.g. from alcohol, drugs, or certain medications);
 - Are running, or are otherwise in motion;" (pp.2-3)
- "Where operationally feasible and taking into consideration the availability of health care professionals in isolated rural, remote and Northern communities, medical assistance should be sought as soon as practicable when a situation necessitates multiple or extended cyclings of a CEW. Medical assistance should be sought when an individual has any apparent injuries, is in obvious distress, or requests medical assistance." (Public Safety Canada, 2016, paras. 12). Similar language is utilized within the policies written by the New York Police Department, British Columbia Provincial Policing Standard, Chicago Police Department, England and Wales Police

Services, Los Angeles Police Department, New Zealand Police Service, and the New South Wales Police Force. In British Columbia (2013), there is a requirement to:

Ensure that officers request paramedic attendance at all medically high-risk incidents before the discharge of the CEW or, if that is not feasible, as soon as possible thereafter. Medically high-risk incidents include when a CEW is discharged in:

- Probe mode across the person's chest;
- Probe mode for longer than five seconds; or
- Any mode against:
 - An emotionally disturbed person,
 - an elderly person,
 - a person who the officer believes is pregnant,
 - a child, or
 - a person who the officer has reason to believe has a medical condition (e.g., heart disease, implanted pacemaker or defibrillator) (p.2).
- "A Taser should not be used in either probe mode or drive-stun mode...punitively for purposes of coercion or as a prod to make a person move" (Queensland Police Service, 2019, p.14). Similar language is utilized within the policies written by the New York Police Department.

Toronto Police Service CEW Safety Policies and Procedures

Below is a summary of the current policies/procedures of the TPS regarding the use of CEWs.

General Safety Principles

The TPS (2020) Use of Force and Equipment policy states:

- The primary responsibility of a peace officer is to preserve and protect life.
- The primary objective of any use of force is to ensure public safety.
- Police officer safety is essential to public safety.
- The Ontario Use of Force Model does not replace or augment the law; the law speaks for itself.
- The Ontario Use of Force Model was constructed in consideration of (federal) statute law and current case law.
- The Ontario Use of Force Model is not intended to dictate policy to any agency (p.2)

Training

- Toronto Police Service CEW training officers receive 16 hours of training, which is four hours longer than the provincial standard. This training includes theory, practical scenarios, and a practical and written examination. The additional eight hours includes in-class training that emphasizes judgement training, decision making, and de-escalation Officers are also required to complete a one-hour on-line tutorial before attending CEW training at the Toronto Police College.
- Recertification training takes place at least once every 12 months. The following are the requirements for officers to be re-certified for CEW use:
 - Minimum 75% on the written examination

- Demonstrate proficiency with the CEW in drills
- Demonstrate proper judgement and proficiency during scenarios
- Meet Provincial Standard – Practical test
- Attendance and participation for the entire program
- All unintentional discharges by members are tracked and officers are required to attend the Toronto Police College to complete a personal remedial session with a CEW instructor.

Testing

- Daily testing of the device before each tour of duty to ensure proper functioning, “the daily test includes a spark test at the beginning of each tour of duty while pointing the CEW into a firearm proving unit and recording the spark test in a memorandum book” (Toronto Police Service, 2021, p.3).
- “Any time a CEW is activated, the date, time and duration of the firing is recorded in a microchip. This data will be downloaded for analysis and audit purposes. The CEW has a built-in weapon management system to prevent misuse/abuse and protect officers from unfounded allegations through documentation of usage” (Toronto Police Service, 2021, p.2).
- “The Armament Officer conducts random download of the data from the Service-owned CEWs for audit purposes” (Toronto Police Service, 2021, p.7). These regular downloads and audits of each device’s internal data system confirm usage and condition.

Supervision

- “Supervisory Officer attendance mandatory when a CEW has been used in Drive Stun Mode or Full Deployment” (Toronto Police Service, 2021, p.1).
- “Supervisory Officer notification is mandatory when a CEW has been used in Demonstrated Force Presence, Drive Stun Mode or in Full Deployment” (Toronto Police Service, 2021, p.1).
- “A Supervisor shall obtain from the secure CEW storage cabinet the number of CEWs that are required for issue to qualified CEW operators. The supervisor shall personally issue the CEW to the officer and record the serial number of the issued CEW. The serial numbers of the CEW’s shall be entered on the unit parade sheets. The officer receiving the CEW shall record the serial number in his/her memorandum book. The officer utilizes the AIMS to record the issuance of the CEW. Upon returning the CEW to a supervisory officer, the officer ensures that the CEW is unloaded and utilizes AIMS to record the return of the CEW” (Toronto Police Service, 2021, p.3).
 - A supplemental Human Resource Management System (HRMS) is utilized by the TPS to log which members are qualified/licensed to carry a CEW that will be valid for one year. Once an officer is qualified/licensed and that information is uploaded into the HRMS, all officers and their direct supervisors will receive a total of six notifications reminding them of their date of renewal throughout the year.
- To maintain an accurate inventory, “a Supervisor shall obtain from the secure CEW storage cabinet the number of CEWs that are required for issue to qualified CEW operators. The supervisor shall personally issue the CEW to the officer and record the serial number of the issued CEW. The serial numbers of the CEW’s shall be entered on the unit parade sheets. The officer receiving the CEW shall record the serial number in his/her memorandum book. The

officer utilizes the AIMS to record the issuance of the CEW. Upon returning the CEW to a supervisory officer, the officer ensures that the CEW is unloaded and utilizes AIMS to record the return of the CEW” (Toronto Police Service, 2021, p.3).

- TPSC representatives confirmed that the TPSC will issue CEW product notifications in the form of a memo internally to members of the TPS.

Reporting

- “Any time a CEW is used as Demonstrated Force Presence, Drive Stun Mode, Full Deployment or accidental or negligent discharges, a Use of Force Report and a TPS 584 Conducted Energy Weapon Use Report shall be completed and submitted prior to the completion of the tour of duty, unless engaged in approved training” (Toronto Police Service, 2021, p. 3).
- The TPS utilizes their own Use of Force reporting form to augment the provincially mandated Use of Force reporting form developed by the Province of Ontario. The data from these forms are submitted to a Use of Force Analyst that flags an incident involving a CEW or Use of Force that may be in violation of existing policy or procedure. Additionally, the Use of Force Analyst compiles all forms into quarterly reports and an annual report that are submitted to the Police Service Board.
- Finally, a Sergeant from the Toronto Police Service College Armament Section conducts a bi-weekly CEW usage audit. Specifically, four CEW use incidents are randomly selected bi-weekly from a complete list of all divisions. Upon selection of the four incidents, the officer notes, Use of Force Report and CEW Report are reviewed for each incident. The review consists of the following three phases:
 - Appropriateness of the device application or presentation
 - Articulation / Justification in reference to the Ontario Use of Force Model
 - Training consistency and opportunities for development.

The results of the review are shared with the TPS Professional Standards Unit.

Full Deployment and Drive-Stun Mode

- “Verbally caution the individual before use, when practicable” Toronto Police Service, 2021, p.4).
- Police officers shall NOT use a CEW in Drive Stun Mode or Full Deployment on a subject who is (Toronto Police Service, 2021):
 - Operating a motor vehicle, bicycle or other conveyance, except as a last measure to protect life
 - Subdued and under control.
 - Known to have been in contact with flammable liquids or in a flammable atmosphere (e.g. natural gas leak, drug lab), except as a last measure to protect life.
 - In a precarious position or location where a fall will likely cause serious injury or death, except as a last measure to protect life.
 - In handcuffs (p.2)

- “The use of the CEW on sensitive areas of the body should be avoided. It should not be used on children, pregnant women or the elderly except under exceptional circumstances wherein the use of other force options would reasonably be expected to cause greater potential injury” (Toronto Police Service, 2021, p. 2).
- “When the CEW is used as a Demonstrated Force Presence shall...notify communications dispatcher that there was a CEW “Display Only” and confirm that Toronto Paramedic Services (Paramedics) is not required” (Toronto Police Service, 2021, p. 4).
 - “When the CEW is used in Drive Stun Mode or Full Deployment shall...advise the subject that they have been subjected to a CEW and that the effects are short term. Notify the communications dispatcher that a CEW was used in “Drive Stun Mode” or “Full Deployment”. Request the attendance of Paramedics and monitor the subject until their arrival. Unless the circumstances make it impossible, restrain the subject in a sitting position to promote easier breathing, monitoring them closely” (Toronto Police Service, 2021, p.4).
- “Allow only Paramedics personnel or medical staff to remove the probes, when the skin has been punctured. Service personnel are authorized to remove probes that are only attached to clothing” (Toronto Police Service, 2021, p.4).

Other Jurisdictional Safety Practices Compared to the TPS

Below are the findings of a comparison of TPS policies and procedures regarding safety policies/procedures for CEW use to provincial and other jurisdictional police services in Canada and internationally.

General Safety Principles	
Toronto Police Service	Provincial and Other Jurisdictional Police Services in Canada as well as Internationally
<ul style="list-style-type: none"> • No specific mention of de-escalation is made within the existing TPS CEW use policy. However, all training by the TPS emphasizes de-escalation techniques. <p>The TPS (2020) Use of Force and Equipment policy states:</p> <ul style="list-style-type: none"> • The primary responsibility of a peace officer is to preserve and protect life. • The primary objective of any use of force is to ensure public safety. • Police officer safety is essential to public safety. • The Ontario Use of Force Model does not replace or augment the law; the law speaks for itself. 	<ul style="list-style-type: none"> • “Prior to using a CEW, officers should consider whether de-escalation techniques or other force options have not, or will not, be effective in diffusing the situation” (Public Safety Canada, 2016, paras. 6). • “Whenever force is used by any person in Canada it shall be used in compliance with the Canadian Charter of Rights and Freedoms and the Criminal Code” (Public Safety Canada, 2016, paras.4). • “Officers should, in all instances, use an appropriate and reasonable level of force, given the totality of circumstances” (Public Safety Canada, 2016, paras. 5). Similar language is utilized within the Ontario Police Services Act.

General Safety Principles

- The Ontario Use of Force Model was constructed in consideration of (federal) statute law and current case law.
- The Ontario Use of Force Model is not intended to dictate policy to any agency (p.2)
- “The use of a CEW, or any use-of-force option, should be consistent with a federally or provincially recognized use-of-force framework, particularly with respect to having considered or applied de-escalation techniques or other use-of-force options, as appropriate. Prior to using a CEW, officers should consider whether de-escalation techniques or other force options have not, or will not, be effective in diffusing the situation” (Public Safety Canada, 2016, paras. 6). Similar language is utilized with the Ontario Police Services Act.
- Presently the TPS does not utilize body cameras for their officers, therefore this general safety principle does not apply. However, with a move to equip TPS officers with these devices, a policy similar to the ones utilized in New Zealand and New South Wales should be considered.
- “The TASER must not be utilised in situations where the sole purpose is the gathering of digital video and audio evidence” (New Zealand Police Service, 2020, p. 14).

Summary of Similarities and Differences: General Safety Principles

- De-escalation and disengagement are not specified within the TPS CEW policy.
- Two international police services have policies prohibiting the use of a CEW where the sole purpose of the deployment is the gathering of digital video and audio evidence.
- Two of the five Canadian police departments include material in the CEW training regarding crisis intervention and tactical repositioning techniques to create as much space as possible including disengaging and containing if the balance of safety to third parties has been dealt with. Also, the New South Wales Police Force mentions the use of disengagement in the use of force model as a key concept with containment and negotiation being specified tactics.

Training

Toronto Police Service	Provincial and Other Jurisdictional Police Services in Canada as well as Internationally
<ul style="list-style-type: none"> • The Toronto Police College has implemented a mandatory 16-hour course for all members that are issued a CEW. Training includes judgement-based scenarios as well as the use of de-escalation techniques. 	<ul style="list-style-type: none"> • “Operator training must be a minimum of 12 hours with 4 hours devoted to judgement training in accordance with Ontario CEW Trainer’s Manual” (Ontario, 2014, Appendix B p.1).
<ul style="list-style-type: none"> • All TPS officers must be certified in using CEWs to be equipped with them while on-duty. 	<ul style="list-style-type: none"> • All police service training material should, at minimum include requirements for officers who are equipped with a CEW, supervisors of officers equipped with a CEW, and professionals

Training

- All policies by the TPS are aligned with the appropriate federal, provincial, and municipal authorities.
 - Once completing the CEW use course, TPS members are required to recertify on an annual basis.
 - The following are the requirements for officers to be re-certified for CEW use:
 - Minimum 75% on the written examination.
 - Demonstrate proficiency with the CEW in drills.
 - Demonstrate proper judgement and proficiency during scenarios.
 - Meet Provincial Standard – Practical test.
 - Attendance and participation for the entire program.
 - Training and re-certification related material and processes are reviewed annually to ensure content is up to date and relevant and consistent. The review includes the use of CEW use data collected by the TPS and provided to the TPSB on a quarterly basis.
- providing training for CEWs (Public Safety Canada, 2016):
- Training policies should be in alignment with the appropriate federal, provincial, and municipal authorities.
 - Trainers and officers trained in the use of CEWs should be recertified once every two years at minimum.
 - All training and re-certification related material and processes should be reviewed regularly to ensure content is up to date and relevant and consistent (paras. 13-14).

Summary of Similarities and Differences: Training

- The TPS provides 16 hours of training for members as well as recertification annually as opposed to the suggested provincial minimum of 12 hours and Public Safety Canada suggested recertification every two years.

Testing

Toronto Police Service	Provincial and Other Jurisdictional Police Services in Canada as well as Internationally
<ul style="list-style-type: none"> ● Daily testing of the device before each tour of duty to ensure proper functioning, “the daily test includes a spark test at the beginning of each tour of duty while pointing the CEW into a firearm proving unit and recording the spark test in a memorandum book” (Toronto Police Service, 2021, p.3). 	<ul style="list-style-type: none"> ● “CEWs in police inventories should undergo regular testing” (Public Safety Canada, 2016, paras. 15). Although, the specific tests are not publicly available, consultation with a member of the RCMP for this review confirmed that testing referred to the same outlined within the British Columbia Provincial Policing Standards. In British Columbia, testing of the device is

Testing

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| <ul style="list-style-type: none"> • “The Armament Officer conducts random download of the data from the Service-owned CEWs for audit purposes” (Toronto Police Service, 2021, p.7). These regular downloads and audit of each device’s internal data system confirm usage and condition. | <p>required two years after a CEW was purchased and every year thereafter. Testing of the device is to be completely independent from the manufacturer to test the manufacturers specifications including:</p> <ul style="list-style-type: none"> ○ Pulse repetition rate ○ Peak voltage ○ Peak current ○ Net charge ○ Pulse duration (British Columbia, 2021, p.2) <ul style="list-style-type: none"> • “Only those CEWs that test within approved operating parameters should be used for field deployment” (Public Safety Canada, 2016, paras. 16). Similar language is utilized with the Ontario Police Services Act. |
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- “Any time a CEW is activated, the date, time and duration of the firing is recorded in a microchip. This data will be downloaded for analysis and audit purposes. The CEW has a built-in weapon management system to prevent misuse/abuse and protect officers from unfounded allegations through documentation of usage” (Toronto Police Service, 2021, p.2).
 - TPS members are required to notify a supervisor as well as complete and submit a provincial use of force report as well as service specific use of force report upon the use of a CEW in either full deployment or drive-stun mode. An additional injury report in cases such as, but not limited to, probe and burn marks. In case of a death or serious injury then the TPS is required to notify the SIU.
 - “Any CEW that has been used proximal to an incident resulting in death or serious injury should be immediately sent for testing, while respecting appropriate legislated police service obligations or practices related to such investigations” (Public Safety Canada, 2016, paras. 17). In accordance with the standards of the province of British Columbia the testing of the device should be completed independently from the manufacturer to test the manufacturers specifications including:
 - Pulse repetition rate
 - Peak voltage
 - Peak current
 - Net charge
 - Pulse duration (British Columbia, 2021, p.2)

Summary of Similarities and Differences: Testing

- TPS policies regarding testing of a CEW are aligned with other jurisdictions.

Supervising	
Toronto Police Service	Provincial and Other Jurisdictional Police Services in Canada as well as Internationally
<ul style="list-style-type: none"> • Regarding supervisory of CEW use: <ul style="list-style-type: none"> ○ “Supervisory Officer attendance mandatory when a CEW has been used in Drive Stun Mode or Full Deployment” (Toronto Police Service, 2021, p.1). ○ “Supervisory Officer notification is mandatory when a CEW has been used in Demonstrated Force Presence, Drive Stun Mode or in Full Deployment” (Toronto Police Service, 2021, p.1). • A supplemental Human Resource Management System (HRMS) is utilized by the TPS to log which members are qualified/licensed to carry a CEW that will be valid for one year. Once an officer is qualified/licensed and that information is uploaded into the HRMS, all officers and their direct supervisors will receive a total of six notifications reminding them of their date of renewal throughout the year. • To maintain an accurate inventory, “a Supervisor shall obtain from the secure CEW storage cabinet the number of CEWs that are required for issue to qualified CEW operators. The supervisor shall personally issue the CEW to the officer and record the serial number of the issued CEW. The serial numbers of the CEW’s shall be entered on the unit parade sheets. The officer receiving the CEW shall record the serial number in his/her memorandum book. The officer utilizes the AIMS to record the issuance of the CEW. Upon returning the CEW to a supervisory officer, the officer ensures that the CEW is unloaded and utilizes AIMS to record the return of the CEW” (Toronto Police Service, 2021, p.3). <ul style="list-style-type: none"> ○ “When [officers] are issued with a CEW they are required to complete a spark test at the beginning of each tour of duty while pointing the CEW into a firearm proving unit and record the spark test in the 	<ul style="list-style-type: none"> • Policies and procedures should be established to describe supervisory duties for monitoring CEW storage, maintenance, reporting, and use. Additional policies should be established to (Public Safety Canada, 2016): <ul style="list-style-type: none"> ○ Ensure that officers meet all training and recertification requirements. ○ Maintain an accurate inventory of all devices, including the operational status and current location of each CEW ○ Ensure that officers conduct appropriate pre-shift and post-shift CEW checks and maintenance and submit a report in all instances where a CEW is deployed. ○ Establish a system to track CEW product notifications and, as necessary, notify all CEW users (paras. 19-20).

Supervising	
<p>memorandum book” (Toronto Police Service, 2021, p.3).</p> <ul style="list-style-type: none"> The TPSC will issue CEW product notifications in the form of a memo internally to members of the TPS. 	

Summary of Similarities and Differences: Supervising

- The TPS has comprehensive policies in place for reporting the use of CEWs.
- An internal inventory and human resource software program used by the TPS ensures that only officers certified to use CEWs receive them and that all devices are accounted for and verified for safe use by officers.

Reporting	
Toronto Police Service	Provincial and Other Jurisdictional Police Services in Canada as well as Internationally
<ul style="list-style-type: none"> Provincial and TPS specific use of force forms are submitted to a Use of Force Analyst that flags incidents involving CEW or Use of Force that may be in violation of existing policy or procedure. A Sergeant from the TPSC Armament Section conducts a bi-weekly CEW usage audit. Specifically, four CEW use incidents are randomly selected bi-weekly from a complete list of all divisions. Upon selection of the four incidents, the officer notes, Use of Force Report and CEW Report are reviewed for each incident. The review consists of the following three phases: <ul style="list-style-type: none"> Appropriateness of the device application or presentation Articulation / Justification in reference to the Ontario Use of Force Model Training consistency and opportunities for development. <p>The results of the review are shared with the TPS Professional Standards Unit.</p> “The Professional Standards Unit will be notified and commence an immediate investigation of any incident involving the use of the CEW on handcuffed persons” (Toronto Police Service, 2021, p.3). 	<ul style="list-style-type: none"> Supervisors of police officers employing CEWs operationally should receive training on how to monitor their subordinates for, and report on instances of, excessive force and appropriate individual member performance in CEW-related use of force incidents (Public Safety Canada, 2016, paras 22).

Reporting	
<ul style="list-style-type: none"> Any time a CEW is used as Demonstrated Force Presence, Drive Stun Mode, Full Deployment or accidental or negligent discharges, a Use of Force Report and a TPS 584 Conducted Energy Weapon Use Report shall be completed and submitted prior to the completion of the tour of duty, unless engaged in approved training. The TPS Use of Force Analyst compiles all the forms into quarterly reports and an annual report that are submitted to the Police Service Board. The TPS utilizes their own Use of Force reporting form to augment the provincially mandated Use of Force reporting form developed by the Province of Ontario. 	<ul style="list-style-type: none"> Police services should establish and maintain a comprehensive reporting system that captures CEW use (Public Safety Canada, 2016), paras. 21). Police officers should, in all instances where a CEW is deployed, submit a use of force report. The use of force report should include all relevant information on the incident such as surroundings, subject behaviour, officer perceptions and other considerations (Public Safety Canada, paras 23). Reports on CEW use, in an appropriate form, should be available to the public (Public Safety Canada, 2016, paras. 24).

Summary of Similarities and Differences: Reporting

- The TPS adheres to reporting policy recommendations and provides the most comprehensive information to the public regarding CEW use of any police service included in this review.

Full Deployment and Drive-Stun Mode	
Toronto Police Service	Provincial and Other Jurisdictional Police Services in Canada as well as Internationally
<ul style="list-style-type: none"> “Verbally caution the individual before use, when practicable” Toronto Police Service, 2021, p.4). <ul style="list-style-type: none"> The TPS does not have a supplement note regarding the provision of a reasonable amount of time to comply with a warning prior to using or continuing the use of a CEW. 	<ul style="list-style-type: none"> Verbal warnings should be provided by the office for an individual(s) prior to using a CEW when tactically feasible. <ul style="list-style-type: none"> “Allow a subject a reasonable amount of time to comply with a warning prior to using or continuing the use of a Taser, unless doing so would compromise the safety of a Department member or another person” (Chicago Police Department, 2019, p 3).
<ul style="list-style-type: none"> Police officers shall NOT use a CEW in Drive Stun Mode or Full Deployment on a subject who is (Toronto Police Service, 2021): <ul style="list-style-type: none"> Operating a motor vehicle, bicycle or other conveyance, except as a last measure to protect life Subdued and under control. Known to have been in contact with flammable liquids or in a flammable atmosphere (e.g. natural gas leak, drug 	<ul style="list-style-type: none"> “Do not discharge a CEW against a person where the person is at risk of a fall from an elevated height, unless the officer has reasonable grounds to believe that the potential for death or grievous bodily harm is justified” (British Columbia, 2015, p.2). The Chicago Police Department (2020) has a similar guideline as well as the following noting, “when practical, department

Full Deployment and Drive-Stun Mode

<p>lab), except as a last measure to protect life.</p> <ul style="list-style-type: none"> ○ In a precarious position or location where a fall will likely cause serious injury or death, except as a last measure to protect life. ○ In handcuffs (p.2). <ul style="list-style-type: none"> ● “The use of the CEW on sensitive areas of the body should be avoided. It should not be used on children, pregnant women or the elderly except under exceptional circumstances wherein the use of other force options would reasonably be expected to cause greater potential injury” (Toronto Police Service, 2021, p. 2). 	<p>members should avoid the use of a Taser on subjects who:</p> <ul style="list-style-type: none"> ○ Could fall and suffer an impact injury to the head or other area; ○ Could fall on a sharp object or surface (e.g. holding a knife, falling on glass); ○ May be less able to catch or protect themselves in a fall (e.g. restrained, handcuffed, incapacitated, or immobilized); ○ May have impaired reflexes (e.g. from alcohol, drugs, or certain medications); ○ Are running, or are otherwise in motion;” (pp.2-3) <ul style="list-style-type: none"> ● “Prohibited use on an individual that is known to have been in contact with flammable liquids, or in a flammable atmosphere (e.g. natural gas leak, drug lab)” (Ontario, 2014, p.2). ● “Where possible, CEW use should be avoided on a subject in control of a moving vehicle, bicycle, snowmobile or other conveyance.” (Public Safety Canada, 2016, paras.11). ● “Where possible, CEW use should be avoided on sensitive areas of the body (e.g. head, neck, genitals)” (Public Safety Canada, 2016, paras. 11). ● “Where possible, CEW use should be avoided on a woman known to be pregnant, elderly person, young child or visibly frail person” (Public Safety Canada, 2016, paras. 11). ● “Do not discharge a CEW against a person in water where there is a danger of the person drowning due to incapacitation from the CEW, unless the officer has reasonable grounds to believe the potential for death or grievous bodily harm is justified” (British Columbia, 2015, p.2).
<ul style="list-style-type: none"> ● There are no existing procedures regarding the avoidance of multiple or extended cycles nor the use of multiple CEWs or multiple completed circuits. 	<ul style="list-style-type: none"> ● “Multiple or extended cyclings should be avoided unless a single deployment is ineffective in eliminating the risk or in allowing

Full Deployment and Drive-Stun Mode

<ul style="list-style-type: none"> • “When the CEW is used as a Demonstrated Force Presence shall...notify communications dispatcher that there was a CEW “Display Only” and confirm that Toronto Paramedic Services (Paramedics) is not required” (Toronto Police Service, 2021, p. 4). <ul style="list-style-type: none"> ○ “When the CEW is used in Drive Stun Mode or Full Deployment shall...advise the subject that they have been subjected to a CEW and that the effects are short term. Notify the communications dispatcher that a CEW was used in “Drive Stun Mode” or “Full Deployment”. Request the attendance of Paramedics and monitor the subject until their arrival. Unless the circumstances make it impossible, restrain the subject in a sitting position to promote easier breathing, monitoring them closely” (Toronto Police Service, 2021, p.4). • “Allow only Paramedics personnel or medical staff to remove the probes when the skin has been punctured. Service personnel are authorized to remove probes that are only attached to clothing” (Toronto Police Service, 2021, p.4). 	<p>the officer(s) to gain physical control of the subject” (Public Safety Canada, 2016, paras.10).</p> <ul style="list-style-type: none"> • “Do not use multiple CEWs or multiple completed circuits at the same time without justification. Multiple CEWs or multiple completed circuits at the same time could have cumulative effects and result in increased risks.” (Axon Enterprise Inc., 2018, p.2). • “Where operationally feasible and taking into consideration the availability of health care professionals in isolated rural, remote and Northern communities, medical assistance should be sought as soon as practicable when a situation necessitates multiple or extended cyclings of a CEW. Medical assistance should be sought when an individual has any apparent injuries, is in obvious distress, or requests medical assistance.” (Public Safety Canada, 2016, paras. 12). In British Columbia (2013), there is a requirement to: <ul style="list-style-type: none"> ○ Ensure that officers request paramedic attendance at all medically high-risk incidents before the discharge of the CEW or, if that is not feasible, as soon as possible thereafter. Medically high-risk incidents include when a CEW is discharged in: <ul style="list-style-type: none"> ▪ Probe mode across the person’s chest; ▪ Probe mode for longer than five seconds; or ▪ Any mode against: <ul style="list-style-type: none"> ❖ An emotionally disturbed person, ❖ an elderly person, ❖ a person who the officer believes is pregnant, ❖ a child, or ❖ a person who the officer has reason to believe has a medical condition (e.g., heart disease, implanted pacemaker or defibrillator) (p.2).
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Full Deployment and Drive-Stun Mode	
	<ul style="list-style-type: none"> • “A Taser should not be used in either probe mode or drive stun mode...punitively for purposes of coercion or as a prod to make a person move” (Queensland Police Service, 2019, p.14).

Summary of Similarities and Differences: Full Deployment and Drive-Stun Mode

- All police services have similar requirements for the use of verbal warnings when possible, and all utilize similar warnings. For example, “TASER, TASER, TASER”! (New Zealand Police Service, 2020, p.11). Additionally, most of the police departments include a section outlining the requirement for officers to utilize de-escalation techniques whenever practicable during potentially volatile and/or volatile situations. For example, Provincial standards in British Columbia specify that an officer must have “satisfied, on reasonable grounds, that crisis intervention and de-escalation techniques have not been or will not be effective in eliminating the risk of bodily harm; and no lesser force option has been, or will be, effective in eliminating the risk of bodily harm” (British Columbia, 2015, p.2).
- All departments are similar in the recommended target area of intended probe deployment. All include attempting to keep the targeting of the probes away from the heart. The LAPD specifies targeting the forearm, outside of thigh, calf muscle for drive-stun/direct-stun.
- TPS officers are not allowed to remove probes, except when they are deposited within an individual’s clothes. Alternatively, three of the five Canadian municipal police services allow for members to remove probes without the presence of medical staff if the probes are not in sensitive areas (i.e. head, throat, and genitals).
- TPS does not have policies advising against the use of extended or multiple cycles nor the use of multiple CEWs or multiple completed circuits.
- TPS does not have policies regarding the use of CEW on an individual in water.
- The New York Police Department and Queensland Police Service have specific policies that either prohibit or state that officers should not use a CEW for the purpose of coercion or punishment. The respective Use of Force Models for these services would not allow for this type of use. Unfortunately, no reason for these inclusions could be sourced to include in this review.
- In British Columbia, there is a policy for officers to call paramedics prior to the use of a CEW for all medically high-risk incidents when feasible. This is something to be considered by the TPS, although no supporting statistics may be provided to this procedure verifying the benefits.

Key Findings

Overall, the TPS is exceeding the training requirements for CEWs established by the RCMP and the Province of Ontario. Furthermore, TPS policies and procedures associated with the use and oversight of CEWs are some of the most comprehensive in comparison to other Canadian police services in this review. With that said, the following opportunities for improvement have been identified for

consideration by the TPS based on policies from national and international police services/departments included in this review:

- Incorporating the priority of using de-escalation prior to other use of force options by officers as well as the rationale for using de-escalation and the goals of the technique into the existing TPS procedures for using a CEW.
- Train officers in methods of creating distance to release containment pressure on a subject including disengaging (situationally dependant) within the existing use of force and CEW training, policies, and procedures.
- Incorporate a definition of sensitive areas (i.e. head, genitals, and neck) within the existing CEW policy.
- Add the weight of a subject, drug/substance use, and distance within the existing CEW policy as conditions that may impede the effectiveness of the CEW.
- Adding to the existing CEW policy for officers' instructions to only consider multiple or extended cycles in exceptional circumstances and after reassessment of the situation which caused the initial use of a CEW.
- Prohibiting the use of a CEW for the sole purposes of gathering digital video and audio evidence as well as using the device as a form of coercion or punishment.

Finally, the TPS may explore the option of incorporating a session into the annual in-service for officers to ask questions from a use of force expert instructor as well as talk with other members and share their experiences and lessons learned regarding decisions to use force as well as other options. However, a formal evaluation framework should be established to verify the value of these sessions for the service.

Commendations and Recommendations

Below are the commendations and recommendations for the TPS based on the findings of this review. The recommendations have been separated into mutually reinforcing categories wherever possible.

Commendations

1. **Improved De-escalation Training and Research into Less-Lethal Force Options:** In 2017, the TPS added a three-week judgement and decision-making training course for all recruit classes as well as an in-service day on de-escalation training for all members. The TPS have also incorporated de-escalation tactics into all use of force reality-based training scenarios. Further, the TPS implemented the use of soft-nosed impact rounds in 2016 and piloted the potential use of shields by general patrol members to respond to volatile incidents involving the public. Finally, the TPS do more reality-based training scenarios, often regarded as the ultimate standard in training, compared to the other five police services included in this review.
2. **Use of Force and CEW Policies:** The TPS was found to have clear policies regarding the use of CEWs with appropriate safety policies and controls in comparison to other police services included this review. The exception was the lack of policy related to multiple and/or simultaneous deployments which is included as a recommendation to this review.
3. **CEW training and Recertification:** The TPS provides four more hours of training for members than the 12 hours required by the Province of Ontario. They also require recertification annually compared to the minimum of two years required by the RCMP. Also, the TPS has included rapid cognition in their training drills that provide officers with opportunities to improve decision-making skills. Finally, the TPS has the highest volume of reality-based training scenarios compared to the five other municipal police services in Canada utilized in this review.
4. **Mobile Crisis Intervention Teams:** The development of these teams over the past 20 years by the TPS are an indication of the service's commitment to providing a holistic approach to individuals experiencing a mental health crisis. By the end of 2021, the Mobile Crisis Intervention Teams, along with the crisis care case managers, and Divisional Crisis Support Officers will be available 24 hours a day, seven days a week. These teams and positions will help individuals experiencing a mental health crisis by providing assessment, stabilizing supporting, and referrals. Improving interactions between police and individuals experiencing a mental health crisis is an important topic for national and international police services. These steps by the TPS will better situate the service to safely address individuals experiencing a mental health crisis.
5. **CEW Reporting:** The TPS collects more in-depth information and reports it more frequently than most of the police services included in this review. Specifically, the information collected regarding perceived subject behaviour and condition, number of cycles, and type of incident. The collection of race-based data by TPS which started in 2020 will align the service with similar

data collected by the international police services included in this review. Further, the TPS is only the police service found in this review to provide a stand-alone report on CEWs. The TPS provides quarterly reports on the specific use of CEWs which is more frequent than other police services. Only the Chicago Police Department and the New York Police Department reports use of force data more frequently. They do so via a public dashboard that is updated monthly. However, the dashboard lacks the level of detail that the TPS is reporting.

6. **Conducting Reviews on CEW Use:** the TPS is in alignment with leading practices that suggest regular reviews of CEW policies and procedures to ensure they are up to date and reflect best practices.

Recommendations

1. **Further Expanding Training in Disengagement /Releasing Containment Pressure/Creating Space in CEW :** Augmenting the existing knowledge-based training regarding creating space/disengagement with reality-based training scenarios, may reduce the number of incidents involving a use of force tactic/tool including CEWs by TPS. These tactics could be considered for a variety of situations when the TPS are attending a call with or without a weapon involved, including those involving a person in crisis, to ensure officers' tactics, when possible, contribute to avoiding or mitigating the subject's ability or opportunity to carry out an assault. Creating space/disengagement may take several forms and the scenarios should be designed to reflect the most appropriate level of disengagement. Scenarios should include a spectrum of disengagement options, for example:
 - Complete Disengagement: a scenario where the officer identifies that the police have no lawful authority to continue staying engaged with a subject who has expressed no desire to continue interacting with the police.
 - Full Structure Disengagement: a scenario where the totality of the circumstances would suggest to the officers that the best course of action is to remove themselves from the structure, contain and request special resources (Tactical team, Crises Counselor etc.)
 - Disengagement Through Tactical Repositioning: a scenario where it is recognized that the containment of an individual experiencing a mental health crisis can be safely expanded to provide more time/distance for officers and lower the containment pressure on the individual.

The training needs to focus on the officer's understanding of the balance between the safety of the individual, third parties and officer(s) on scene by utilizing these tactics. Additionally, the safety and security of other third parties must always be considered by the officer prior to disengagement. One main objective of all additional reality-based training scenarios would include the officers priming the scene by removing third parties, ensuring the officer has an exit for them if required, utilizing the environment to their advantage, and containing the scene at a place the officers have a position of advantage. While priming the scene the officer would rely on de-escalation training to continue to address the incident. One example for reality-based training that could be considered for the above tactics includes a person in crisis situation

where the police officers themselves, simply because they are the police, are the stimulus for the escalation of the subject's physical and mental anxiety. Another scenario could include the subject displaying pre - "suicide by cop" behaviour and verbal cues.

2. **Inclusive Training for All Officers:** The findings of the Andrew Loku Inquest as well as the input of several stakeholders interviewed for this review recommend that the TPS should expose members and recruits in training to the perspective of individuals from racialized communities as well as individuals with a mental health condition(s). The purpose would be to help officers understand how individuals are interpreting the officers' actions and comments that, in turn, will help to improve de-escalation techniques. Presently, the TPS is working on addressing this recommendation, aligned with recommendations 52 to 58 of the Andrew Loku Inquest.
3. **CEW Data and Use of Force Data:** The TPS should begin to collect information regarding the use of CEW during suicide calls, like the practice in New Zealand. Additionally, information should be collected regarding the number of injuries, severity of those injuries, as well as the effectiveness of other use of force tactics/tools. These additional data points would provide a more robust comparison of use of force tactics/tools utilized by the TPS to share with the public. Finally, the TPS should consider the feasibility of using a publicly available dashboard to provide use of force statistics to the public. The Chicago Police Department has a publicly available dashboard that is updated monthly with information limited to the frequency of CEW use as well as the age, sex, ethnicity, and if the individual was in possession of weapon. Due to the amount and level of depth of information collected by the TPS regarding CEW use, monthly updates would not be as robust as the quarterly or annual reports currently developed by the TPS.
4. **Continuous Monitoring of CEW Expansion:** Police services nationally and internationally are increasingly providing CEWs to all uniform officers because it has proved to be an effective tool in addressing individuals armed with an edged weapon and/or individuals that are assaultive or may cause serious bodily harm to themselves or others. The unique benefit of neuromuscular incapacitation and the low injury rates for officers and subjects compared to other use of force tactics/tools are two primary reasons for the increasing deployment of this device. There was a high degree of consensus among many of the stakeholders on the strengths of the approach taken by the TPS to the broader distribution of CEWs in the Toronto Police Service. The process has taken five years and involved extensive community consultation and reviews of best practices in other jurisdictions as well as being complete along with the development of the de-escalation policy. Overall, the TPS has continually sought to improve the safe and effective use of the CEW and should continue to do so into the future.
5. **In-Service Training:** a session should be provided to officers during annual in-service training to discuss their experience with the use of CEWs and possibly other use of force tactics/tools. These sessions would augment knowledge and reality-based training by providing a formal opportunity for officers to ask a use of force expert any questions that they have as well as to share and exchange suggestions and insights regarding decisions to utilize use of force tactics/tools or alternatives to them. These discussions need to be focused on education, as opposed to punishment or fault finding, to ensure officers feel supported and to gain value

from the discussions to improve performance. Once incorporated into annual in-service training sessions by the TPS, the TPS should establish a formal evaluation framework to properly measure the outcomes of these sessions. For instance, indicators might include monitoring the level of confidence officers have in using specific use of force tactics/tools, a reduction in injury for both officers and individuals, or a reduction in use of force incidents by the service.

6. **Specific Policy Improvements:** In comparison to other jurisdictional CEW policies and procedures included in this review, the following opportunities for improvement have been identified for the TPS to consider:
 - a. Incorporating the priority of using de-escalation prior to other use of force options by officers as well as the rationale for using de-escalation and the goals of the technique into the existing TPS procedures for using a CEW.
 - b. Reinforce methods to create distance to release containment pressure on the subject including disengaging (situationally dependant) within the existing use of force and CEW training, policies, and procedures.
 - c. Incorporate a definition of sensitive areas (i.e. head, genitals, and neck) within the existing CEW policy.
 - d. Add weight of an individual, drug/substance use, and distance within the existing CEW policy as conditions that may impede the effectiveness of the CEW.
 - e. Adding to the existing CEW policy to consider multiple or extended cycles only in exceptional circumstances and after reassessment of the situation which caused the initial use of CEW.
 - f. Prohibiting the use of a CEW for the sole purposes of gathering digital video and audio evidence as well as using the device as a form of coercion or punishment.

Finally, one additional opportunity for further exploration by the TPS would be including Crisis Counsellors in the Communication Centre. These counsellors would be available for officers and callers (subject in crisis) to provide mental health support over the phone. The ultimate goal of the support provided by the Crisis Counsellor would be to get a subject to exit the location where the subject is as long as it is safe, or to get the subject to where the officer(s) on scene deem is the safest when they are ready and in place - similar to how an armed and barricaded situation is currently dealt with by police.

Within the Toronto Police Service there are the General Patrol Units but also specially trained units such as Emergency Task Force and K-9 Unit. The proposed Crisis Counsellor would be a similar specialist, trained to help officers for calls for service that meet a particular threshold such as a suicidal individual. A well-trained police officer, generally speaking, will be better at policing than a crisis counselor, and a professionally trained crisis counselor will be better at handling a person in crisis than a police officer or emergency call taker.

The proposed Crisis Counsellor/Call Taker would be accessed by:

- Accessing the Crisis Counsellor could be done in three ways:
 - First, the Crisis Counsellor could take over calls involving someone in a personal crisis that meets the TPS threshold (e.g. suicidal), if available. Like when other specialty units including the Emergency Task Force take over once a threshold is met.

- Second, TPS officers on-duty would be able to use a separate radio channel to access support from the Crisis Counsellor. Once contacted by the officer(s), the Crisis Counsellor could work with the officers attending the scene and stay as a resource throughout the call. The Crisis Counsellor would also be trained in what officer safety issues are important. The same balance of the safety of the third parties including police officer safety would need to be considered at all times (subject alone in a house, what weapon does he/she say they have, is it a house or a business, a bridge, etc.). This would also allow the police officers real-time assistance with the Crisis Counsellor who understands the subject's crisis before the officers arrive and can work with them resulting in a successful conclusion.
- Third, crisis help lines operated by other organizations in Toronto could transfer calls directly to the Crisis Counsellors who they could work with before the call is transferred via a separate number.
- The Crisis Counsellor/Call Taker could still be one team, that is, crisis counselors could still answer regular phone calls if there are no crises taking place. However, if a call meets the threshold decided by the TPS the Crisis Counsellors take the call over.

It is important to note that this approach would not always be feasible. For instance, when someone calls 911 to inform them that they have received a text from a family member expressing suicidal intentions, but that individual is not answering their phone. For these situations the Mobile Crisis Team may be a possible option. Also, there would be added expenses involved for adding or training existing call takers to be Crisis Counsellors.

To be clear, this is only a possible opportunity for the TPS to explore. While completing this review, there were no other police services that had a program or approach similar to the one described above. The suggested approach of adding a Crisis Counsellor to the communication centre is the result of a culmination of input gathered for this review and an analysis of options available by the individuals completing this review. As a result, there is no guarantee of impact or cost-effectiveness associated with this suggestion. Alternatively, further investigation as to the feasibility and effectiveness of this opportunity would be required if deemed to be an approach worth pursuing by the relevant TPS decision-makers. With that said, the TPSC representatives engaged while completing this review indicated that the service is investigating the utility of this position and approach.

Appendix A: Lacobucci Inquest

The following 16 recommendations are direct excerpts from the 2014 Police Encounters with People in Crisis – An Independent Review Conducted by the Honorable Frank Lacobucci applicable to CEWs:

- Recommendation 55: The TPS advocate an interprovincial study of the medical effects of conducted energy weapon (CEW) use on various groups of people (including vulnerable groups such as people in crisis), as suggested by the Goudge Report.
- Recommendation 56: The TPS collaborate with other municipal, provincial, and federal police services to establish a central database of standardized information concerning matters related to the use of force, and CEW use specifically, such as:
 - the location of contact by CEW probes on a subject's body;
 - the length of deployment and the number of CEW uses;
 - any medical problems observed by the officers;
 - any medical problems assessed by Emergency Medical Services (EMS) or hospital staff;
 - the time period between the use of a CEW and the manifestation of medical effects;
 - the subject's prior mental and physical health condition;
 - the use of CEWs per ratio of population;
 - the use of CEWs per ratio of officers equipped with the devices; and
 - the use of CEWs in comparison to other force options.
- Recommendation 57: The TPS review, and if necessary amend, the Use of Force and CEW Report forms to ensure that officers are prompted to include all standardized information required for the database proposed in Recommendation 56.
- Recommendation 58: The TPS collaborate with Local Health Integration Networks, hospitals, EMS, and other appropriate medical professionals to standardize reporting of data concerning the medical effects of CEWs.
- Recommendation 59: The TPS consider conducting a pilot project to assess the potential for expanding CEW access within the Service, with parameters such as:
 - Supervision: at an appropriate time to be determined by the TPS, CEWs should be issued to a selection of front line officers in a limited number of divisions for a limited period of time with the use and results to be closely monitored;
 - Cameras: all front line officers who are issued CEWs should be equipped either with body-worn cameras or audio/visual attachments for the devices;
 - Reporting: the pilot project require standardized reporting on issues such as:
 - frequency and circumstances associated with use of a CEW, including whether it was used in place of lethal force;
 - frequency and nature of misuse of CEWs by officers;
 - medical effects of CEW use; and
 - the physical and mental state of the subject;
 - Analysis: data from the pilot project be analyzed in consideration of such factors as:

- whether CEWs are used more frequently by primary response units, as compared to baseline information on current use of CEWs by supervisors;
- whether CEWs are misused more frequently by primary response units, as compared to baseline information on current use of CEWs by supervisors;
- the disciplinary and training responses to misuses of CEWs by officers and supervisors;
- whether use of force overall increased with expanded availability of CEWs in the pilot project;
- whether use of lethal force decreased with expanded availability of CEWs in the pilot project; and
- whether TPS procedures, training or disciplinary processes need to be adjusted to emphasize the objective of reducing deaths without increasing the overall use of force or infringing on civil liberties; and
 - Transparency: the TPS report the results of the pilot project to the Toronto Police Services Board (TPSB), and make the results publicly available.
- Recommendation 60: The TPS ensure that all CEWs issued to members (including those CEWs already in service) are accompanied by body-worn cameras, CEW audio/visual recording devices, or other effective monitoring technology.
- Recommendation 61: The TPS ensure that CEW Reports are reviewed regularly, and that inappropriate or excessive uses are investigated.
- Recommendation 62: The TPS discipline, as appropriate, officers who over-rely on or misuse CEWs, especially in situations involving non-violent people in crisis.
- Recommendation 63: The TPS provide additional training, as appropriate, to officers who misuse CEWs in the course of good faith efforts to contain situations without using lethal force.
- Recommendation 64: The TPS require officers to indicate on CEW Reports whether, and what, de-escalation measures were attempted prior to deploying the CEW.
- Recommendation 65: The TPS carefully monitor the data downloaded from CEWs on a periodic basis, investigate uses that are not reported by Service members and discipline officers who fail to report all uses appropriately.
- Recommendation 66: The TPS periodically conduct a comprehensive review of data downloaded from CEWs and audio/visual attachments or body cameras, to identify trends in training and supervision needs relating to CEWs as well as the adequacy of disciplinary measures following misuse.
- Recommendation 67: The TPS revise its CEW procedure to emphasize that the purpose of equipping certain officers with CEWs is to provide opportunities to reduce fatalities and serious injuries, not to increase the overall use of force by police.
- Recommendation 68: The TPS review best practices on safety of CEWs in different modes, both from TPS personnel that are already using CEWs and from other jurisdictions that have implemented policies on permitted methods of discharging CEWs.
- Recommendation 69: The TPS consider the appropriate threshold for permissible use of CEWs, and in particular whether use should be limited to circumstances in which the subject is causing bodily harm or poses an immediate risk of bodily harm to the officer or another person, and no

lesser force option, de-escalation or other crisis intervention technique is available or is effective.

- Recommendation 70: The TPS require that all officers equipped with CEWs have completed Mental Health First Aid or equivalent training in mental health issues and de-escalation techniques.
- Recommendation 71: The TPS ensure that training on potential health effects of CEWs, including any heightened risks for people in crisis or individuals with mental illnesses, is updated regularly as the state of knowledge on the topic advances (pp.95-99).

Appendix B: JKE Inquest

The following recommendations are the most relevant to the purpose of this review (2014):

1. Conduct, jointly or separately, a comprehensive research study to establish metrics against which current and future police training (delivered by the Toronto, Police Service and Ontario Police College respectively) can be evaluated to determine whether and how practices on which officers are trained are being adopted in the field.
8. The TPS and MCSCS shall consider, evaluate and implement strategies to maximize training opportunities for officers to be educated on the perspective of mental health consumers/survivors by:
 - a. incorporating more information about consumer/survivors; and
 - b. increasing opportunities for contact between officers and consumer/survivors.
9. Maximize emphasis on verbal de-escalation techniques in all aspects of police training at the Ontario Police College, at the annual in-service training program provided at Toronto Police College and at the TPS Divisional level.
10. With respect to situations involving EDPs in possession of an edged weapon:
 - a. If the EDP has failed to respond to standard initial police commands (i.e. "Stop. Police.", "Police. Don't move.", and/or "Drop the Weapon."), train officers to stop shouting those commands and attempt different defusing communication strategies.
 - b. Train officers in such situations to coordinate amongst themselves so that one officer takes the lead in communicating with the EDP and multiple officers are not all shouting commands.
11. Incorporate the facts and circumstances of each of these three deaths into scenario-based training. In particular, incorporate a neighbourhood foot pursuit of an EDP armed with an edged weapon, with several responding officers (not just two) to emphasize the importance of coordination, containment, and communication between the responding officers.
14. Train officers to, when feasible and consistent with officer and public safety, take into account whether a person is in crisis and all relevant information about his/her condition, and not just his/her behaviour, when encountering a person in crisis with a weapon (pp.2-4).

Appendix C: 2016 Ombudsman Report Recommendations

The following 22 recommendations are direct excerpts from the 2016 Ombudsman Report:

Ministry leadership

1. The Ministry of Community Safety and Correctional Services should use its legal and moral authority to take the lead on the issue of de-escalation and police-involved shootings of persons in crisis.

De-escalation regulation

2. The Ministry of Community Safety and Correctional Services should develop and implement a regulation on de-escalation, modelled on the Suspect Apprehension Pursuit Regulation, which requires officers to use communications and de-escalation techniques in all situations of conflict before considering force options, wherever tactical and safety considerations permit. This should be done as quickly as possible, and no later than 12 months after the publication of this report.

New use of force model

3. The Ministry of Community Safety and Correctional Services should institute a new use of force model that is easy to understand and clearly identifies de-escalation options, rather than just use of force options. Both the B.C. and Las Vegas models have clarity and balance, but Ontario should lead by developing its own model that builds on the best of what others have done. Given the urgency of this issue, a new model should be developed and rolled out to all police services as quickly as possible, and no later than 12 months after the publication of this report.

Coroner's jury recommendations

4. The Ministry should formally and publicly respond to all coroner's jury recommendations involving police use of force and de-escalation. This should be completed on a priority basis. The Ministry should also keep a complete and accurate record of actions taken to address coroner's jury recommendations.

Improving training

5. The Ministry of Community Safety and Correctional Services should offer more guidance for recruits and in-service officers on the use the police challenge, including when the police challenge has not been successful in de-escalating a situation and when, so long as safety and tactical considerations permit, to use de-escalation techniques. This guidance should be incorporated into a de-escalation regulation.
6. The Ministry of Community Safety and Correctional Services should revise edged-weapons training for recruits and in-service officers to stress de-escalation techniques as the first option when facing a person with an edged weapon, provided that public and officer safety and tactical considerations permit.

Recruit training

7. The Ministry of Community Safety and Correctional Services should expand the training period for new recruits at the Ontario Police College and use the additional time for more explicit training on de-escalation techniques and for practicing more de-escalation scenarios.
8. The Ministry of Community Safety and Correctional Services should use the expanded Ontario Police College curriculum to offer more training on mental illness, and strategies to de-escalate situations involving persons in crisis.
9. The Ministry of Community Safety and Correctional Services should expand mandatory annual use of force refresher/requalification training to two days, with one day dedicated to use of force techniques and one day to de-escalation techniques. This should also include clear guidelines to evaluate an officer's use of de-escalation techniques. The Ministry should monitor police services' implementation of this expanded course.

On-the-job training

10. The Ministry of Community Safety and Correctional Services should require scenario-based training as part of annual refresher training and provide recommended content.
11. The Ministry of Community Safety and Correctional Services should develop a standard syllabus on de-escalation, with definitions and training techniques, to ensure a consistent, high standard of in-service training of police officers across the province.
12. The Ministry of Community Safety and Correctional Services should revise the curriculum for use of force trainers to better enable them to provide training on de-escalation techniques as part of annual training for police officers. Rather than repeat basic concepts from recruit training, the trainers' course should focus on teaching de-escalation techniques and strike a better balance between use of force tactics and de-escalation tactics.
13. The Ministry of Community Safety and Correctional Services should set guidelines for the selection of use of force trainers, so that de-escalation and communications expertise is given equal weight with weapons training experience.
14. The Ministry of Community Safety and Correctional Services should institute and monitor a mandatory two-year recertification for use-of force trainers, the same as it does for those who teach officers to use Tasers.

Reporting, tracking and using de-escalation stories

15. The Ministry of Community Safety and Correctional Services should develop a standard reporting process that enables feedback and learning on de-escalation. The process should be used after all interactions with people perceived to be suffering from a mental illness or who are otherwise in crisis, where force was an option but was not used, and where the situations were successfully de-escalated.
16. The Ministry of Community Safety and Correctional Services should monitor de-escalation reports to identify best practices and use the information as a learning tool for recruits and in-service training. Successful de-escalations should be shared among police services as a model of expected behaviour.
17. The Ministry of Community Safety and Correctional Services should work with the Ministry of the Attorney General and the Special Investigations Unit to analyze information collected in SIU

investigations into incidents involving the death or serious injury of persons perceived to be suffering with mental illness or who are otherwise in crisis, and incorporate relevant lessons into the police training process.

Body-worn video

18. The Ministry of Community Safety and Correctional Services should actively monitor ongoing police pilot projects in the use of body-worn video to assess its value as an accountability and de-escalation tool. Based on the results of existing pilot projects, the Ministry should consider providing direction to police forces on the use of body-worn video, by no later than May 2017.

Changing police culture

19. The Ministry of Community Safety and Correctional Services should institute new mandatory training standards for coach officers, recognizing that these on-the-job mentors are a vital force in shaping new officers' skills and perceptions. The training for coach officers should be in line with the revised approach to de-escalation that will flow from the new use of force model and expanded de-escalation training at the Ontario Police College.
20. The Ministry of Community Safety and Correctional Services should make review of police services' coach officer programs part of its regular inspections of police services.
21. The Ministry of Community Safety and Correctional Services should institute new training for supervisory officers to help them develop skills in teaching de-escalation and in debriefing officers on how armed confrontations with persons experiencing a crisis were handled.

Reporting back

22. The Ministry should report back to my Office on a quarterly basis until I am satisfied that all recommendations have been implemented (pp.83-87).

Appendix D: Andrew Loku Inquest

The following 39 recommendations are direct excerpts from the 2017 Inquest:

To the Toronto Police Service:

1. Using reputable, external educators and other experts, TPS should ensure that the Service develops and implements annual/regular training at division and platoon meetings with a focus on the equitable delivery of policing services. The training should acknowledge the social inequities and challenges faced by racialized communities and consumer survivors who have experienced mental health challenges and equip officers with skills needed to provide appropriate responses and service delivery. Training topics should include, but not be limited to:
 - Bias-free service delivery
 - Social disparity
 - Equitable outcomes for all
 - Stress and fear inoculation techniques
 - Mindfulness techniques
 - De-escalation
 - Crisis communication
 - Negotiation
 - Implicit bias
 - Trauma informed approaches
 - Anti-Black Racism
 - Visible and invisible disabilities
2. Measure the effectiveness of the above-mentioned training in anti-Black racism and persons in crisis by requiring both a written and oral exam of the participants. Failure in such exams should result in requiring re-attendance at such training.
3. Mandate that all officers complete the Implicit Association Test as part of initial and requalification training.
4. TPS should continue to emphasize the importance of planning in a crisis situation to identify the lead in communication.
5. Expose or continue to expose officers in training to the perspectives and lived experience of racialized communities, the Black community and individuals with mental health issues and/or addictions.
6. Review the Intercultural Development Program deployed by the Toronto Police Service and consider the continued use of the Intercultural Development Inventory or other similar tool, as well as in-house intercultural competence facilitators, to further the intercultural competence of Toronto Police Service members.
7. Amend the annual Use of Force recertification to include qualification in areas such as mental health and/or addictions, anti-racism, particularly anti-Black racism, implicit and unconscious bias, fear inoculation, de-escalation and crisis communication.
8. Continue to emphasize that where the police challenge is issued and the subject does not comply, where possible, alternative methods of communication, de-escalation, disengagement and containment should be attempted. For example, consider making it clear that lethal force will be used if commands aren't obeyed.

9. Consider the use of trained de-briefers to be deployed following exceptional critical incidents, having regard to any SIU investigation and the rights of officers, with a view to using the knowledge gained to inform de-escalation training. If resources permit, consider using the de-briefers in situations with positive outcomes as well as negative ones, even if they are less serious incidents, in order to learn from those occurrences.
10. Require Coach officers and Supervisory officers take the 5-day Mobile Crisis Intervention Team training. Make mental health and/or addictions and policing of racialized communities, in particular Toronto's Black community, a key component of Coach Officer training.
11. Ensure that all patrol cars are equipped with less lethal weapons, e.g., CEW, sock or beanbag guns and that all officers are trained in the use of such weapons along with defensive equipment such as shields and helmets.
12. Undertake a structural/cultural review and analysis to ensure that the Service has a clear policy with respect to serving and protecting persons with mental health or addiction issues and/or racialized persons, in particular, Black persons. The Chief's review and analysis should include input from experts in this field together with persons in the communities falling within the above-mentioned descriptors. Following this, the Chief shall clearly state the TPS policy and communicate it in detail to all officers and employees. The Chief shall ensure that all members through continuous training have a clear understanding of the Chief's mandate in this regard. Failure to follow the Chief's mandate should have consequences and sanctions.
13. When making decisions about promotions, supervisors should consider an officer's skill and experience in dealing with Emotionally Disturbed Persons (EDPs), members of the Black community and racialized communities, including their ability to de-escalate and negotiate during crisis situations.
14. Encourage the Toronto Police Service to make use of the Gerstein Crisis Centre police telephone line when interacting with a person in crisis.
15. Consider additional funding and training for 911 operators in order to improve their skills in extracting more pertinent information during an emergency call. Consider beginning the de-escalation process during a 911 call.

To the Toronto Police Service Board:

16. Maintain its existing committee on mental health in ongoing partnership with members of the mental health community (throughout this document, 'mental health community' means to include the phrase in particular people who have been directly affected by mental health issues), the Toronto Police Service and subject matter experts.
17. Establish a new committee to consider possible or identified disparities in services and outcomes for racialized persons and consider interventions to address any such disparities. The committee should include representatives of the Toronto Police Service, subject matter experts and members of racialized communities, including the Black community. The committee should consider the intersectionality of mental health and race both in terms of member composition and issues to be addressed.

18. Conduct a pilot study of two divisions (preferably 14 and 51 division) where there would be more intensive community involvement, education, and training (keeping in mind resourcing) concerning interactions with people who have racial and/or mental health and/or addiction differences to determine whether this has a positive impact on reducing 'use of force' incidents.

To the Canadian Mental Health Association (CMHA -Toronto Branch):

19. Offer education to the appropriate building superintendents and managers on information sharing policies; in particular, what sort of information ought to be shared with CMHA (Toronto Branch) housing or support workers about CMHA (Toronto Branch) residential clients. In addition, it should deliver in-service training on how to better serve these clients.
20. Together with Across Boundaries study ways of ensuring that clients are able to access the services that they require across multiple agencies so that clients don't 'fall through the cracks'.

To the Ministry of Health and Long Term Care/LHIN's:

21. Fund a province-wide telephone crisis support line staffed by people trained in crisis intervention or peer support to be available to clients in supportive housing and community mental health and addiction programs, 24 hours a day, 7 days per week.
22. Provide additional funding for a sufficient number of nurses to staff Mobile Crisis Intervention Teams (MCIT) in Toronto, 24 hours a day in each police division.
23. Together with the Toronto Police Service, explore all possible avenues to assess whether MCITs could be available as first responders in crisis situations, specifically including situations where weapons are involved.
24. Fund and create a program to provide appropriate housing support to individuals suffering from noise sensitivity.

To the Ministry of Community Safety And Correctional Service:

25. Using a research based approach, update provincial standards for de-escalation, crisis communication and bias-free police training.
26. Provide funding to research and establish appropriate benchmarks for measuring effectiveness and outcomes of current police response to persons in crisis.
27. The Ontario Police College should consider additional training for police officers on de-escalation techniques, implicit bias awareness training, crisis intervention, mechanisms for combating stressful encounters and negotiation techniques.
28. Consider requiring annual de-escalation, crisis communication and bias-free policing requalification, separate from any 'use of force' requalification based on developed provincial standards.
29. Establish a provincial standard for the collection of race-based data pertinent to all interactions involving police and persons in crisis, including as a sub-set those interactions resulting in an application of use of force. This standard should be applicable to police services across the province and must include sustained funding for research to establish

appropriate benchmarking for, the collection of and analysis of the data by an independent auditor.

30. Establish a provincial standard for the collection of data concerning emotionally disturbed persons pertinent to all interactions involving police and persons in crisis, including as a subset those interactions resulting in an application of use of force. This standard should be applicable to police services across the province and must include sustained funding for research to establish appropriate benchmarking for, the collection of and analysis of the data by an independent auditor.
31. Once the data in recommendations 29 and 30 has been analyzed and interpreted, the results should be made public in an accessible format. The data should be collected in a manner consistent with human rights principles and in consultation with affected communities and appropriate experts about the purpose, use, benefits and methods of collecting data.
32. The Police Services Act - Use of Force Report (UFR Form 1 2013/12, or its successor) should be amended to include the collection of race-based data including perceived race.
33. The Use of Force Report (or its successor) should be redesigned to require officers to set out what de-escalation techniques were attempted before force was used.
34. Establish a provincial standard, in conjunction with police services and accredited academic institutions, for measuring the effectiveness of police training. This standard should be applicable to police services across the province and must include sustained funding for research to establish appropriate benchmarking for the collection and analysis of data. The province should ensure that any trends or indicators that are subsequently identified be used to inform the provincial standard on an ongoing basis. Data will be used to inform police training in municipalities that provide training additional to the Ontario Police College.
35. Fund and continue to study the use and deployment of less-lethal use of force options such as, the CEW, sock rounds and the use of defensive equipment such as helmets and shields and to study the expanded use and deployment and related training on less-lethal use of force options to front-line officers as well as specialized teams.
36. Ensure that all front-line or "primary response" officers are trained and equipped with conductive energy weapons (CEWs known as "Tasers").
37. Study and consider implementing de-escalation techniques as used in other jurisdictions, particularly those in the U.K. for example, study and consider equipping officers with less lethal weapons.
38. Create a program to encourage, fund and support the participation of members of the mental health and addictions community, racialized communities and the Black community in training at the Ontario Police College, the Toronto Police College and the divisional level, and to participate in any standing or advisory committees.
39. Rename the Use of Force Model (e.g. Compliance Model) and redesign it to incorporate and emphasize communication, de-escalation, disengagement and containment and that the use of lethal force is a last resort (pp.2-6).

Appendix E: Interview Guides

Frontline Staff (Constables, Sergeants, ETF)

Introduction

MNP^{LLP} is working with the Toronto Police Service College (TPSC) to complete a use of force review focused on Conductive Energy Weapons (CEW). The review is approved by the Toronto Police Service (TPS) and Toronto Police Service Board (TPSB).

The objectives of the review include:

1. Identifying possible alternatives to CEWs and other tactical approaches including de-escalation tactics used in other jurisdictions
2. Completing a global benchmarking exercise on the use of CEWs by other police services
3. Evaluating best practices on safety of CEWs in different modes (full deployment and drive-stun mode)

Ultimately, the review will be utilized by the TPS and the TPSB to inform decisions related to the use of CEWs by the service. As part of this review, MNP has worked with the TPSC to identify relevant and appropriate internal and external stakeholders for the purpose of providing insights regarding the use of CEWs as well as relevant data and research where available.

Confidentiality Statement:

Individual responses will be held strictly confidential by MNP and will not be released to the Toronto Police College, Toronto Police Service or any other party. Your participation is also voluntary. The results of the review will be reported in aggregate with no direct quotes used by name or job title. Finally, all information provided to MNP, including completed responses, will be used solely for the purposes of this assessment.

More information about MNP can be found at www.mnp.ca.

Note: Questions will be presented in a conversational format and allow for probing. Accordingly, all questions may not be asked in the exact order or format as presented in the question guide during the interview.

Questions

1. Please describe your experience(s) when you have deployed the CEW while on-duty?

2. In your opinion, what are the strengths of a CEW in full deployment and in drive-stun mode?

3. In your opinion, what are the weaknesses of a CEW in full deployment and in drive-stun mode?

4. Based on your experience and perspective, how effective do you believe the training is for CEWs?
Probe [not enough, too little?]

a. How effective has the training been for you in using CEW to on-duty scenarios?

5. From your perspective, is the number of occurrences that CEWs are being used aligned with the circumstances warranted for its use by the service as a whole? Why or why not?

a. Do you believe that various options on the use of force continuum are being considered by members prior to utilizing CEWs? Is there any concern that CEWs are becoming a “go to” tool for members?

b. In your opinion, should CEWs be ranked in a different position on the Use of Force Model continuum utilized by the TPS?

6. If you could, would you recommend any revisions regarding the use of CEWs. For example, training, policy, data collection on use, etc.?

7. Are you aware of the current safety standards utilized to guide the use of CEWs?

a. Do you believe these standards are effective or require improvement? Why or why not?

8. How many cross connects between the two cartridges have you done and what is the success rate of the cross connect working?

9. In your opinion, what do you believe are effective alternatives to CEWs (e.g. ERIW, Shields, etc.) if any?

10. What type of training is provided to TPS members where the objective is to use tactics including disengagement / tactical communication to avoid using the CEW?

a. Do you believe there is enough training to TPS members to reduce the need for tools such as the CEW? Why or why not? Why or why not?

11. Do you believe that the alternative forms of force being taught are being considered by the members during heightened situations while on-duty? Why or why not?

a. If you feel there is room for improvement, do you have some suggestions or thoughts on how to improve this?

12. Do you have any additional information to share that you believe would be helpful in completing this project that has not been previously mentioned?

13. Are there any reports or data that you believe we should include when completing this review?

[Probe to see what type of CEW use data they have any if they are willing to share five years of it for the review]

Thank you for your participation.

If you have further input, questions, or concerns you would like share following the interview, please contact the Project Manager:

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Master Trainers

Introduction

MNP^{LLP} is working with the Toronto Police Service College (TPSC) to complete a use of force review focused on Conductive Energy Weapons (CEW). The review is approved by the Toronto Police Service (TPS) and Toronto Police Service Board (TPSB).

The objectives of the review include:

1. Identifying possible alternatives to CEWs and other tactical approaches including de-escalation tactics used in other jurisdictions
2. Completing a global benchmarking exercise on the use of CEWs by other police services
3. Evaluating best practices on safety of CEWs in different modes (full deployment and drive-stun mode)

Ultimately, the review will be utilized by the TPS and the TPSB to inform decisions related to the use of CEWs by the service. As part of this review, MNP has worked with the TPSC to identify relevant and appropriate internal and external stakeholders for the purpose of providing insights regarding the use of CEWs as well as relevant data and research where available.

Confidentiality Statement:

Individual responses will be held strictly confidential by MNP and will not be released to the Toronto Police College, Toronto Police Service or any other party. Your participation is also voluntary. The results of the review will be reported in aggregate with no direct quotes used by name or job title. Finally, all information provided to MNP, including completed responses, will be used solely for the purposes of this assessment.

More information about MNP can be found at www.mnp.ca.

Note: Questions will be presented in a conversational format and allow for probing. Accordingly, all questions may not be asked in the exact order or format as presented in the question guide during the interview.

Questions

1. In your opinion, what are the strengths of a CEW in full deployment and in drive-stun mode?

2. In your opinion, what are the weaknesses of a CEW in full deployment and in drive-stun mode?

3. Based on your experience and perspective, how effective do you believe the training is for CEWs?

Probe [not enough, too little?]

- a. How applicable is the training provided to the members in using CEW to on-duty scenarios?
- b. What are the safety standards for using CEWs? What is the basis for these standards?
- c. Would you be willing to share the content of your training material for CEWs?

4. From your perspective, is the number of occurrences that CEWs are being used aligned with the circumstances warranted for its use by the service as a whole? Why or why not?

- a. Do you believe that various options on the use of force continuum are being considered by members prior to utilizing CEWs? Is there any concern that CEWs are becoming a “go to” tool for members?
- b. In your opinion, should CEWs be ranked in a different position on the Use of Force Model utilized by your service?

5. If you could, would you recommend any revisions regarding the use of CEWs. For example, training, policy, data collection on use, etc.?

6. How many cross connects between the two cartridges have you done and what is the success rate of the cross connect working?

7. In your opinion, what do you believe are effective alternatives to CEWs (e.g. ERIW, Shields, etc.) if any?

8. What type of training is provided to TPS members where the objective is to use tactics including disengagement / tactical communication to avoid using the CEW?
 - a. Do you believe there is enough training to TPS members to reduce the need for tools such as the CEW? Why or why not? Why or why not?

9. Do you believe that the alternative forms of force being taught are being considered by the members during heightened situations while on-duty? Why or why not?
 - a. If you feel there is room for improvement, do you have some suggestions or thoughts on how to improve this?

10. Do you have any additional information to share that you believe would be helpful in completing this project that has not been previously mentioned?

11. Are there any reports or data that you believe we should include when completing this review?

[Ask to see what type of CEW use data they have any if they are willing to share five years of it for the review]

Thank you for your participation.

If you have further input, questions, or concerns you would like share following the interview, please contact the Project Manager:

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Oversight and Administration

Introduction

MNP^{LLP} is working with the Toronto Police Service College (TPSC) to complete a use of force review focused on Conductive Energy Weapons (CEW). The review is approved by the Toronto Police Service (TPS) and Toronto Police Service Board (TPSB).

The objectives of the review include:

1. Identifying possible alternatives to CEWs and other tactical approaches including de-escalation tactics used in other jurisdictions
2. Completing a global benchmarking exercise on the use of CEWs by other police services
3. Evaluating best practices on safety of CEWs in different modes (full deployment and drive-stun mode)

Ultimately, the review will be utilized by the TPS and the TPSB to inform decisions related to the use of CEWs by the service. As part of this review, MNP has worked with the TPSC to identify relevant and appropriate internal and external stakeholders for the purpose of providing insights regarding the use of CEWs as well as relevant data and research where available.

Confidentiality Statement:

Individual responses will be held strictly confidential by MNP and will not be released to the Toronto Police College, Toronto Police Service or any other party. Your participation is also voluntary. The results of the review will be reported in aggregate with no direct quotes used by name or job title. Finally, all information provided to MNP, including completed responses, will be used solely for the purposes of this assessment.

More information about MNP can be found at www.mnp.ca.

Note: Questions will be presented in a conversational format and allow for probing. Accordingly, all questions may not be asked in the exact order or format as presented in the question guide during the interview.

Questions

1. Would you be able to provide a description of your role and department/organization you work with?

2. How does your department/organization relate to the TPS use of CEWs?

3. In your opinion, what are the strengths of a CEW?

4. In your opinion, what are the weaknesses of a CEW?

5. Based on your experience and perspective, how effective do you believe the training is for CEWs?

Probe [not enough, too little?]

- a. Policies/procedures?
- b. Data collection and analysis?

6. From your perspective, is the number of occurrences that CEWs are being used aligned with the circumstances warranted for its use by the service as a whole? Why or why not?
- a. Do you believe that various options on the use of force continuum are being considered by members prior to utilizing CEWs? Is there any concern that CEWs are becoming a “go to” tool for members?
 - b. In your opinion, should CEWs be ranked in a different position on the Use of Force Model utilized by your service?

7. Are you aware of the current safety standards utilized to guide the use of CEWs?
- a. Do you believe these standards are effective or require improvement? Why or why not?

8. If you could, would you recommend any revisions regarding the use of CEWs. For example, training, policy, data collection on use, etc.?

9. In your opinion, what do you believe are effective alternatives to CEWs (e.g. ERIW, Shields, etc.) if any?

10. Based on your experience, what value, if any, do you believe tactical communication (i.e. de-escalation techniques) provides to uniform officers?

11. Do you believe there is an effective degree of tactical communication training provided and subsequently utilized by uniform officers? Why or why not?

12. Do you have any additional information to share that you believe would be helpful in completing this project that has not been previously mentioned?

13. Are there any reports or data that you believe we should include when completing this review?

[Ask to see what type of CEW use data they have any if they are willing to share five years of it for the review]

Thank you for your participation.

If you have further input, questions, or concerns you would like share following the interview, please contact the Project Manager:

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Appendix F: Other Police Service CEW Type of Use Definitions and CEW Use Criteria

RCMP

Type of CEW Use Definitions

Uses of a CEW are recorded in the six following categories organized from the highest level of force to the lowest.

Level of Force	Type of Use	Definition
Highest Level	Probe Mode	"Means that a CEW is deployed by discharging and propelling two electrical probes, equipped with small barbs that hook onto a subject's clothing or skin, allowing electrical energy to be transferred to that subject" (RCMP, 2020, Conducted Energy Weapon)
	Contact Mode	"Means that the CEW is deployed by pressing or pushing an activated CEW onto a subject, allowing electrical energy to be transferred to that subject. Contact mode may include pressing or pushing the CEW with or without a cartridge inserted" (RCMP, 2020, Conducted Energy Weapon)
	Spark Display Activated	No official definition could be sourced to be included in this review.
	Laser Sight Activated	No official definition could be sourced to be included in this review.
	Pointed at Subject	No official definition could be sourced to be included in this review.
Lowest Level	Draw and Display	No official definition could be sourced to be included in this review.

CEW Use Criteria

For the RCMP, "CEW policy states that the CEW may only be used where a subject is causing bodily harm, as defined in section 2 of the Criminal Code, or if the officer believes on reasonable grounds that the subject will imminently cause bodily harm as determined by the officer's assessment of the totality of the situation" (RCMP, 2020, Conducted Energy Weapon).

England and Wales Police Services

Type of CEW Use Definitions

Uses of a CEW are recorded in the seven following categories organized from the highest level of force to the lowest.

Level of Force	Type of Use	Definition
Highest Level	Fired	"The Taser is fired with a live cartridge installed. When the trigger is pulled, the probes are fired towards the subject with the intention of completing an electrical circuit and delivering an incapacitating effect" (Home Office, 2017, p.5).
	Angle-driven stun	"The officer fires the weapon with a live cartridge installed. One or both probes may attach to the subject. The officer then holds the Taser against the subject's body in a different area to the probe(s), in order to complete the electrical circuit and deliver an incapacitating effect" (Home Office, 2017, p.5).
	Drive-stun	"The Taser is held against the subject's body and the trigger is pulled with no probes being fired. Contact with the subject completes the electrical circuit which causes pain but does not deliver an incapacitating effect" (Home Office, 2017, p.5).
	Red-dot	"The weapon is not fired. Instead, the Taser is deliberately aimed and then partially activated so that a laser red dot is placed onto the subject" (Home Office, 2017, p.5).
	Arching	"Sparking of the Taser without aiming it or firing it" (Home Office, 2017, p.5).
	Aimed	"Deliberate aiming of the Taser at a targeted subject" (Home Office, 2017, p.5).
Lowest Level	Drawn	"Drawing of the Taser in circumstances where any person could reasonably perceive the action to be a use of force" (Home Office, 2017, p.5).

CEW Use Criteria

Since 2007, officers in the United Kingdom are authorized to use a CEW "...where the authorising officer has reason to suppose the police are facing violence or threats of violence of such severity that they would need to use force to protect the public, themselves, or the subject" (McGuinness, 2016, p.5). The briefing paper goes on to note that, "the use of a Taser for a reason other than mitigating a threat of violence may engage Article 3 of the European Convention of Human Rights (the prohibition of torture and of inhuman or degrading treatment)" (McGuinness, 2016, p.8).

Chicago Police Department

Type of CEW Use Definitions

The use of a CEW is recorded as a field deployment that includes the following types of deployment:

Level of Force	Type of Use	Definition
Not applicable	Field Deployment	<p>"A Field Deployment of a Taser is:</p> <ul style="list-style-type: none"> • Any probe discharge, including accidental discharges; • The use of the device by physical contact to stun a subject; or • The use of a spark display during a use of force incident" <p>(Chicago Police Department, 2016, p.2).</p>

CEW Use Criteria

The Chicago Police Department policies regarding CEW use state that members are only authorized to use a CEW for the purpose of gaining control of and restraining (2020):

- Active Resisters: a person who attempts to create distance between himself or herself and the member's reach with the intent to avoid physical control and/or defeat the arrest. This type of resistance includes, but is not limited, to evasive movement of the arm, flailing arms, and full flight by running. Active resistance also includes attempting to avoid apprehension and failing to comply with a sworn member's orders to reveal themselves. The use of a Taser as a force option against an active resister is limited to when there is an objectively reasonable belief at the time of ANY of the following:
 - a subject that is armed.
 - a subject that is violent or exhibiting violent or aggressive behavior.
 - a subject that has committed a felony.
 - a subject that has committed a misdemeanor offense that is not property-related, a quality of life offense, or a petty municipal code or traffic offense.
- Assaultants are defined by the Chicago Police Department (2020) as: a person who is using or threatening the use of force against another person or himself/herself which is likely to cause physical injury. Assaultants are further subdivided into two categories: (1) a person whose actions are aggressively offensive with or without weapons and (2) a person whose actions constitute an imminent threat of death or great bodily harm to a Department member or to another person (Subsection 4C).

New York Police Department

Type of CEW Use Definitions

Uses of a CEW are recorded in one of two categories organized from the highest level of force to the lowest.

Level of Force	Type of Use	Definition
Highest Level	Probe	“In this mode, two metal probes are propelled by the CEW’s cartridge toward a subject across an intervening space, providing adequate separation from the intended target” (New York Police Department, 2019, p.656).
Lowest Level	Drive-Stun	“When the front electrodes on the CEW, or an expended cartridge attached to the front of the CEW, are brought into immediate, direct, or close proximity contact with a subject’s body or clothing” (New York Police Department, 2019, p.656).

CEW Use Criteria

The New York Police Department, outline the following regarding the use of CEWs (2019):

Officers are required to consider the totality of the circumstances when deciding the reasonable amount of force necessary to overcome resistance when effecting an arrest or when taking a mentally ill or emotionally disturbed person into custody. Some factors to consider when determining the appropriate use of force include, but are not limited to:

- The nature and severity of the crime/circumstances
- Actions taken by the subject
- Duration of the action
- Immediacy of perceived threat or harm to subject, members of the service, and/or bystanders
- Whether the subject is actively resisting custody
- Whether the subject is attempting to evade arrest by flight
- Number of subjects in comparison to number of officers present
- Size, age, and condition of subject in comparison to officer(s) present
- Subject’s violent history, if known
- Presence of hostile crowd or agitators
- Subject apparently under influence of a stimulant/narcotic which would affect pain tolerance or increase the likelihood of violence (p.660).

Additionally, for CEWs officers are only to use them against persons who are actively resisting, exhibiting active aggression or to prevent individuals from physically injuring themselves or other person(s) actually present.

- Active resistance is defined as physically evasive movements to defeat a member of the service’s attempt at control, including bracing, tensing, pushing, or verbally signaling an intention to avoid or prevent being taken into or retained in custody.

- Active aggression is defined as the threat or overt act of an assault (through physical or verbal means), coupled with the present ability to carry out the threat or assault, which reasonably indicates that an assault or injury to any person is imminent (pp.660-661).

Los Angeles Police Department

Type of CEW Use Definitions

Uses of a CEW are recorded in one of two categories organized from the highest level of force to the lowest.

Level of Force	Type of Use	Definition
Highest Level	Probe Mode	“Utilizes the CEW cartridge while attached to the CEW unit. Firing the two probes attached to wires making contact with the suspect which could cause neuromuscular incapacitation” (Los Angeles Police Department, 2018, p.5).
Lowest Level	Drive-Stun/Direct-Stun	“Two contacts on the cartridge or the CEW unit that conduct energy to affect the suspect’s sensory nerves causing localized pain” (Los Angeles Police Department, 2018, p.5).

CEW Use Criteria

Los Angeles police officers are only permissible to use a less-lethal force option such as the CEW when they (2018),

An officer reasonably believe the suspect or subject is violently resisting arrest or poses an immediate threat of violence or physical harm. Less-lethal force options shall not be used for a suspect or subject who is passively resisting or merely failing to comply with commands. Verbal threats of violence or mere non-compliance by a suspect do not alone justify the use of less-lethal force. An officer may use a CEW as a reasonable force option to control a suspect when the suspect poses an immediate threat to the safety of the officer or others. Officers shall also consider:

- The severity of the crime versus the governmental interest in the seizure; and
- Whether the suspect was actively resisting arrest or attempting to evade arrest (p.1)

No definition of violently resisting arrest could be found after reviewing the publicly available use of force policies of the Los Angeles Police Department.

New Zealand Police Service

Type of CEW Use Definitions

Uses of a CEW are recorded in the five following categories organized from the highest level of force to the lowest.

Level of Force	Type of Use	Definition
Highest Level	Discharge	"Application by firing two probes over a distance from a cartridge attached to the TASER, or subsequent applications of electrical current via the probes (Trigger or Arc) which are in contact with the subject after firing, in conjunction with a verbal warning. Important: Both probes must hit the target. This makes distance, correct aiming and target selection critically important (New Zealand Police Service, 2020, p. 12).
	Follow up contact-stun	"Activating the TASER, immediately following a provide discharge, correct aiming and target selection [are] critically important" (New Zealand Police Service, 2020, p.12)
	Contact-Stun	"Activating the device while the device is directly applied to the body of the subject." (New Zealand Police Service, 2020, p.12).
	Laser Painting	"Turning the device on and overlaying the laser sighting system of the TASER on a subject as a visual deterrent, in conjunction with a verbal warning" (New Zealand Police Service, 2020, p.12).
	Arching	"Activating the device as a visual deterrent, in conjunction with a verbal warning" (New Zealand Police Service, 2020, p.12).
Lowest Level	Presentation	"Drawing and presenting the device at a subject as a visual deterrent, in conjunction with a verbal warning" (New Zealand Police Service, 2020, p.12).

CEW Use Criteria

For members of the New Zealand Police Service, they must consider the use of a CEW with (2020):

- The deployment of a TASER is a use of force and as such, its use must be necessary, proportionate and therefore reasonable in the circumstances. You may use [a] TASER to effect lawful purpose in situations where you fear imminent physical harm to yourself or some other person. Therefore, if you use [a] TASER, you will need to show that there was a risk of physical harm likely to occur at any moment. Once the likelihood of physical harm is no longer present, the use of [a] TASER will no longer be necessary, and therefore no longer be reasonable (p.11).

The policy also states that, "An operator may show a TASER as a deterrent in situations below the assaultive range on occasions where their perceived cumulative assessment (PCA) is that it is necessary because the situation has the potential to escalate to within or beyond the assaultive range" (New Zealand Police Service, 2020, p.10).

Toronto Police Service

Type of CEW Use Definitions

Uses of a CEW are recorded in the three following categories organized from the highest level of force to the lowest.

Level of Force	Type of Use	Definition
Highest Level	Full Deployment	“Probes are fired at a subject and the electrical pulse applied. In this mode, the device is designed to override the subject’s nervous system and affect both the sensory and motor functions causing incapacitation. As with drive stun, this mode is only justified to gain control of a subject who is assaultive or where the subject presents imminent threat of serious bodily harm or death” (Toronto Police Service, 2020, p.3)
	Drive Stun Mode	“This term, coined by the manufacturer, describes when the device is placed in direct contact with the subject and the current applied; the probes are not fired. Due to minimal distance between the contact points on the CEW., drive stun is primarily a pain compliance mode. This mode is only justified to gain control of a subject who is assaultive or where the subject presents imminent threat of serious bodily harm or death” (Toronto Police Service, 2020, p.3)
Lowest Level	Demonstrated Force Presence	“The CEW is un-holstered and/or pointed in the presence of the subject, and/or a spark is demonstrated, and/or the laser sighting systemic is activated. This mode is justified for gaining compliance of a subject who is displaying passive or active resistance and under certain conditions, may be effective in situations where a subject is assaultive or presents the threat of serious bodily harm or death” (Toronto Police Service, 2020, p.3).

CEW Use Criteria

TPS (2020) members are allowed to use a CEW in relation to the Ontario Use of Force Model in situations that involve an individual exhibiting behaviours that are defined as:

- Assaultive: the subject attempts to apply, or applies force to any person; attempts or threatens by an act or gesture, to apply force to another person, if he/she has, or causes that other person to believe upon reasonable grounds that he/she has, present ability to effect his/her purpose. Examples include kicking and punching but may also include aggressive body language that signals the intent to assault.
- Serious bodily harm or death: the subject exhibit actions that the officer reasonably believes are intended to, or likely to cause serious bodily harm or death to any person. Examples include

assaults with a knife stick or firearm, or actions that would result in serious injury to an officer or member of the public (p.5).

Additional situations that a TPS (2020) officer is able to utilize a CEW include:

- To prevent themselves from being overpowered when violently attacked
- To prevent a prisoner being taken from police custody
- To disarm an apparently dangerous person armed with an offensive weapon
- To control a potentially violent situation when other use of force options are not viable
- For any other lawful and justifiable purpose (p.2).

Appendix G: Toronto Police Service CEW Use by Incident Type

Table 16: Toronto Police Service Total Annual CEW Use by Incident Type Between 2010 and 2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average
Persons in Crisis	47	49	71	57	58	66	63	84	124	113	59	72
Weapons Call	26	39	35	27	30	54	54	57	105	135	150	65
Disturbance - Other	0	15	27	18	24	34	35	24	69	63	75	35
Warrant Related	38	17	22	15	15	20	14	24	25	17	22	21
Assault Related	19	12	15	15	11	16	21	10	23	53	46	22
Domestic Disturbance	9	19	19	12	14	14	21	21	22	34	23	19
Prisoner Related	11	15	12	9	11	22	35	22	18	18	0	16
Unknown Trouble	5	6	13	2	10	8	6	7	26	40	44	15
Unintentional Discharge	6	7	7	3	10	5	6	6	19	48	0	11
Wanted Persons	0	5	11	8	1	7	10	14	16	21	17	10
Drug Related	11	8	7	10	3	6	7	12	7	4	0	7
Traffic	1	7	4	4	6	3	7	6	22	15	19	9
Robbery	6	5	1	8	6	4	7	8	13	12	8	7
Break and Enter	0	5	7	2	4	5	6	7	10	22	13	7
Theft	0	0	0	1	1	1	0	4	3	8	10	3
Suspicious Person/Disturbance	16	0	0	0	0	0	0	0	0	0	0	1
Investigation	0	10	0	0	0	0	0	0	0	0	0	0.9
Property Related	9	0	0	0	0	0	0	0	0	0	0	0.8
Homicide	0	0	0	1	1	0	0	2	0	2	2	0.7
Address Check	4	0	0	0	0	0	0	0	0	0	0	0.4
Serious Injury	0	3	0	0	0	0	0	0	0	0	0	0.3
Directed Patrol	0	0	2	0	0	0	0	0	0	0	0	0.2
Fire Related	0	0	2	0	0	0	0	0	0	0	0	0.2
Animal Related	1	0	0	0	0	0	0	0	0	0	0	0.1
Unlawful/Unauthorized Use	1	0	0	0	0	0	0	0	0	0	0	0.1
Total	210	222	255	192	205	265	292	308	502	605	488	322

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