District of Nipissing Social Services Administration Board: A Business Case for Direct Delivery of Paramedic Services

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EXECUTIVE SUMMARY

On January 1, 2001, the Provincial Government transferred responsibility for the provision of Ontario's land ambulance services to Upper Tier Municipalities (UTMs) and Direct Delivery Agencies (DDAs) as part of the local services accountability realignment process. In the District of Nipissing, legislative accountability for the provision of the service was assigned to the District of Nipissing Social Services Administration Board (DNSSAB).

Prior to download, the Province contracted land ambulance delivery to several third party agencies in Nipissing District and at the time of transition, there were some compelling reasons for the DNSSAB to continue with that model. Firstly, the organization had not yet developed internal operational expertise, something that already existed within the contracted service provider systems. Secondly, a decision to operate in a status quo environment permitted the necessary time to learn about this new and evolving service and to calculate the benefits for any future model of service provision in the District. The initial decision to contract out the service was not unlike system decisions made in 2001 by many other UTMs/DDAs who transitioned to paramedic services direct delivery in the years following.

Under the Ambulance Act and its Regulations, the DNSSAB has the authority to determine the method for provision of land ambulance service. Across the Province, the trend is to direct delivery, but the following models are available:

- Direct delivery by the DNSSAB;
- Contracted service delivery through one or more hospital systems;
- Contracted service delivery through one or more lower tier municipalities; or
- Contracted service delivery through one or more private companies.

Over the past two decades, the DNSSAB has continued to contract out land ambulance service delivery while more than 90% of UTMs/DDAs have transitioned to a direct delivery model as shown in Appendices A and C. Additionally, 85% of the organizations have rebranded as paramedic services. The DNSSAB web site was last updated in 2015 and used the paramedic service naming convention. The current paramedic service branding across the district also employs this branding. For these reasons, the term paramedic services will be used throughout the remainder of this report.

The migration to direct delivery of paramedic services was one consideration that resulted in a 2021 DNSSAB Board decision to complete a wide-ranging paramedic services review, with a focus on delivery model options. Board direction was to identify reasons to remain status quo, or alternatively a rationale for transition to a direct delivery model for paramedic services.

This report is the result of an extensive evaluation of the current contracted service delivery model, an assessment of decisions and processes in comparator municipalities to move to direct delivery, and a lateral comparison of the direct delivery option. It focuses on the DNSSAB Board of Directors' approved framework and scope, and concludes that a direct delivery model for paramedic services is ideal, permitting a nimble and responsive community focused service. Direct operational delivery by the DNSSAB allows for the greatest flexibility to address emerging community needs while being responsive to resource efficiencies and financial factors.

Beyond the comparison of status quo and direct delivery models for paramedic services, a section of this report is dedicated to the assessment of opportunities for paramedic service evolution/enhancement, specifically focusing on deployment, provision of care, and infrastructure design. The findings are detailed within this document, but any recommendations for service enhancements will be brought forward through the annual budget deliberation process.

The first phase of this project includes the purposeful examination of paramedic service model comparisons, a detailed analysis of the current system coordination, and the development of this Report, in order to inform the Board and offer a recommendation. The second phase of the work, pending Board approval, would be the tactical implementation of a direct delivery paramedic service, to be completed, barring any unforeseen circumstances, by January 1, 2023.

METHODOLOGY

The paramedic services review project for the DNSSAB engaged with internal staff, external partners, contracted service providers, legal representatives, allied agency partners, and specifically explored areas including:

- A historic review of the Ontario Land Ambulance (Paramedic Services) system and its evolution preceding and following the 2001 Provincial download, in order to compare and contrast system models adopted by UTMs/DDAs;
- The development and subsequent DNSSAB approval of a framework and principles to be engaged throughout the project;
- A detailed review of Regulatory accountability borne by DNSSAB within the two model options;
- A detailed financial assessment, including a 2021 annual budget Operational efficacy measurements when comparing the models;
- A service level enhancement review to examine necessary system changes regardless of the delivery model decision.

PRINCIPLES

This report focuses on a specific set of principles that the DNSSAB Board of Directors approved in April of 2021. These eight principles have been established to ensure the project framework offers a detailed analysis that has both depth and breadth while ensuring the scope of the project is maintained. The principle outcomes of direct delivery of paramedic services have been encapsulated in table format as part of the report conclusion.

Sustainability of Paramedics Services

The concept of business sustainability generally surrounds the influence of environmental and financial factors. The United Nations Brundtland Report defines social, economic and environmental factors as the three pillars of sustainability (Keeble, 1988). More recently Purvis, Mao & Robinson (2019) support this position as one developed to address social and ecological global challenges.

Health care sustainability is a more challenging issue. While there is significant literature pertaining to health system bricks and mortar infrastructure, sustainable health care delivery is poorly defined. Mackay & Wolbring (2013) submit that sustainability of a health system requires an engaged and effective governance structure, as well as a strong connection to the community. This concept easily applies to the provision of paramedic services in Ontario. Governance at arms length, through contracted service providers, presents a challenge to success as the responsible organization has little ability to anticipate and immediately respond to emerging community needs.

Paramedic service sustainability will require greater engagement with stakeholders and partner agencies and further collaboration with these services, something that has become a standard model for paramedic services across the Province, and something that has resulted in holistic program growth.

Strong Strategic Vision

The Board is currently working on finalizing its strategic plan to inform and direct the organization's future as a public service agency. This process has included some significant work around the current state in paramedic services and has allowed the discussion to begin on how the DNSSAB strategic vision may dovetail to paramedic services, and develop into something exceptional.

As part of developing the Board's current Strategic Plan, a paramedic services Strength, Weakness, Opportunity, and Threat (SWOT) analysis was completed using the existing delivery model.

The efficacy of the strategic vision extends beyond simply the provision of paramedic services to the community; it requires alignment of paramedic service delivery with DNSSAB Strategic Goals and Priorities. As an example, while the organization works to address homelessness and expand affordable housing opportunities across the district, paramedic service personnel can play a valuable role in achieving these priorities. Paramedics work in communities throughout Nipissing District with vulnerable clients who in addition to needing health services are also in need of affordable housing. Thus, the paramedics are an important link to these vulnerable populations and can collaborate on strategies to address the needs and develop solutions.

A direct delivery model for paramedic services would also permit for a single approach to coordination of services across the district and work towards the Board's goal of seamless access to services. The status quo model adds layers to such coordination, and may cause barriers around clients accessing the services they need and specific capacity in differing areas. A number of UTMs/DDAs operating paramedic services directly have systems that allow for client referrals across departments, something that has demonstrated substantial benefit in avoiding hospital admissions, or other adverse outcomes.

Additionally, the close alignment with the DNSSAB and its municipal partners would strengthen the collaboration with allied agencies. The paramedic services leadership team could directly address Board priorities and community social determinants of health in a way not possible before with contracted services.

Stakeholder Engagement

Paramedic services have evolved to become an integral partner in Ontario's holistic health care model and as an emergency service. Engagement and collaboration with both partners and stakeholders has been a cornerstone to this success. Organizations who have migrated to a direct delivery model have become leaders in the area of service progression, often because the allied partners operate within the same organization. A direct delivery model in the District of Nipissing would facilitate collaboration both internally and externally, something that has not been fully explored previously.

System Adaptability

The ability for a UTM/DDA to amend the paramedic service program delivery in response to community needs or to address emerging evidence of system improvement is necessary. The desire of the DNSSAB Board of Directors to include this principle was clear and unambiguous. Organizations who direct deliver paramedic services have demonstrated their nimbleness over the last 20 years, in advancing care for patients and collaborating with community partners. The Peel Report assessment of paramedic services direct delivery identified the process of changing agreements with contractors as time consuming as the contractors would only be accountable for the performance requirements made in the contract, not to changes desired by the region. As such, they reported that contracted systems might adversely affect system flexibility and responsiveness and result in a model that is not proactive. The Peel Region report findings are directly applicable to the current DNSSAB environment.

Service Level Improvement

The DNSSAB Board ensured that an outcome from any decision to move to direct delivery of paramedic services would include the principle of service level considerations and improvement. The concept of service level improvement would include not just deployed resource numbers, but also a review of scope of practice and advancement of a holistic approach to care.

Finally, service enhancement is a principle that integrates a holistic approach that leverages partnerships and technologies. Paramedic services have become a collaborative partner in programs such as Community Paramedicine (CP), and representation in emergency operations centres (EOCs) and as a public safety agency. Enhancement of technology to leverage information sharing is necessary to improve not just the operational resources, but also quality assurance. The assessment of the service has revealed that the adoption of technologies and engagement with partner agencies has been stagnant. This topic is further discussed in the Service Evolution/Enhancement Opportunities section of this report.

Financial Responsibility

The legislated responsibility for provision of paramedic services across the District of Nipissing belongs to the DNSSAB. The funding source for this service is a shared funding model, equally supported by the Provincial Government and the DNSSAB. As such, the oversight of paramedic services provision is a significant responsibility. Oversight is not simply an operational activity, but must consider the ability to leverage the funds necessary to operate effectively.

The method for service provision in the District of Nipissing is through contracted services by the Municipality of Temagami, Mattawa Hospital, and North Bay Regional Health Centre (NBRHC). Each year, each contractor submits their proposed annual operating budgets, which are scrutinized by the DNSSAB and approved. This process may involve adjustments to the contractor budgets based on DNSSAB review before final approval. In contrast, paramedic services operated directly by UTMs/DDAs, are subject to intensive budget deliberation processes.

Evidence-based Practice

The evolution of evidence-based practice in health care is a methodology that has matured over the last number of years, and is essential in order to provide quality health care. Improved patient outcomes are a main factor that supports this process, but such outcomes require multifaceted organizations and a holistic approach to healthcare delivery (Saunders et al, 2019).

The growth of Paramedics as a part of the health care system has required evidence-based practice as a linchpin of success, but success also requires significant engagement of service delivery organizations. Back et al, (2020) suggest that there is an important need for strong support of, and a sound understanding of evidence-based practice by an organization as a prerequisite for success. Further, organizations must adopt processes to allow implementation of advancements in a manner that supports this practice. The challenge with a contracted service model arises where there is conflict in the perception of an evidence-based practice. In such cases, the parties would rely on contract language that that might be outdated or inaccurate. Any effort to amend such language would not be timely and might have unanticipated financial impact.

The direct delivery model would allow the DNSSAB to introduce emerging processes, in a proactive way, using evidence-based practice. The use of evidence-based practice requires collaboration between the paramedics, medical oversight, and the operational agency. Limiting the layers of these participants permits a more streamlined approach to efforts and will offer improved patient outcomes.

Continuous Quality Improvement

The advancement of paramedic service provision requires ongoing and committed acceptance of system evolution and engagement across a number of health and emergency systems. Campeau et al, (2021) assert that the capacity to improve the quality of patient care requires services accept responsibility to collaborate with other agencies, something that requires a focused approach and organizational buy in. Where

service operations are delivered at indirectly, the ability to direct quality improvement is impacted by contract language/positions.

The 2006 Peel Region assessment of paramedic service direct delivery found that the ability to achieve high performance in a contract model necessitates inclusion of significant incentives, incentives that are limited in the regulated framework for paramedic service provision in Ontario. Contracting services limit the ability to adapt to emerging possibilities without complex workload management.

DNSSAB has the legislated responsibility to ensure provision of paramedic services. Improved patient care has to be central to this provision, and efforts to be a performance-based agency must incorporate the development of quality programs. The transition to a direct delivery model would permit the DNSSAB to engage and develop services that meet evolving community needs that consider the changing social determinants of health, and based on evidence.

HISTORY/BACKGROUND

The first ambulance services in Ontario date as far back as 1832. In 1965, the first evolution began with the responsibility for ambulance services being reassigned from the Department of Highways to the Department of Health (now Ministry of Health), and implementation of the first Regulations around service provision (1974, Ghent). Since that time, the Provincial Government has provided legislated oversight for ambulance services in Ontario. Under the Ambulance Act, the Minister of Health has the responsibility to ensure the existence of a balanced and integrated system of ambulance services throughout Ontario, but in 2001, the province transferred responsibility for land ambulance provision to Upper-tier Municipalities (UTMs) and Designated Delivery Agents (DDAs). This fundamental change stemmed from the Provincial Government's decision to attempt to disentangle the provision of social services (Graham & Phillips, 1998).

In the late 1960's, there were 425 different ambulance service providers in Ontario. Over the following three decades, regulation and evolving expectations led to amalgamations and elimination of services, and prior to the 2001 downloading the number had shrunk to approximately 175. These services were publicly contracted land ambulance services, operated by a variety of private vendors, health sector agencies, and in the case of 10 services, operated directly by the Ministry of Health.

In early 1999, the Association of Municipalities of Ontario (AMO) and the Ministry of Health and Long Term Care (MOHLTC) established the Land Ambulance Implementation Steering Committee (LAISC) to help develop a framework for funding,

and for procurement and transition of the land ambulance services designed to be the responsibility of forty-two municipalities, and eight designated delivery agents (DDAs). These communities became responsible for provision of land ambulance services following the January 2001 download. Each of these UTMs/DDAs had authority and autonomy to determine their service delivery model(s).

More than half of the UTMs and DDAs chose to contract out service delivery to third parties, evenly split between hospital providers, and private contractors. 54% of UTMs/DDAs contracted out fully or in-part, but since that time there has been a steady trend toward direct delivery of the service by UTMs/DDAs (Prno, 2002).

By 2012, there were 60 certified land ambulance operators (UTMs/DDAs) with 85% being directly delivered (Ontario Auditor General Report, 2013), and by the writing of this report, the number of Ontario UTMs/DDAs who contracted out their land ambulance service delivery had fallen to six.

In Northeastern Ontario, thirty-seven (37) individual paramedic services operated prior to 2001. Following the download, provision of services was delegated to fourteen (14) UTMs/DDAs and First Nations. Only three initially opted to direct deliver paramedic services, but by 2020 only the DNSSAB and the Town of Parry Sound continued to contract out paramedic services.

DNSSAB is in a unique position regarding the paramedic services design. The organization is one of only six organizations who continue to contract out paramedic services, but it is the only organization in Ontario to use multiple contractors. This process was not unusual in the past, but since the 2001 download, almost every UTM/DDA transitioned to direct delivery. The remaining five organizations who continue to contract out paramedic services consolidated to just one contractor (appendix A).

ACCOUNTABILITY AND RESPONSIBILITY

UTMs/DDAs are responsible for costs associated with paramedic services, subject to any provincial grants. The current model speaks to grant funding at a rate of 50% of eligible costs, after consideration of First Nations, Territory without Municipal Organization (TWOMO) funding, and any other provincial funding. The provincial funding design is based on the prior year budget expenditures, meaning that cost increases and funding shortfalls are borne by the UTM/DDA in the first year, and any new funding from the Province is subject to retroactive approval.

The current contracted service delivery model in place in Nipissing District involves paramedic services operational delivery by three external organizations; however, the

overarching reality is that DNSSAB is legislatively responsible for level of service provision, scope of practice designation, and operational modeling. Additionally DNSSAB is responsible for the provision of services, ensuring capital inventory, and to ensure infrastructure oversight. Legislation places the responsibility for service continuity with UTMs/DDAs, regardless of any decision to contract or direct deliver paramedic services. This means that there remains a significant onus on agencies like the DNSSAB around effective service delivery. Choosing a contracted paramedic services delivery model may relieve the designated organization from the need to maintain a fulsome internal organizational structure, but it does not remove the overall accountability and responsibility from the Provincial Government (Essex, 2008).

DNSSAB continues to have staff engaged in planning, procurement, budgeting and reporting despite the contracted service model. During direct delivery deliberations, many other municipalities confirmed that the UTMs/DDAs had a significant investment in paramedic services (Regional Municipality of Peel, 2004). Ministry of Health, Emergency Health Services (MOH EHS-B) staff confirmed the DNSSAB responsibility for service provision during discussions held during this project review.

Mew et al (2017) reported the 2015 Auditor General Report finding of inequitable health services availability amongst remote First Nations (FN) communities, and identifying paramedic services among the most deficient for these communities. The DNSSAB is legislatively responsible for provision of paramedic services across a vast geography, including remote FN communities. Some FN communities have, MOH EHS-B designed emergency first response teams (EFRT) in place; however, the provision of paramedic services into remote communities remains DNSSAB's responsibility.

Drennan, Blanchard & Buick (2021) explored provision of safe, appropriate and patient-centred care, and the role of paramedics in an environment of increasing call volume, and new emerging health challenges. The emergence of the COVID-19 pandemic and the role of paramedics in managing the response is one example of such challenges.

STRATEGIC AND OPERATIONAL FLEXIBILITY

The healthcare system in Ontario continues to evolve. The COVID-19 pandemic has exposed system gaps and opportunities around improved patient care, and enhanced public health measures. Paramedics are on the frontlines and play a pivotal role in community safety. There is increasing opportunity to leverage expertise in paramedic practice and community care to do more for Ontarians and for the health system (Smith & Dundas, 2021). Paramedic services have recognized the evolving community needs resulting from aging populations, lack of acute care and long-term care capacity, the inability to meet client needs by community care, homelessness, a growing crisis in

substance abuse, health disparities in First Nations Communities and the impact of mental health service gaps on patients. UTMs/DDAs possess the unique capacity to implement mitigation strategies that can flex and scale to meet the changing community's needs. Direct delivery of paramedic services permits rapid engagement and response, allowing for high quality, patient-centered care in a manner that is nimble and that can adapt to rapidly evolving needs (subject of course to any limitations pursuant to the specific provisions that are negotiated as of the collective agreement)

In 2006, the Peel Region Paramedic Service direct delivery report described level of service provision as something managed through a contractual agreement between the Operator and UTMs/DDAs. They concluded that effecting changes to these agreements during the lifetime of the contract would require significant investment and negotiation in order to build consensus, adding that this would not be a challenge for UTMs/DDAs who directly deliver paramedic services. They concluded that contracted paramedic services could lack flexibility and responsiveness within the system, adding that one of the most desirable factors surrounding the direct delivery of paramedic services is the ability to evolve the service based upon the community needs.

In Nipissing District, paramedic service call volume continues to grow. In 2021, district-wide volumes are expected to exceed 24,000 calls. The single largest area of growth is urgent and emergent on-scene assignments, while global non-urgent activities have steadily decreased. Programs such as Community Paramedicine have been proven to help reduce 9-1-1 emergency responses, emergency department visits and hospital admissions, but the service has still experienced emergency call volume increases of 20.5% since 2019 (appendix H). These increases have a significant impact on service capacity. A direct delivery model would permit system agility, while negating the requirement to revise service contracts in advance of any mitigation strategy (again, subject to any limitations pursuant to the collective agreement).

Paramedic service response times (RTS) are reported publicly by each UTM/DDA every year. The RTS system was implemented by the MOH in 2013. It allows for transparent information sharing. The system also allows municipalities to examine service delivery status, and to adopt system improvements. Prior to the RTS, the Province used a method for response reporting where each UTM/DDA was required to ensure the 90th percentile emergency response times achieved in 1996 were maintained. Paramedic services use evidence-based methods to determine best practices and in doing so have worked to improved response times to their residents.

In 2021, the Ministry of Long term Care (MLTC) funded DNSSAB to develop and deliver a Community Paramedicine (CP) program for residents on LTC wait lists, or people at

risk for requiring LTC placement. The program goal is to help these patients remain in their homes, living independently. The DNSSAB, as the funding recipient, determined that the program would operate district-wide. This required multiple hirings in each of the three separate services, and the development of three separate contracts for funding of the dollars to each contracted service provider. DNSSAB contracted a CP medical director to provide oversight to delegated activities.

CP funding in 2013 and in 2020 was provided by the MOH through Ontario Health-north, but these programs were flowed directly to NBRHC. The DNSSAB was not the funding recipient in these two programs. Importantly, the MOH CP funding process prohibits the flow of dollars directly to UTMs/DDAs, forcing funds to be issued to hospitals, who would then have to fund the UTM/DDA. This funding challenge has recently been raised by the both the OAPC and AMO. This challenge does not exist with MLTC funding.

The evolution of paramedic services across Ontario has resulted in system changes in order to meet community expectations. One notable change is an increasing number of urgent and emergent responses. Services have become far busier as the population ages and this demographic become a greater consumer of health care services. Additionally, social determinants of health are causal to increasing community needs. In order to ensure capacity for emergency services, many UTMs/DDAs have transitioned away from the business of non-urgent transportation. In response, many health care facilities, Ontario Health, and non-urgent service providers have assumed responsibility for funding and delivering these activities.

The current paramedic services delivery model in the District of Nipissing includes contracting out to two hospital systems. Across Ontario, paramedic services and hospital organizations have diverging priorities with respect to non-urgent interfacility and discharge transportation of patients.

Ontario’s paramedic system has experienced a variety of chronic and complex challenges including under-funding, (psychological wellness of paramedics) hospital offload delays, conflicting system design, under-resourcing, lack of recognition for advanced care skills, call volume growth, degrading response times, rapidly changing medical protocols and technology developments. The DNSSAB will be able to foster the expertise and relationships to lead and be instrumental in this role. This model will enable responsive, rapid and coordinated implementation of system improvements for maximum control, accountability, monitoring and operational changes within the system.

As comorbidities, aging population demographics, and other emerging health challenges strain healthcare systems across Canada, there is a need to find creative and innovative ways to leverage existing health care resources. Paramedic Services can help reduce the healthcare burden from social determinants, and to improve quality of care. Paramedics have a demonstrated ability to adapt to meet emerging community needs. This concept of adaptability is compatible with evolving work to expand trends in paramedic education, culture and governance (Allana & Pinto, 2021).

PROFESSIONAL STANDARDS AND QUALITY ASSURANCE

Regulation requires that organizations operating paramedic services maintain specified records related to personnel and service provision. The DNSSAB model currently has a requirement for each of the contractors to manage specific details and to report them to the DNSSAB.

Under Regulation, each paramedic service is subject to a prescriptive certification process every three years. These events require significant investment of time to prepare responses. Given that DNSSAB contracts out paramedic service delivery, the requirement is that each of the three (3) operators are subject to the review process. This triplication of efforts affects the organizational workload. Migration to a single direct delivery model would reduce these redundant efforts.

FINANCIAL ANALYSIS

A decision by any UTMs/DDAs to move to a direct delivery model for the paramedic services should be premised on a desire to ensure greater system oversight and municipal responsiveness, along with a desire to ensure an equitable district-wide approach. The vast majority of paramedic services costs (80%) relate to staffing, wages and benefits. In almost every service, these budget lines are reached through collective bargaining. Without altering the staffing profile/deployment model there is very little that can be done to realize savings in this area.

DNSSAB staff prepared a shadow budget for the 2021 year in order to permit a lateral financial analysis of the status quo contracted service model against a direct delivery model. The result of the process revealed an incremental 2021 budget reduction associated with the direct annual delivery budget of approximately $600,000.

The current model of contracted paramedic service delivery requires the preparation and implementation of four (4) separate budgets to manage the different programs. Each contractor has to prepare and submit their own operating budget, a document that then requires review and response by DNSSAB staff. Additionally, DNSSAB has to

prepare an annual budget to address items not managed by the contract agencies. In 2021, the three contractor budgets and the DNSSAB budget totaled slightly more than $12 million. As a financial consideration, each contractor and the DNSSAB must prepare annual audits that are then compiled and made available to the MOH. DNSSAB staff are then subject to ongoing interaction with the MOH to address concerns related to any of the four audits.

The cost analysis for the direct DNSSAB specific budget items was unchanged in order to permit a lateral assessment. Any service enhancements introduced into the design would have altered the process methodology. Future service or program enhancements will be brought forward as to the Board as due process such as budget deliberations.

SERVICE EVOLUTION/ENHANCEMENT OPPORTUNITIES

The evolution of public services is inherently tied to community expectation and financial impacts. Paramedic services are no different in that the development of a service delivery model will be successful where it meets the evolving community needs and is considerate of the influence on that community.

As was previously discussed, paramedic service enhancements can be categorized as service deployment, service delivery and infrastructure. Each of these items must be regularly evaluated to ensure expectations and impact are managed efficiently.

In 2021, the district-wide paramedic services call volume is expected to be 10% higher than in 2016. While call volume increases are notable, more importantly is evolving patient severity. In 2016 non-urgent workload, medical appointment transportation and repatriation and balanced coverage assignments accounted for 41.4% of the total workload. In 2021, staff anticipate that non-urgent and standby workload will represent only 20.4% of volume.

Urgent and emergent responses now represent 79.6%, with urgent responses up by 49.7% and emergent responses up by 59.9%. This evolving response dynamic has a significant impact on the service’s ability to manage workload and mitigate the affect of resource degradation.

Information from the UTMS/DDAs across Northern Ontario who are operating with on-call deployment reveals that only one other service still utilizes a model of 16-hour daily on-call staffing, and that service will be amending their model in 2022.

Paramedics in Ontario are classified by their provincial certification. The three classifications are; Primary Care (PCP), Advanced Care (ACP) and Critical Care (CCP). Nipissing District does not deploy Critical Care paramedics but there are both PCPs and ACPs.

Service enhancement must also consider both technical and physical infrastructure examination. Technological solutions intended to improve service delivery continue to become available.

Bidirectional data transfer between the MOH Central Ambulance Communications Centres (CACCs) and the paramedics is one new technology. The program permits information sharing, leading to reduced need for direct communication, while permitting routing options, and auto-population of much of the patient records. Work done by some early adopters of these systems reported reduced time on task for documentation, improved response times, and greater employee satisfaction. A second technology involves new generation vehicle monitoring functions and integration of each paramedic services vehicle as a wireless hotspot that will permit a number of initiatives to be realized. Each of the technological enhancements discussed in this report are not currently in use by DNSSAB, but will require assessment.

As detailed previously, DNSSAB contracts with three service providers who operate from stations in five separate communities. Station sites provide for heated vehicle storage, and an area for paramedics between responses. In North Bay, West Nipissing and Temagami a designated deployment facility with both vehicle and staff accommodation exists. The Mattawa Hospital accommodates paramedics in a small designated crew area within their hospital and in South Algonquin, arrangements have paramedics sharing a municipal building (fire station) for on-site hours. There are some compelling reasons to explore station facilities to ensure each site is appropriate. Despite any decision regarding the model for paramedic service delivery, discussions will need to take place to study options for station designs where changes are necessary, and investment in such options would be required.

Finally, an assessment of paramedic services fleet design will be necessary as part of any service enhancement potentials. The current DNSSAB fleet makeup includes 16 ambulances. There are also three Paramedic Response Units (PRUs) that are utilized by the 24/7 supervisory staff, and by senior staff. These vehicles are not part of

deployment. The vehicle deployment includes two ambulances positioned at the Temagami station, Mattawa station and Whitney station. This permits a front line resource and a mechanical spare. The purpose of the spare is to ensure redundant capacity in the event the front line response unit fails mechanically, requires scheduled or unscheduled maintenance, or becomes inoperable for any other reason. The design ensures response capacity. In West Nipissing, there are three ambulances (two deployed on day shifts, and one on nights). The three vehicles are required for daily deployment, meaning that there is no mechanical spare. The North Bay station has seven ambulances positioned on site, permitting the deployment of four ambulances on each day shift, and three ambulances on night shifts. Again, there is no ambulance fleet redundancy should any ambulance be mechanically out of service. The final piece of the DNSSAB paramedic services fleet includes three vehicles utilized for Community Paramedicine. These vehicles are not emergency response up-fitted, nor are they designed for such a purpose. These vehicles are designed with low conspicuity features, and to mitigate stressors for clients when positioned at residences.

An in depth assessment of the ambulance fleet design should be completed in 2022, but the DNSSAB will need to consider addressing the extremely lean ambulance fleet. Additionally, the DNSSAB needs to better define and enforce the utilization and replacement cycle of the ambulance fleet.

Consideration for service enhancement is not simply increasing hours of deployment. It includes the types of service delivered. It also means the ability to be proactive as the health environment changes. A direct delivery model would allow the Board to determine best use of resources in a manner that can be responsive and not subject to unnecessary contractual challenges.

CONCLUSION

A review of DNSSAB's current model for paramedic service system delivery was completed between March of 2021 and November 2021. The review followed the DNSSAB Board of Directors decision to compare the contracted service current model against a direct delivery model. The direct delivery model would involve the DNSSAB operating paramedic services and employing the personnel required for service provision.

Since the Ontario Government's decision to transition paramedic services from a provincial to municipal responsibility more than two decades ago, the direct delivery model has become the standard for service provision of this essential emergency and health service. While, almost every UTM/DDAs have shifted to direct delivery since the

downloading of service provision, many organizations maintained a contracted service arrangement for a period of time (the length of which varied from organization to organization), and only later determined that direct delivery was the desired strategy. The decision followed organizational maturation, education and evolution.

Organizational expertise of paramedic services within UTMs/DDAs has grown over the last 20 years allowing for confidence in a transition to program delivery and internal oversight. Such expertise exists within the DNSSAB and can be leveraged with a decision to develop a direct delivery model.

In North Eastern Ontario, there were 37 individual paramedic services in 1999 (see Appendix B). The 2001 download of service responsibility to UTMs/DDAs resulted in a total of nine agencies in the Northeast. Only Algoma District and the City of Greater Sudbury moved to a direct delivery model at that time, while the remaining organizations continued to contract out the services. In 2021, only Nipissing DSSAB and the Town of Parry Sound continue to contract out paramedic services. Across Ontario, only six UTMs/DDAs continue to contract out paramedic services (Appendix A). The trend to direct delivery is clear.

This report not only details the trend toward direct delivery of paramedic services in Ontario, but also captures the rationale put forward by a number of organizations. The report also examines operational, financial, and human resource factors, and measures the complexity of such a transition decision as it dovetails to Board established principles, and strategic priorities. The review laterally compares direct delivery to a status quo options across these measures to fully inform the DNSSAB Board of Directors of advantages and disadvantages for each option.

The information in this report was developed through a focused assessment of current Provincial Regulations, a review of several paramedic services who had already transitioned from contracted to direct delivery, and through collaboration with paramedic services leaders from across Ontario. The past experiences shared by the County of Essex, the Regional Municipality of Peel, Muskoka District, Rainy River District, Sault Ste. Marie District, Manitoulin-Sudbury Districts, and Cochrane District were explored in depth. Each of these organizations were able to provide information crucial to the development of a sound transition plan, and each of the organizations affirmed the decision to move to a direct delivery model was the correct decision.

The review of service delivery options includes the detailed assessment of human resource, labour management, and administrative support considerations. These factors were examined through the lens of both ongoing and a one-time basis.

A decision to transition to a DNSSAB direct delivery paramedic service model is one that will achieve success while supporting the principles of adaptability and service sustainability, continuous quality improvement through evidence-based processes and partner engagement, and service sustainability and growth through financial responsibility and strategic vision. Incorporating each of these principles necessitates the transition to direct delivery to ensure organization oversight and responsiveness can be integrated into the DNSSAB vision and not reside externally where others can determine its direction.

Finally, the decision to move to a direct delivery paramedic service model across Nipissing District is defensible and appropriate. It will afford the DNSSAB and member municipalities' capacity to ensure legislated responsibilities are met, while the operation is delivered in an efficient manner that is determined by its residents into the future.

The following table captures both the Pros and Cons for direct delivery, considering the Board established principles.

Principles- Pros/Cons Comparison

Issue	Direct Delivery Pros	Direct Delivery Cons
System Sustainability	A direct delivery model will permit the DNSSAB and its member municipalities to ensure the provision of paramedic services can be monitored and managed through direct oversight. The DNSSAB would be able to evolve the system fairly and consistently.	
Strategic Vision	DNSSAB strategic vision will dovetail to that of the paramedic services, and will permit alignment of service delivery with DNSSAB strategic priorities. The process will permit a single coordinated paramedic service across the district.	

System Adaptability (Nimbleness)	The direct delivery model will permit the organization to employ nimbleness to improve a holistic approach to patient care, unrestrained by the status quo model, and will allow greater engagement community partners.	
Service Level Improvement	The DNSSAB will have streamlined capacity to examine and alter resource deployment, address community needs for increased scope of care, and integration of a more holistic approach to care.	
Financial Considerations	The lateral comparison of operational budgets revealed an annualized budget decrease of approximately $600,000, as of 2023.	There will be transitional (one-time) costs. In 2022, any operational cost savings will be negated in order to permit transitioning of the service. While staff are confident in the financial assessment, the intent is to hold any contingent savings in 2022 to address unknown factors. This presents a risk of the unknown. Some costs, like WSIB costs, will become direct for the DNSSAB as the employer and these may or may not be significant over time.
Evidence-based Practice	There would be capacity to assess and respond to emerging processes, proactively. Increased collaboration between the paramedics, medical oversight, and the operational agency.	There would be a need to establish relationships with partners that currently are not in place.

	Elimination of contractor layers and potential challenges to introduction of new processes.	
Continuous Quality Improvement	The ability to achieve high performance improvements in such a regulated environment can be observed and actioned rapidly.	Not unlike the challenge with evidence-based practice, the transition to direct delivery would require establishment of additional relationships with partners.

RECOMMENDATION

WHEREAS a transition of paramedic services to direct delivery by the DNSSAB will permit a more nimble and responsive service delivery model; AND
WHEREAS such a transition may provide a reduced cost; AND
WHEREAS such a transition will permit system efficiencies that will be patient centric and community focused;
THAT DNSSAB approve in principle the direct delivery model for paramedic services effective prior to January 1, 2023; AND
THAT staff take appropriate steps to finalize a transition implementation plan with stakeholders; AND
THAT the financial impact for the direct delivery decision be built into the 2022 budget.

Appendix A

UTM/DDA Current List of Paramedic Services

UTM/DDA	Paramedic Service Name	Delivery Model
Algoma District	Algoma District Paramedic Services	Direct delivery
Brant County	County of Brant Paramedic Service	Direct delivery
Bruce County	Bruce County Paramedic Service	Direct delivery
Chatham/Kent	Chatham/Kent EMS (Medavie)	Contracted
Chippewas of Rama FN	Rama Paramedic Services	Direct delivery
Christian Island FN	Beausoleil First Nation EMS	Direct delivery
Cochrane District	Cochrane District EMS	Direct delivery
County Essex-Windsor	Essex-Windsor EMS	Direct delivery
Dufferin County	Dufferin County Paramedic Service (Headwater)	Contracted
Durham Region	Region of Durham Paramedic Services	Direct delivery
Elgin County	EMS Elgin (Medavie)	Contracted
Frontenac County	Frontenac Paramedic Services	Direct delivery
Greater Sudbury	Greater Sudbury Paramedic Services	Direct delivery
Grey County	Grey County Paramedic Services	Direct delivery
Guelph/Wellington	Guelph-Wellington Paramedic Services	Direct delivery
Haldimand County	Haldimand Paramedic Services	Direct delivery
County of Haliburton	Haliburton Paramedic Services	Direct delivery
Halton Region	Halton Region Paramedic Services	Direct delivery
City of Hamilton	Hamilton Paramedic Service	Direct delivery
Hastings County	Hastings Quinte Paramedic Services	Direct delivery
Huron County	Huron County Paramedic Services	Direct delivery
Kawartha Lakes	Kawartha Lakes Paramedic Service	Direct delivery
Kenora District	Northwest EMS	Direct delivery
Lambton County	Lambton Emergency Medical Services	Direct delivery
Lanark County	Lanark County Paramedic Services (Almonte Hospital)	Contracted
Leeds & Grenville Leeds	Leeds Grenville Paramedic Service	Direct delivery
Lennox & Addington	Lennox Addington Paramedic Services	Direct delivery
Manitoulin-Sudbury DSB	Manitoulin-Sudbury Paramedic Service	Direct delivery
Muskoka District	Muskoka Paramedic Services	Direct delivery
Naotkamegwanning FN	Naotkamegwanning EMS	Direct delivery
Niagara	Niagara Emergency Medical Services	Direct delivery
Nipissing District	District of Nipissing EMS (NBRHC, Mattawa, Temagami)	Contracted
Norfolk County	Norfolk County Paramedic Services	Direct delivery
Northumberland County	Northumberland Paramedics	Direct delivery
Oneida Nation of the Thames FN	Oneida Nation Paramedic Services	Direct delivery
City of Ottawa	Ottawa Paramedic Service	Direct delivery
Oxford County	Oxford County Paramedic Services	Direct delivery
Peel Region	Peel Regional Paramedic Services	Direct delivery
Perth County Perth County	Perth County Paramedic Services	Direct delivery
Peterborough County	Peterborough County-City Paramedics	Direct delivery
Prescott & Russell	Prescott Russell Paramedic Service	Direct delivery
Rainy River District	Rainy River District Paramedic Services	Direct delivery
Renfrew County	County of Renfrew Paramedic Services	Direct delivery
Sault Sainte Marie District	Sault Ste. Marie Paramedic Services	Direct delivery

Simcoe County	Simcoe County Paramedic Services	Direct delivery
Stormont/Cornwall	Cornwall SD&G Paramedic Services	Direct delivery
Thunder Bay City	Superior North EMS	Direct delivery
Timiskaming District	District of Timiskaming EMS	Direct delivery
Town of Parry Sound	Parry Sound EMS (WPSHC)	Contracted
Waterloo Region	Region of Waterloo Paramedic Services	Direct delivery
Weeneebayko Area Health Authority	Weeneebayko Area Health Authority Paramedic Service	Direct delivery
York Region	York Region Paramedic Services	Direct delivery

Appendix B

Ministry of Health Listing: Northeastern Ontario Land Ambulance Services – 1999

Blind River	Matheson
Espanola	Mattawa
Haileybury	Gore Bay
Hearst	Hornepayne
Kirkland Lake	Wawa
Sudbury, Hagar	White River
Dubreuilville	Smooth Rock Falls
Elliot Lake, Massey	Killarney
Little Current, Mindemoya,	Gogama
Temagami	Foleyet
Bracebridge	**Total Services: 37**
Huntsville	
Parry Sound, Burks Falls, Point Au Baril, Mactier	
Iroquois Falls	
Englehart	
Mactier	
Sturgeon Falls	
Kapuskasing	
Cochrane	
Wikwemikong FN	
Noelville	
Chapleau	
North Bay, Argyle, Powassan	
Moosonee, Moose Factory	
Timmins	
Sault Ste. Marie, Thessalon	
South River	

*listing provided by the MOH, EHS-B Northern Field Office

Appendix C

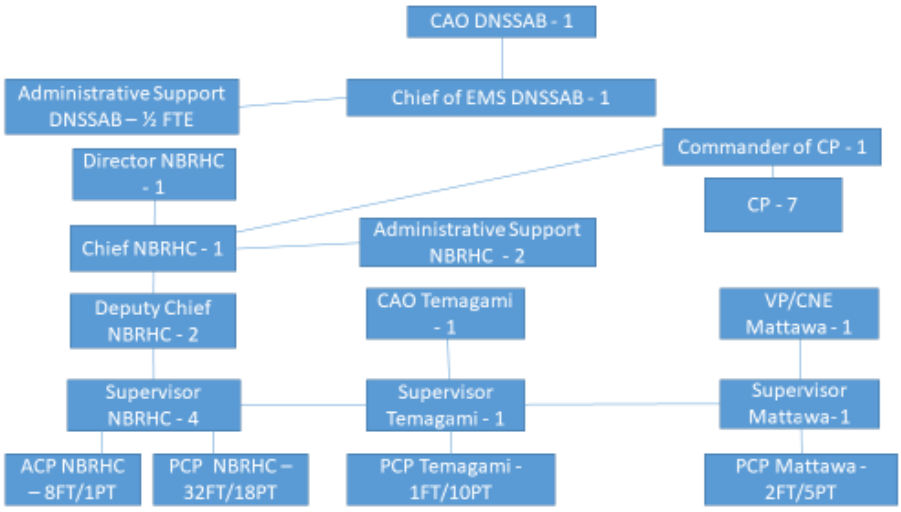
Northern Ontario UTM/DDA Service Assumption History

UTM/DDA	Current Model	Move to Direct Delivery	Pre-2001 Service #s	Pre-2001 Service Composition
Kenora DSSAB	Direct Delivery	2001 - 2002	9	Hospital (6) Municipal (3)
Rainy River DSSAB	Direct Delivery	2005	2	Hospital (2)
Thunder Bay	Direct Delivery	2002 - 2003	8	Hospital (5) Private (3)
Sault Sainte Marie DSSAB	Direct Delivery	2018	2	Hospital (1) FN (1)
Naotkamegwanning FN	Direct Delivery	2007	0	NA
Algoma DSSAB	Direct Delivery	2001	7	Hospital (3) Municipal (4)
Manitoulin-Sudbury DSB	Direct Delivery	2004	11	Private (3) Hospital (2) Municipal (5) FN (1)
City of Greater Sudbury	Direct Delivery	2000	1	Private (1)
Parry Sound District	Contract Delivery	NA	5	Hospital (2) Municipal (3)
Timiskaming DSSAB	Direct Delivery	2005	3	Private (1) Hospital (2)
Muskoka District	Direct Delivery	2016	3	Private (1) Hospital (2)
Cochrane DSSAB	Direct Delivery	2005-2019	7	Hospital (6) Private (1)
Weeneebayko Area Health Authority	Direct Delivery	2001	1	Hospital (1)

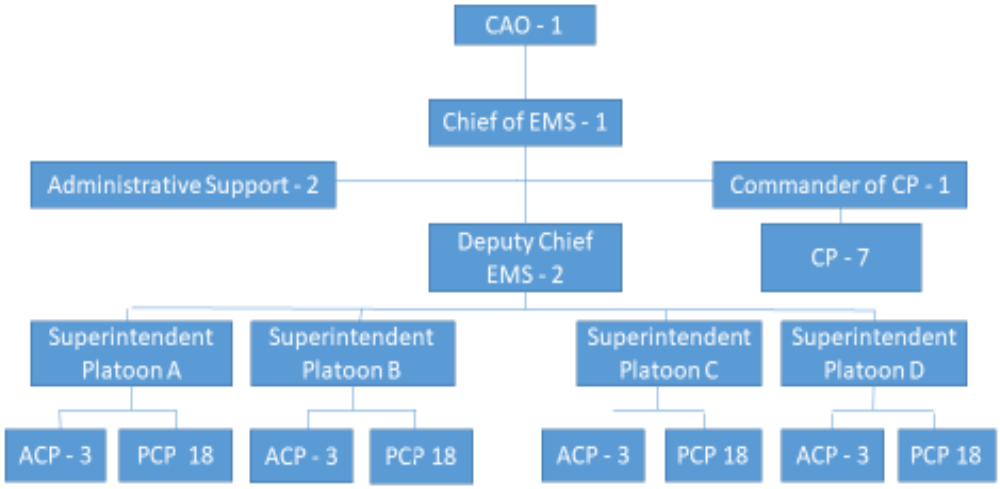
Nipissing DSSAB	Contract Delivery	NA	4	Municipal (1) Hospital (3)
Total	11 Direct Delivery Systems 2 Contract Service System Designs		61	

Appendix D

Status Quo Model Organizational Structure



EMS Direct Delivery Organizational Structure
(Without Service Enhancements)



Appendix H

Response Volume Changes: 2019 to 2021

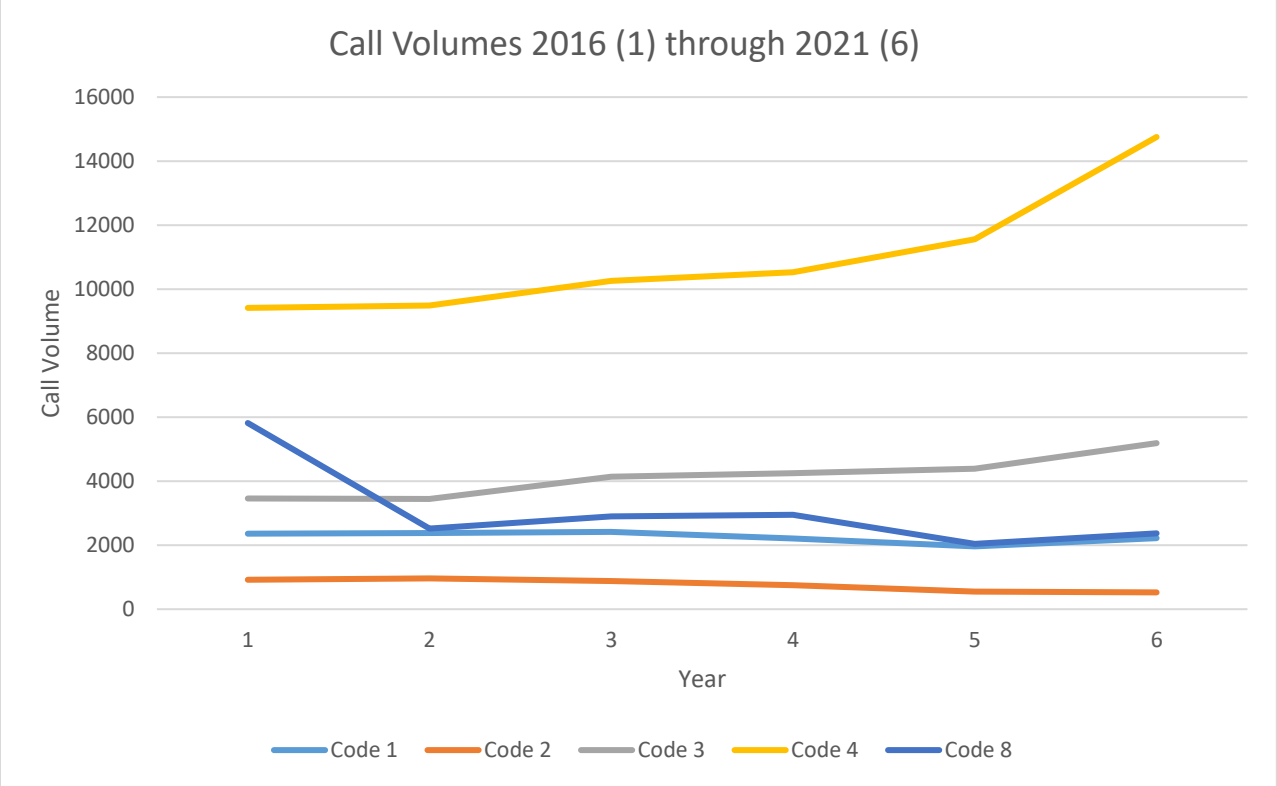
Nipissing District	Non-Urgent		Urgent/Emergent		Balanced Standby	
Date Range	Priority-1	Priority-2	Priority-3	Priority-4	Priority-8	Total
Jan 1 to Dec 31 2019	2,211	751	4,249	10,526	2,945	20,714
Jan 1 to Dec 31 2020	1,962	554	4,391	11,563	2,041	20,511
19-20 Change (%)	-11.3%	-26.3%	+3.3%	+9.9%	-30.7%	-0.09%
2021 (Extrapolated)	1,921	502	4,793	13,892	2,373	24,958
20-21 Change (%)	+13.0%	-5.3%	+18.2%	+27.6%	+16.3%	+21.7%

*2021 volumes extrapolated from the actuals for the period through October 20th.

**Data from MOH ADRS System.

2016 Volumes

Date Range	Priority-1	Priority-2	Priority-3	Priority-4	Priority-8	Total
Jan 1 to Dec 31 2016	1,956	855	3,201	8,685	5,801	21,498
16-21 percent change	-1.8%	-41.3%	+49.8%	+60.0%	-59.1%	+9.3%



Appendix I

2021 Vehicle Deployment/Staffing Hours

Deployment Community	Daily Assignment	Annual Deployment	Annual Staffing
North Bay	12 Hours - Days	4,380	8,760
North Bay	12 Hours - Days	4,380	8,760
North Bay	12 Hours - Days	4,380	8,760
North Bay	8 Hours - Days	2,920	5,840
North Bay	12 Hours - Nights	4,380	8,760
North Bay	12 Hours - Nights	4,380	8,760
North Bay	12 Hours - Nights	4,380	8,760
West Nipissing	12 Hours - Days	4,380	8,760
West Nipissing	12 Hours - Nights	4,380	8,760
West Nipissing	8 Hours - Days	2,920	5,840
Mattawa	8 Hours - Days (16 on-call)	2,920	5,840
South Algonquin	8 Hours - Days (16 on call)	2,920	5,840
Temagami	8 Hours - Days (16 on call)	2,920	5,840
Total	**124 Hrs. Daily Deployment**	**49,640**	**99,280**
Supervisory Coverage	12 Hours - Days	4,380	4,380
Supervisory Coverage	12 Hours - Nights	4,380	4,380
Total Supervisory	**24 Hours Daily Coverage**	**8,760**	**8,760**

2016 Vehicle Deployment/Staffing Hours

Deployment Community	Daily Assignment	Annual Deployment	Annual Staffing
North Bay	12 Hours - Days	4,380	8,760
North Bay	12 Hours - Days	4,380	8,760
North Bay	12 Hours - Days	4,380	8,760
North Bay	8 Hours - Days (Mon. - Fri.)	2,080	4,160
North Bay	12 Hours - Nights	4,380	8,760
North Bay	12 Hours - Nights	4,380	8,760
North Bay	12 Hours - Nights	4,380	8,760
West Nipissing	8 Hours - Days	2,920	8,760
West Nipissing	8 Hours - Days	2,920	8,760
West Nipissing	6 Hours - Afternoons	2,190	4,380
West Nipissing	8 Hours - Nights	2,920	5,840
Mattawa	8 Hours - Days (16 on-call)	2,920	5,840
South Algonquin	8 Hours - Days (16 on call)	2,920	5,840
Temagami	8 Hours - Days (16 on call)	2,920	5,840
Total	**124 Hrs. Daily Deployment**	**46,720**	**93,440**
Total Supervisory	**24 Hours Daily Coverage**	**0**	**0**

Appendix J

Paramedic Scope of Practice Comparison – PCP/ACP

Skills Inventory	Primary Care Paramedic	Advanced Care Paramedic
Medical Cardiac Arrest (Defibrillation, Termination of Resuscitation)	X	X
Trauma Cardiac Arrest (Defibrillation, Termination of Resuscitation)	X	X
Hypothermia Cardiac Arrest (Defib)	X	X
Foreign Body Airway Obstruction Cardiac Arrest (Defibrillation)	X	X
Neonatal Resuscitation	X	X
Return of Spontaneous Circulation	X	X
Cardiac Ischemia (ASA, Nitroglycerin SL)	X	X
Acute Cardiogenic Pulmonary Edema (Nitroglycerin SL)	X	X
Hypoglycemia (Dextrose IV, Glucagon IM)	X	X
Bronchoconstriction (Salbutamol MDI/neb, Epinephrine 1:1000 IM)	X	X
Moderate to Severe Allergic Reaction (Epinephrine IM, Diphenhydramine IV/IM)	X	X
Croup (Epinephrine 1:1000 nebulized)	X	X
12 Lead ECG Acquisition & Interpretation	X	X
Adult Analgesia (Ibuprophen, Acetaminophen, Ketorolac)	X	X
Opioid Toxicity (Naloxone SC/IM/IV)	X	X
Auxiliary Intravenous & Fluid Therapy (0.9% NaCl)	X	X
PCP Manual Defibrillation	X	X
Home Dialysis Emergency Disconnect	X	X
Emergency Childbirth	X	X
Suspected Adrenal Crisis	X	X
Patellar Dislocation Research Protocol	X	X
Endotracheal and Tracheostomy Suctioning and Reinsertion	X	X
Auxiliary Cardiogenic shock	X	X
Auxiliary Continuous Positive Airway Pressure	X	X
Auxiliary Supraglottic Airway (King LT)	X	X
Auxiliary Nausea and Vomiting (Dimenhydrinate IV/IM)	X	X
Auxiliary Special Events Medical Directives	X	X
Medical Cardiac Arrest (Epinephrine 1:10,000 IV/IO/ETT, Lidocaine/Amiodarone IV/IO)3		X
Trauma Cardiac Arrest		X

Hypothermia Cardiac Arrest		X
Foreign Body Airway Obstruction Cardiac Arrest (Laryngoscopy and Magill forceps)		X
Neonatal Resuscitation (Epinephrine 1:10,000 IV/IO/ETT)		X
Return of Spontaneous Circulation (Dopamine IV)		X
Cardiac Ischemia (Morphine IV)		X
Acute Cardiogenic Pulmonary Edema (Nitroglycerine SL)		X
Cardiogenic Shock (Dopamine IV)		X
Symptomatic Bradycardia (Atropine IV, Transcutaneous Pacing, Dopamine IV)		X
Tachydysrhythmias (Valsalva Maneuver, Adenosine IV, Lidocaine/Amiodarone IV, Synchronized Cardioversion)		X
Intravenous & Fluid Therapy (0.9% NaCl IV/IO)		X
Pediatric Intraosseous (IO) Infusion		X
Seizure (Midazolam IV/IM)		X
Endotracheal Intubation – oral, nasal (Xylometazoline, Lidocaine spray)		X
Tension Pneumothorax – (Needle Thoracostomy)		X
Hyperkalemia (Calcium Gluconate and Salbutamol)		X
Adult Analgesia (Ibuprophen, Acetaminophen-PO Ketorolac IM/IV and Morphine IV/SC and Fentanyl IV/IN)		X
Endotracheal Tube and Tracheal Suctioning		X
Auxiliary Adult Intraosseous (IO) Infusion		X
Auxiliary Central Venous Access Device (CVAD access)		X

*Skills Inventory provided by Health Sciences North Centre for Prehospital Care

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