

DETAILED ASSET MANAGEMENT PLAN







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2.0 INTRODUCTION

2.1 Background / Purpose of Service



The Municipality of Chatham-Kent provides a dedicated paramedic service for its residents and visitors. Emergency Medical Services (EMS) provides pre-hospital advanced medical care, trauma care, enhanced in-home care, and patient transportation from emergency incidents to healthcare facilities. EMS also provides community paramedic programs, public education, health care, safety promotion, and risk prevention activities.

EMS carries out demand mitigation efforts like community paramedic initiatives, public education, healthcare and safety advocacy, and risk prevention activities in neighborhoods and public spaces. This includes installing and upkeep of public access defibrillators throughout the municipality. Additionally, EMS addresses community healthcare issues, such as the COVID-19 pandemic.

The service covers the entire municipality, spanning 2,458 square kilometers. Paramedic Service units collectively drive an estimated total annual distance of about 1,000,000 kilometers. In 2023, EMS responded to **15,525** calls within Chatham-Kent's which on average equates to 43 dispatched calls each day. The **15,525** calls do not include patient transfers which will be measured for the 2025 DAMP. Approximately 115 paramedics and 10 management/support staff are employed to provide the services for the entirety of Chatham Kent. EMS also provides in-home care programs through the Community Paramedics program, employing 6 additional community paramedics.

To effectively deliver paramedic services, EMS requires various assets to aid in serving the residents of Chatham-Kent. These assets play a crucial role in supporting the provision of paramedical services, such as:

- Reliable vehicles and staff that will arrive at medical and other emergencies in a timely manner.
- Reliable technology to ensure communication lines are always available to accept calls for medical assistance, record patient information, and dispatch paramedics.
- Facilities that are fit for service to maintain vehicles in preparation to respond to medical calls; and,
- Medical equipment is required for ambulances to provide patient care.

As outlined in this Detailed Asset Management Plan (DAMP), Chatham-Kent owns considerable assets to support its paramedical services. The primary asset categories include ambulances, paramedic stations, and medical equipment supplies. There are six EMS stations situated in:

- Chatham,
- Wallaceburg,
- Thamesville,
- Ridgetown,
- Blenheim,
- Tilbury.

After the transfer of paramedic responsibility from the provincial government to local municipalities in 2000, Chatham-Kent's EMS became the designated sole provider of paramedic services for the municipality. Chatham-Kent assumed the role of guaranteeing the sufficient provision of ambulance services (on land) in the area to cater to the residents' requirements. The municipality takes responsibility for:

- 1. Selecting persons to provide land ambulance services in the municipality in accordance with the Ambulance Act;
- 2. Entering into such agreements as are necessary to ensure the proper management, operation and use of land ambulance services by operators; and
- 3. Ensure the supply of vehicles, equipment, services, information, and anything else necessary for the proper provision of land ambulance services in the municipality by this Act and the regulations.

When Chatham-Kent took on the direct delivery of land ambulance services in 2000, the province agreed to share costs with the municipality. The province currently contributes 50% of the funding from the previous year's approved budget for paramedic services, with the other 50% derived from property taxes. The one-year delay in provincial funding initially forces the municipality to absorb all inflationary costs without provincial support. Additionally, the province and other partners offer funding for various non-mandatory programs.



Map of EMS station location



Key Stakeholder	Role in Asset Management Plan
Chatham-Kent Council	 Distribute resources to achieve planning objectives in service provision while effectively mitigating risks. Back asset management initiatives to enhance understanding and guide decision-making. Allocate funding to sustain the desired level of service throughout the entire lifecycle .
Mayor/CAO	 Advocate for and champion the adoption of asset management principles within the organization. Guarantee the availability of sufficient resources to foster the development of staff knowledge and skills, facilitating the implementation and ongoing enhancement of asset management practices.
Fire Chief	 Allocate resources to meet the organization's objectives in providing services while managing risks. Overall responsibility for Asset Management, provide leadership in influencing decision-making processes related to EMS Asset Management.
Assistant Chief, Fire & Emergency Services	 Assist in procurement of vehicles and equipment to support delivery of service Provide support to 3rd party contractor and support asset acquisitions and renewals
Service Operator (Contractor)	 Ensuring the EMS has sufficient paramedical staff to support the service at the level the community wants and is prepared to pay for. Ensure assets are in good working order and are well maintained.
Manager of Fleet	 Assist in procuring vehicles required to support the delivery of the EMS service
Community	• Engage in facilitated discussions to enable the municipality to comprehend the community's desired level of service.

Table 2.1:Key Stakeholders in the DAMP

EMS Organizational Chart

The organizational structure for service delivery from infrastructure assets for EMS is detailed below in **figure 2.1**.



Figure 2.1: Service Assets

2.2 Asset Hierarchy & Registry

An asset hierarchy provides a framework for structuring data in an information system to assist in data collection, reporting information and making decisions. The hierarchy includes the asset class and component used for asset planning and financial reporting and the service level hierarchy used for service planning and delivery. The Asset classes for the purpose of this section of the DAMP are;

- Facilities: refers to any structures required to deliver the service
- Vehicles: Describes different means of transportation required to deliver the service
- Medical Equipment & Supplies: Medical equipment and supplies required to deliver the service
- Technology: Computers, servers, cellular devices, software required to deliver EMS

Service Hierarchy	Service Level Objectives
Vehicles (Ambulances)	Provide sufficient quantity of ambulances to ensure paramedic obligations are met for the community
Facilities (Paramedic Stations)	Provide safe stations at optimal locations to ensure paramedics are able to meet level of service response times
Vehicles (Support Vehicles)	Adequate supply of vehicles in good condition to ensure supervisory staff can respond and public- facing program goals can be achieved
Technology	Provide sufficient technology and software to enable EMS to be delivered effectively and efficiently
Medical Equipment & Supplies	Ensure paramedics arrive to emergency calls with equipment in good working order and with necessary medical supplies to respond to all situations

The service hierarchy is shown in **Table 2.2.1**.

Table 2.2.1: Asset Service Hierarchy

Asset Registry

The assets covered by this DAMP are shown in **Table 2.2.2.** These include all Paramedic Stations, Ambulances, Vehicles, Technology, Medical Equipment and supplies required for Chatham-Kent to deliver its service to the community.

Table 2.2.2: Service Assets

Asset Category	Description	Age or Average Age	Average Condition	Avg Estimate Service life Remaining	Current Replacement Value
کت Ambulance	14 Ambulances	5 Years	Good	2 Years	\$5,600,000
Paramedic Stations	6 Stations (3 standalone locations and 3 shared locations)	19 Years	Good	41 Years	\$6,150,000
Ambulance Equipment	Power load Lifts, Cots, Defibrillators, Oxygen Regulators etc.	5 Years	Good	2 Years	\$1,436,000
Other Vehicles	Supervisors, Community, EMS medic Trailer etc.	5 Years	Fair	2 Years	\$740,000
ITT Hardware & Software	Software, Laptops, Ambulance Tablets, Cell phones, Routers etc.	5 Years	Good	TBD 2025	\$94,000
				Total Rep Value	\$14,020,000

All values are shown in 2024 dollar values.

The initial plan attempts to include all assets required to deliver EMS. However, it is acknowledged that as this is the 1st DAMP, additional assets will be included in the future. As assets are acquired, disposed of, discovered or are considered material, they will be included in future plans. Various asset parameters such as age, condition, estimated service life and replacement costs will be updated regularly to ensure the data confidence of the plan is sufficient to support evidence-based investment decisions.

Facilities - Currently EMS has six Paramedic Stations, three of which are shared space with the Fire Department. For the purpose of this plan the replacement costs for the three shared facilities will be considered as part of the Fire Departments DAMP and the costs to share the facilities will be considered an operational cost for EMS.

The shared locations are;

- Blenheim Fire Station #18 Charles Street
- Thamesville/Camden Fire Station #8 Industrial Road
- Tilbury Fire Station # 19 Superior Street

The standalone facilities locations are:

- Chatham Ambulance Headquarters 337 Richmond Street
- Ridgetown Ambulance Station 116 Main Street West
- Wallaceburg Ambulance Station 7075 Base Line



Vehicles - The replacement costs for ambulances include the purchase cost of the vehicles and all the costs required to outfit it and ensure it is fit for use. Included in the outfitting costs are;

- Radio and communication devices (Radio Acquisition is provided by MOH)
- GPS equipment
- Logos and Emergency vehicle identification
- Sirens and emergency lighting

Ambulances are currently in short supply, resulting in significant delivery delays. This situation poses a challenge in ensuring that EMS have the necessary number of assets renewed within their desired useful life. Some ambulances have already surpassed their estimated service life (ESL), leading to increased reactive and planned maintenance costs, as well as higher operational expenses. The recommended ESL for ambulances is five years.



Another consideration for EMS is that ambulance acquisition costs have risen by nearly 40% over the past three years, which has greatly impacted their replacement costs and ability to afford new vehicles. Rising costs compounded with long delivery wait times have created both operational and renewal planning issues for EMS.

Non-ambulance vehicles and vehicles utilized in the community paramedicine program serve supervisory, public education, and community event purposes. Supervisor vehicles undergo replacement approximately every 5 years to accommodate the continuous 24-hour operational demands and the substantial annual mileage. Other non-ambulance vehicles are usually renewed every 7 to 8 years.

The age of an asset plays a crucial role in asset management, serving as a basis for planning. Assets typically have an estimated service life (ESL) that guides their replacement schedule. Assets with lower costs or criticality may be renewed based on age, serving as an interim measure for condition assessment until more robust methodologies are developed. However, it's important to recognize that asset condition assessments based solely on age are generally regarded as low-confidence indicators. Age is a mandatory measurement required by O.Reg. 588/17. The age profile of the assets included in this DAMP are shown in **Figure 2.2.1**.



Figure 2.2.1 Assets Age Profile Graph

All figure values are shown in 2024 dollar values.

All of the Ambulance stations identified in the graph predate 2006. The majority of the assets represented by spikes from 2018 - to are the assets that have a much shorter ESL which includes vehicles, equipment, supplies and diagnostic equipment.

2.3. Asset Condition

The condition rating communicates the necessary maintenance for an asset to either return to an improved state, remain operational or achieve its expected lifespan. Condition is the leading indicator for maintenance activities. For EMS, the condition of most asset classes within the DAMP is currently assessed using subject matter expert knowledge. However, a standardized building condition assessment was conducted in 2024 to establish a condition rating for facilities. In the future, EMS plans to develop a condition rating system for all its critical assets to aid in future planning decisions.

Condition is measured using a 1-5 grading system, as detailed in **Table 2.3.1.** A consistent approach is important in reporting asset performance, enabling effective decision support. A finer grading system may be used at a more specific level; however, for reporting in the DAMP, results are translated to a 1-5 grading scale for ease of communication.

Condition Grading	Description of Condition
1	Very Good : free of defects, only planned and/or routine maintenance required
2	Good : minor defects, increasing maintenance required plus planned maintenance
3	Fair : defects requiring regular and/or significant maintenance to reinstate service
4	Poor : significant defects, higher order cost intervention likely
5	Very Poor : physically unsound and/or beyond rehabilitation, immediate action required

Table 2.3.1: Condition Grading System

Currently, the condition of most assets in the EMS portfolio is not monitored formally. The condition ratings in the asset registry summary table are derived from expert opinions on the subject matter. As of 2024, all EMS stations have undergone a formal building condition assessment, providing expert insights on the current replacement costs and the condition of the assets, along with a 10-year maintenance program. Future versions of this DAMP will include the 10-year maintenance program after it has been reviewed by the facilities group to identify the critical work necessary to maintain the paramedic stations in good working order.

2.4. Asset capacity and performance

Assets are generally provided to meet design standards where available. However, there are insufficient resources to address all known deficiencies. Locations where deficiencies in service performance are known can be found in **Table 2.4.1**.

Asset	Service Deficiency	
Ambulance	Several ambulances are or will be past their estimated service life within 2024.	
Powerload-Lift / Power Stretcher	Several are past their estimated service life. These are essential for paramedical service. Can impact service delivery.	
Station Parking Lots	Some parking lots are in need of renewal.	
Wallaceburg Station Ambulance Bay	Vehicular bay at station requires significant work.	

Table 2.4.1: Known Service Performance Deficiencies

The above service deficiencies were identified from the building condition assessment performed in 2024 and subject matter expert opinion.

3.0 LIFECYCLE MANAGEMENT

The lifecycle management plan will detail how EMS plans to operate the assets at the agreed-upon levels of service by managing its lifecycle costs. These costs are categorized by lifecycle phases, which include **acquisition**, **operations**, **maintenance**, **renewal**, and **disposal**. It is a budget-based approach but will evolve into a full lifecycle approach by 2027, where appropriate.

Once EMS acquires an asset, the municipality must fund the remaining lifecycle costs, such as operations, maintenance and likely inevitable renewal. These other lifecycle costs are far more significant than the initial construction or purchase cost and are often multigenerational. Since lifecycle costs are spread across multiple decades, the EMS must approach its asset planning with a long-term view to ensure it effectively manages the assets and assists in making informed choices.

3.1 Acquisition Plan

Acquisitions are the lifecycle activities that adds new assets that did not exist before or improve an existing assets capability or function. These acquisitions may result from growth, council priorities, donation, demand, social or environmental needs. The costs associated with acquisitions include design, training, consulting, purchase costs and staff time to ensure the asset is ready for service and can be considered 'fit for use'.

3.1.1 Selection criteria

Proposed acquisition of new assets, and upgrade of existing assets, are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrades and new maintenance should be reviewed to verify that they are essential to EMS needs.

Proposed upgrades and new work analysis will also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the long-term. Verified proposals can then be ranked by priority and available funds and scheduled in future EMS programs. The priority ranking criteria is detailed in **Table 3.1.1**.

Criteria	Weighting
Increase to Level of Service	45%
Legislative Requirements or Obligations	45%
Emerging Technology	10%
Total	100%

Table 3.1.1: Acquired Assets Priority Ranking Criteria

Summary Of Future Asset Acquisition Costs

At this time, there are plans to acquire 12 - 14 Lucas devices for EMS over the next 2-3 years. These devices are automated CPR machines that assist with chest compressions and increase patient survival chances. Each Lucas device costs approximately **\$19,000** and would be installed in 10 ambulances that currently do not have the device as well as in supervisory vehicles for an estimated cost of **\$220,000** for the initial purchase.

Additional costs for lifecycle will be included in the operations maintenance and renewal forecasts. Forecast acquisition asset costs are summarized in **Figure 3.1.1** and shown relative to the proposed acquisition budget.





All figure values are shown in 2024 dollar values.

At this time there is no budget associated with the Lucas devices as this will be considered an unfunded request and will need to either draw on limited reserves to fund the acquisition or it may require new tax dollars to afford the devices suggested. There may be additional acquisitions required that are currently being considered outside of the initial EMS DAMP. Any acquisitions for EMS would will require input to forecast operational, maintenance and renewal costs over a 10-year period. In the future, if the Council wishes to increase or improve the level of service (LOS), there will be acquisitions required to meet the new LOS. Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan, but only if available funding exists.

Any new assets will commit EMS to fund ongoing operations, maintenance, and renewal costs for the period that the service provided by the assets is required.

3.2 Operations Plan

Operations encompass routine tasks to support EMS delivery. Common operational activities include cleaning and restocking ambulances, attending medical calls, transferring patients, vehicle fuel, facility utility expenses, paying annual software fees, obtaining licenses, conducting training sessions, and inspecting assets. These tasks are essential for the service's daily operations.

At this time, Chatham-Kent is engaging with Medavie EMS Ontario to provide the municipality with almost all of its operational support. Medavie provides EMS with all the paramedics required for the service and its administrative obligations. Medavie oversees and manages the operational programs such as;

Pre- Hospital Care: The fundamental service of EMS involves responding to emergency calls for medical assessments and interventions. Paramedics are dispatched to the scene of a medical emergency to assess and treat the patient, and then transport them to the appropriate medical facility for continued treatment.



Public-Health Initiatives: EMS can partner with local entities to conduct public health initiatives, including vaccination clinics, health screenings, and educational campaigns, to enhance wellness and prevent illnesses.

Specialized Programs: The Community Paramedic Program offers specialized, proactive healthcare solutions designed to meet the unique needs of specific communities, including programs for seniors, vulnerable groups, and chronic disease management.

Community Outreach Events: EMS often participates in community outreach events, including open houses, health fairs, and safety demonstrations, to increase awareness about their services and enhance public safety.



Over the 10-year planning horizon, EMS forecasts it will invest the following to operate;

- \$145 million to provide paramedics and supervisory staffing costs
- \$7.8 million to provide enhanced paramedical service for in-home care
- \$700 thousand for ongoing software support and updates

The Province of Ontario shares the cost of EMS operational expenses; consequently, Chatham-Kent is responsible for absorbing the annual inflationary costs, as the province will not consider them until next year's cost-sharing budget allocation.

Additionally, EMS engages in contract negotiations every three to five years for the delivery of services by paramedics and support staff. These negotiations and periodic Request for Proposals can affect the reliability and accuracy of operational forecasts. EMS has incorporated changes in contract forecasting for this DAMP, using an average based on past negotiations, to project operating costs.

Summary of forecast operations costs

Forecast maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future operations costs are forecast to increase. If assets are disposed of the forecast operations costs are expected to decrease. Changes in levels of service directed by the council will also affect the operational forecasts. **Figure 3.2.1** shows the forecast operations costs relative to the proposed operations Planned Budget.





All figure values are shown in 2024 dollar values.

Table 3.2.2: Operations Budget Trends

Year	Operations Budget
2024	\$15,505,000
2025	\$15,581,000
2026	\$15,623,000
2027	\$15,636,000

All figure values are shown in 2024 dollar values.

The operational budget levels are deemed insufficient to meet the projected service levels throughout the ten-year planning horizon. Where operational budget allocations may lead to reduced service levels, the associated service consequences and risks have been identified. They are emphasized in the DAMP, with service risks considered in the Infrastructure Risk Management Plan. Future iterations will more effectively communicate the consequences of an insufficient budget once the service levels are established in 2025.



3.3 Maintenance Plan

Maintenance should be viewed as the ongoing management of deterioration. The goal of planned maintenance is to proactively apply the appropriate interventions to assets, ensuring they achieve their intended useful life. Maintenance doesn't substantially prolong the life of an asset; it is the actions necessary to enable assets to meet their expected lifespan by restoring them to a preferred 'improved' condition.

Proactive maintenance planning greatly diminishes the need for reactive maintenance, which carries a greater risk to human safety and incurs higher financial costs. It is crucial for Chatham-Kent to strategically plan and adequately fund its maintenance operations to guarantee the reliability of EMS assets and the achieve of the expected service level.

Examples of typical maintenance activities include equipment repairs, ambulance repairs, and component replacements, along with the appropriate staffing and material resources required to perform these activities. Planned maintenance greatly reduces the need for reactive maintenance, often associated with greater risks to human safety and increased financial costs. EMS will strategically plan and adequately finance its maintenance operations to maintain the desired service level.

At this time, much of the ambulance maintenance costs are consolidated with the operational costs. Due to the current contract and time constraints, it was not possible to separate those costs out in this plan; however, it will be pursued for future iterations of the DAMP.

Over the 10-year planning horizon, EMS forecasts it will be required to invest:

- **\$1.2 million** for facilities maintenance on paramedic stations
 - **\$128,000** for HVAC and electrical maintenance
 - \$360,000 garage bay repairs
 - **\$338,00** parking lot and walkway maintenance
- **\$ 100 Thousand** for ongoing maintenance of medical or diagnostic equipment

Summary of forecast Maintenance costs

Forecast maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future maintenance costs are forecasted to increase. If assets are disposed of the forecast operation and maintenance costs are expected to decrease. **Figure 3.3.1** shows the forecast maintenance costs relative to the proposed maintenance Planned Budget.





All figure values are shown in 2024 dollars values.

Table 3.3.2: Maintenance Budget Trends

Year	Maintenance Budget	
2024	\$134,000	
2025	\$132,000	
2026	\$131,000	
2027	\$131,000	

All figure values are shown in 2024 dollar values.

Maintenance budget levels are considered to be inadequate to meet projected service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified. The DAMP highlights service risks, and the Infrastructure Risk Management Plan considers service risks. Staff assess and prioritize reactive maintenance using experience and judgement.

The full costs of vehicular maintenance will not be known until further work can be done with the contractor and internal staff. Any maintenance that cannot be funded will be deferred. Deferred maintenance (i.e. works that are identified for maintenance activities but unable to be completed due to available resources).



3.4 Renewal Plan

Renewal is major capital work that does not significantly alter the original service provided by the asset but restores, rehabilitates, replaces, or renews an existing asset to its original service potential. Work beyond restoring an asset to its original service potential is considered to be an acquisition, resulting in additional future maintenance costs.

Assets requiring renewal are identified from the asset register data to project the renewal costs (replacement cost) and renewal timing (acquisition year plus updated useful life to determine the renewal year). **Table 3.4.1** shows the typical useful lives of assets used to develop projected asset renewal forecasts. Asset useful lives related to EMS were last reviewed on **May 1st, 2024.**

Asset (Sub) Category	Useful Life
Ambulance	5 years
Paramedic Stations	60 Years
Non-Ambulatory Vehicles	5 Years
EMS Medic Trailer	20 Years
Defibrillators	5 Years
Cots/Stretchers	7 Years
Power-Load Lifts	7 Years
Laptops	5 Years

Table 3.4.1: Useful Lives of Assets

The estimates for renewals in this DAMP are based on the asset register method.

3.4.2 Renewal ranking criteria

Asset renewal is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. replacing a Paramedic Station with one of similar size and capacity), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. purchasing an Ambulance or Defibrillator).

EMS will prioritize renewals by identifying assets or asset groups that:

- Have a high consequence of failure,
- Having high use and the subsequent impact on users would be significant,
- Have higher than expected operational or maintenance costs, and
- It can potentially reduce lifecycle costs by replacing it with a modern equivalent asset that would provide the equivalent service.

The ranking criteria used to determine the priority of identified renewal proposals is detailed in **Table 3.4.3**.

Criteria	Weighting	
Critical Asset Condition	30%	
Legislative Requirements	30%	
Lifecycle Cost Savings	20%	
Council Strategic Priorities	20%	
Total	100%	

Table 3.4.3: Renewal Priority Ranking Criteria

3.5 Summary of future renewal costs

Forecast renewal costs are projected to increase over time if the asset stock increases. In **Figure 3.5.1**, the forecast costs associated with renewals are shown relative to the proposed renewal budget.





All figure values are shown in 2024 dollar values.

The multi-year budget projections from 2024 to 2027 indicate sufficient funds to cover all the necessary renewals for EMS for the short term however over the 10-year planning period it is insufficient to meet service level projections.

The graph shown in **Figure 3.5.1** shows a significant backlog of assets in 2024, along with the intended renewals. Backlogs of assets occur when the assets have surpassed their service life, and no funding has been allocated to be completed. Assets maintained beyond their expected useful life are marked as backlog items on the graph, which may increase operational and maintenance costs if their service is extended. This ESL (Expected Service Life) plan is based on legislative requirements or industry best practices. Lifecycle models will be developed to confirm these assets' optimal ESL and evaluate their current lifespans.

Assets can be renewed several times within the ten-year planning period. For instance, an ambulance with a 5-year estimated lifespan, first renewed in 2024, will undergo its second renewal in 2029.

Currently, EMS contributes approximately **\$640,000** annually or **\$6,400,000** over the 10year planning period to a reserve for the renewal of vehicles, equipment, and technology. The DAMP projects that for the current needs of the EMS DAMP, the reserve contributions contribute approximately **\$1,484,000** annually or **\$14,840,000** over the life of the plan.

To meet current service level objectives, EMS will invest nearly **\$14,840,000** in renewals over the life of the DAMP which includes;

- **\$9.6 Million** for the renewal of the Ambulance fleet twice within the planning period
- **\$590 Thousand** for the renewal of other fleet vehicles required for EMS services (supervisor vehicles, public outreach and education vehicles)
- **\$1.5 Million** for the renewal of Defibrillators and other diagnostic equipment
- **\$1.1 Million** for the renewal of Power-Load Lifts and Cots

The current budget levels do not provide sufficient funds to guarantee the renewal of all assets as dictated by their condition or ESL. he consequences of these deferrals are detailed in the risk section of the DAMP.

Possible strategies to mitigate costs over the planning period will be explored during continuous improvement exercises and will include;

- Determining if ESL's can be extended on vehicles to reduce renewal needs.
- Complete Lifecycle models for each type of Apparatus to Forecast funding requirements over the entire ESL and optimize timing of renewal
- Co-ordinate timing of renewals to reduce large spikes in renewal needs.

Smoothing out the funding envelope for renewals over the entire planning process will ensure budgeting needs can be forecasted accurately and minimize the administrative burdens for the procurement process.

Deferring renewals could have a serious impact to service delivery as reliability factors directly into the Fire Departments ability to respond to emergencies. Considering changes to Estimated Service Life of certain equipment should still be considered however the criticality of the service will be considered in that analysis.

3.6 Disposal Plan

Disposal encompasses activities related to decommissioning assets that are not slated for renewal. These activities include the sale, demolition, environmental testing and remediation, soil and asbestos remediation, and relocation. Presently, EMS has no disposal within the 10-year planning horizon. Any costs or revenues from asset disposals will be accounted for in the long-term financial plan. Should any disposals be identified in the future, they will be reported in this section of the DAMP.

3.7 Summary of asset forecast costs

The financial projections from this asset plan are shown in **Figure 3.7.1.** These projections include forecast acquisition, operation, maintenance, renewal, and disposal costs. These forecast costs are shown relative to the proposed budget. The bars in the graphs represent the forecast costs needed to minimize the lifecycle costs associated with the service provision. The proposed budget line indicates the estimated amount of available funding. The gap between the forecast work and the proposed budget is the basis of the discussion on achieving the balance between costs, levels of service and risk to achieve the best value outcome.



Figure 3.7.1: Lifecycle Summary

All figure values are shown in 2024 dollar values.

In the first three years of the EMS DAMP, there are sufficient funds to operate normally with little to no impact on the levels of service provided. There are sufficient funds in reserves to complete most of the renewals; however, over the life of the plan, there are insufficient funds being transferred to the EMS reserve to ensure all assets can be renewed in accordance with the stated ESL.

The projections recognize that operational impacts may become apparent starting in 2029 and throughout 2033. Deferring renewal costs may even further exacerbate the operational shortfalls, as deferrals often lead to higher planned and reactive maintenance costs and even operational cost increases. Lifecycle models will help to inform the lifecycle projections and will be completed between 2024 and 2027.

Also, in 2029, there will be a maintenance shortfall, which will impact the ability of EMS to maintain its equipment and paramedic stations in good condition. Eventually, these tradeoffs will impact EMS levels of service, such as response time and frequency of patient transfers.



4.0 LEVELS OF SERVICE

Levels of service describe the value that EMS provides to the community and are typically spoken about in 'measures'. Utilizing service measures allows decision-makers to understand what the outcome of investments will be, allowing those making choices to clearly understand how a dollar more or less will impact Chatham Kent's ability to deliver its services. These measures also allow Chatham Kent to communicate with the public about the cost of the services they receive today and will be able to afford in the future.

Service levels are defined in four ways: legislative compliance, customer values, customer levels of service and technical levels of service.

4.1 Legislative Requirements

As mandated by the Ambulance Act, R.S.O. 1990, c. A.19 (hereafter referred to as 'the Act') and overseen by the Ministry of Health (MOH), the Municipality of Chatham Kent is responsible for "ensuring the proper provision of land ambulance services in the municipality by the needs of persons in the municipality." Specifically, the municipality is responsible to:

- Select persons to provide land ambulance services in the municipality under the Act;
- Enter into such agreements as are necessary to ensure the proper management, operation and use of land ambulance services by operators and
- Ensure the supply of vehicles, equipment, services, information, and any other thing necessary for the proper provision of land ambulance services in the municipality by this Act and the regulations.

Meeting legislative requirements should be the minimum level of service Chatham-Kent provides. These requirements often drive many lifecycle costs and staff tasks to ensure that Chatham Kent complies with all legislation, ranging from Federal to Provincial or even Chatham Kent's bylaws. There are many legislative requirements relating to asset management. Legislative requirements that impact the delivery of EMS are outlined in **Table 4.1.1**.

Table 4.1.1: Legislative Requirements

Legislation or Regulation	Requirement
Ambulance Act R.S.O. 1990, Chapter A.19, last amended Oct 19, 2021	Outlines requirements around providing an ambulance service including definitions, provincial and municipal responsibilities for paramedic services, delivery agents, land and air ambulance services, certifications, and general information
Coroner's Act, R.S.O. 1990, c. C.37	Outlines the process to treat deceased persons in the field, and legislative obligations to provide information to the coroner's office and their designate
Mental Health Act, R.S.O. 1990, c. M.7	Details parameters for the transport of patients suffering a mental health crisis who can be voluntarily or involuntarily assessed by a healthcare professional
Healthcare Consent Act, 1996	Outlines the process for informed consent, substitute decision makers for treatment without consent situations, and emergency situations.
Personal Health information Protection Act (PHIPA)	This Act outlines process for privacy health information and documentation, consent for collection and disclosure, correction rights, security safeguards, and mandatory reporting.

4.2 Customer Research and Expectations

This DAMP is prepared to facilitate consultation prior to the adoption of levels of service by EMS. Future revisions of the DAMP will incorporate customer consultation on service levels and costs required to provide an effective EMS service. This will assist the Council and stakeholders in matching the level of service required, service risks and consequences with the customer's ability and willingness to pay for the service.

4.3 Customer Value

Service levels are defined in four ways: legislative compliance, customer values, customer levels of service, and technical levels of service. **Customer Values indicate:**

- what aspects of the service are important to the customer,
- whether they see value in what is currently provided and
- the likely trend over time based on the current budget provision

Table 4.3.1: Customer Values

Customer Values	Customer Satisfaction Measure	Current Feedback	Expected Trend Based on Planned Budget
Excellent response times to Medical Emergencies	To be determined (TBD) in 2025	TBD in 2025	TBD in 2025
Experienced and knowlegeable TBD in 2025 Paramedic staff		TBD in 2025	TBD in 2025
Paramedic Levels of service should not be reduced	TBD in 2025	TBD in 2025	TBD in 2025

4.4 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

Condition	How good is the service what is the condition or quality of the
	service?
Function	Is it suitable for its intended purpose Is it the right service?
Capacity/Use	Is the service over or under used does EMS need more or less of
	these assets?

In **Table 4.4.1** under each of the service measure types (Condition, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current budget allocation.

These are measures of fact related to the service delivery outcome (e.g. number of occasions when service is not available or proportion of replacement value by condition %'s) to provide a balance in comparison to the customer perception that may be more subjective.

Table 4.4.1: Customer	Level of	Service	Measure
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Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Planned Budget
Condition	Paramedic service fully meets the needs of Chatham-Kent	% of survey respondents opinions on the overall service	TBD in CK resident survey 2025	TBD once 2025 Survey Complete
Function	Achieve reasonable response times that align with legislative requirement and the needs of the Municipality	Desired Response time' as per CK Resident survey 2025	TBD in CK resident survey 2025	TBD once 2025 Survey Complete
Capacity	Ensure that EMS has adequate resource capacity to respond reliably to emergencies and meet the planned level of service	CK resident 'desired response time' as per survey 2025	TBD in CK resident survey 2025	TBD once 2025 Survey Complete

At this juncture, further investigation is necessary to ensure that customer service levels are regularly measured, allowing EMS to consider various options to meet the community's evolving needs and expectations. The goal is to consistently engage in developing baseline community measurements and to continue the process of creating trend analysis data that will guide future decisions.

4.5 Technical Levels of Service

Technical Levels of Service – These represent lifecycle performance measures that gauge how EMS intend to attain desired customer outcomes, showcasing effective performance, compliance, and management. These metrics should illustrate the alignment of EMS service delivery with customer values and act as potential levers to affect and influence Customer Levels of Service. EMS will track specific lifecycle activities to evidence service performance in meeting the desired service level and to shape customer perceptions of the services received from the assets.

These are measures of fact related to the service delivery outcome (e.g., the number of occasions when service is unavailable or the proportion of replacement value by condition %'s) to provide a balance compared to the customer perception, which may be more subjective.

To deliver the customer values and impact the achieved customer levels of service, as well as operational or technical performance measures. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance. Technical service measures are linked to the activities and annual budgets covering:

Acquisition – the activities to provide a higher level of service (e.g. increasing ambulance quantities from 14 to 15, increasing paramedic stations from 6 to 7) or a new service that did not exist previously (e.g. new community paramedic program).

Operation – the regular activities to provide services (e.g. Responding to Customer emergency calls, inspections, training, service programs, total staff hours, cleaning, energy costs, etc.

Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. fixing power-load lifts, ambulance repairs, building and structure repairs),

Renewal – the activities that return the service capability of an asset up to that which it had originally provided (e.g. replacing ambulance, paramedic station replacement, Stryker Cot & Power load replacement.)

Service and asset managers plan, implement and control technical service levels to influence the service outcomes. **Table 4.5.1** shows the activities expected to be provided under the current 10-year Planned Budget allocation, and the Forecast activity requirements being recommended in this DAMP.

Lifecycle Activity	Level of Service Statement	Activity Measure	Current Performance	Recommende d 10 year Performance
Acquisition	Ensure paramedics have sufficient capacity to reliably respond to emergencies	# of new ambulances purchased to expand services	TBD in 2025	TBD in 2025
Operations	Provide reasonable response times to meet legislative requirements	2023 response times to Code 4 (life threatening emergency) calls in minutes	TBD in 2025	TBD in 2025
Operations	Respond to all calls dispatched to EMS Services	# of patient calls in the previous year (2023)	15.525	16,457
Operations	Ensure Paramedic Assets are maintained in good condition	# of AEDs that have completed the required annual inspection for 2023	100%	100%
Operations	Provide sufficient resources to respond to Community Paramedic Program	# of patient requests for Community Paramedic Program in the previous year (2023)	2,500	2,650
Maintenance	Ensure Paramedics have sufficient reliable assts to respond to emergencies	Average # of days vehicles are out of service waiting for maintenance or repair	Maintained through current operational contract.	TBD in 2025

Table 4.5.1: Technical Levels of Service

Lifecycle Activity	Level of Service Statement	Activity Measure	Current Performance	Recommended 10 year Performance
Maintenance	Ensure Paramedic Assets are maintained in good condition	All vehicle and patient care equipment items meet or exceed current MOH land Ambulance Certification Standard	TBD in 2025	TBD in 2025
Renewal	Ensure Paramedics have sufficient reliable assts to respond to emergencies	# of Ambulances currently past Estimated Service Life Target	5	TBD in 2025

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time.



5.0 FUTURE DEMAND

5.1 Demand Drivers

Drivers affecting demand include population change, customer health emergencies, regulations, demographic changes, seasonal factors, vehicle ownership rates, consumer expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

5.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented.

Table 5.4.1 shows the impact of demand drivers that may affect future service delivery and asset use.

Demand for new services will be managed through a combination of managing and upgrading existing assets, providing new assets to meet demand, and demand management. Demand management practices can include non-asset solutions, insuring against risks, and managing failures.

Table 5.4.1 shows opportunities identified for demand management to date. Futurerevisions of this DAMP will develop further opportunities.

5.3 Council Strategic Priorities for EMS

Future iterations of the DAMP will detail the Council's strategic priorities and how they will impact service levels. The priorities will be operationalized through the DAMP and its continuous improvement initiatives.



5.4 Demand Impact and Demand Management Plan

Table 5.4.1 shows the impact of demand drivers that may affect future service delivery and asset use.

Demand for new services will be managed by managing existing assets, upgrading existing assets and providing new assets to meet demand and demand management. Demand management practices can include non-asset solutions, insuring against risks and managing failures.

Currently, no detailed long-term plan for EMS addresses the implications of a 6% population increase and its effect on projected service levels. Currently, the ratio is approximately one ambulance for every **7,500** residents in Chatham-Kent. With the population expected to grow by 6% in the next decade, this ratio is anticipated to change to one ambulance for every **8,050** residents within Chatham-Kent. As that ratio grows, without the acquisition of new ambulances and increased staff size, there will be observable impacts on the EMS level of service, including response times.

Demands will continue to change and influence Chatham-Kent, and the objective of the DAMP is to progressively measure, report, and elaborate on the impact of demand on the EMS service. Opportunities for demand management identified thus far are presented in **Table 5.4.1**. Additional opportunities will be formulated in future versions of this DAMP.

Demand Driver	Current Position	10 Year Projection	Impact on services	Demand Management Plan
Population Growth	105,000	112,800	6% increase in population will see a corresponding increase in call volumes, increased vehicle costs, increased staffing costs, increased inspections and cleaning of vehicles	Incorporate increased costs with budgeting requests. Consider internal options for cost savings during service reviews

Table 5.4.1: Demand Management Plan

Demand Driver	Current Position	10 Year Projection	Impact on services	Demand Management Plan
Age Demographic Shift	TBD in 2025	TBD in 2025	Changes in age demographics can lead to call volume increasing, increased costs for staffing, vehicles, inspections and cleaning	Incorporate increased costs with budgeting requests. Consider internal options for cost savings during service reviews, petition Province for adjustments to funding formulas
Legislative	Current facilities are normal construction	Any new or newly occupied EMS facility would be required to fulfill Ontario Building	All new constructions or leases must meet the seismic requirements, which are expensive and could restrict CKFD's capacity to readily obtain extra space.	Incorporate additional seismic requirement costs when completing lifecycle models to inform lease or purchase decisions

5.5 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or constructed. Acquiring new assets, such as a new Ambulance, would commit EMS to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the longterm financial plan in the finance section of the report.

At this time, there is no definitive long-term plan outline for the EMS service to demonstrate the impacts of the 6% population growth. At present, there is approximately 1 ambulance per **6,500** people within Chatham-Kent. With the population projected to grow by 6% over the next ten years, that would change the ratio to 1 ambulance per **7,000** people within CK.

6.0 RISK MANAGEMENT PLANNING

The purpose of infrastructure risk management is to document the findings and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in **ISO 31000:2018** as: '**'Coordinated activities to direct** and control with regard to risk'

Chatham Kent is developing and implementing a formalized risk assessment process to identify service delivery risks and mitigate risks to tolerable levels. The assessment will identify risks that will result in:

- loss or reduction of the level of service,
- personal injury,
- environmental impacts,
- a 'financial shock',
- reputational impacts or
- other consequences.

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. It will also include developing a risk rating, evaluating the risks, and developing a risk treatment plan for those risks that are deemed to be non-acceptable.

6.1 Critical Assets

Critical assets are defined as those with a high consequence of failure, causing significant loss or reduction of service. Critical assets have been identified, and their typical failure mode and the impact on service delivery are summarized in Table 6.1. Failure modes may include physical failure, collapse, or essential service interruption.

Table 6.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
Vehicles (Ambulances)	Mechanical Issues, Vehicle Shortage due to supply chains	Reduction in response times, unable to meet current and future call volumes, increased patient suffering, morbidity and mortality.
Facilites	Major Maintenance unable to be done due to funding shortfalls	Impact service delivery times, increase patient wait times, unable to meet Ministry Requirements
Ambulatory Equipment (defibrillator etc)	Supply Chain Shortages, Equipment Warranty Issue	Unable to Meet Ministry Requirements, increase in patient suffering, morbidity, and mortality.
911 Dispatch/ Communcations	Phone system Failure, ITT Equipment Failure, Essentials service interruption	Unable to receive calls and updates from dispatch. Unable to receive call details (address, incident information, current status etc.)

By identifying critical assets and failure modes an organization can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

6.2 Risk Assessment

The risk management process used by Chatham Kent is an analysis and problemsolving technique designed to provide a logical process for selecting treatment plans and management actions to protect the community against unacceptable risks. The process is based on the fundamentals of **International Standard ISO 31000:2018**.

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, the development of a risk rating, the evaluation of the risk and the development of a risk treatment plan for non-acceptable risks.

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences. Critical risks are those assessed with 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings identified in the infrastructure risk management plan. Table 6.2.1 shows initial asset registry risk assessment completed for the DAMP. Future iterations of the risk assessment will include residual risk and treatment costs of implementing the selected treatment plan. It is essential that these critical risks and expenses are reported to management and the council.

Asset Providing the Service	What can Happen	Risk Rating	Existing controls	Treatment Cost
Ambulance	Ambulances shortage due to supply chain shortages	High	Complete Major Maintenance on Ambulance to extend Useful Life Acquire Spare Ambulances	TBD in 2025 \$360,000 per Ambulance
	Power Outage at		Backup Power /	
Facilities	facilities can impact service delivery	Medium	Generator for each facility	TBD in 2025
Ambulance	Ambulances can be delayed due to offload patient delays due to understaffed hospitals and other critical emergencies.	High	Staffing appropriately in anticipation of hospital delays	TBD in 2025

Table 6.2.1: Risks and Treatment Plans

6.3 Infrastructure Resilience Approach

The resilience of the EMS critical infrastructure is vital to customer service. To adapt to changing conditions, Chatham-Kent needs to understand its capacity to 'withstand a given level of stress or demand' and respond to possible disruptions to ensure continuity of service.

Resilience recovery planning, financial capacity, climate change risk assessment, and crisis leadership. EMS does not currently measure resilience in service delivery. This will be included in future iterations of the DAMP.

6.4 Service and Risk Trade-Offs

The adoption of this DAMP is guided by the goal of maximizing benefits from existing resources. Given that resources are not unlimited, some risks will inevitably remain unmitigated. Chatham-Kent will continue to review its risk registry and recognize the necessary trade-offs to maintain an acceptable level of risk tolerance.

If forecast work (operations, maintenance, renewal, acquisition or disposal) cannot be undertaken due to available resources, then this will result in service consequences for users. These service consequences include:

- As the condition of vehicles and buildings continues to deteriorate, it will result in a lower level of service or increased response times
- Increased maintenance costs for aging ambulance fleets if they cannot be renewed on time.
- Unable to expand hours of service due to population growth

6.4.1 What cannot be done

Some activities and projects cannot be undertaken within the next 10 years. These include:

- Increase the levels of operation, maintenance and renewal activities
- Ensure that all future renewals outside of the planning period can be completed, as the plan's scope is limited to a 10-year planning horizon.
- Renewing equipment in alignment with the desired estimated service life
- Improve the current levels of service without increased funding
- Allocate full maintenance costs within the DAMP that are part of the operational contract

6.4.2 Service trade-off

If forecast work (operations, maintenance, renewal, acquisition or disposal) cannot be undertaken due to available resources, then this will result in service consequences for users. These service consequences include:

- The condition of infrastructure assets will continue to deteriorate, resulting in a lower level of service.
- Lack of maintenance and renewal may compromise intergenerational equity.

6.4.3 Risk trade-off

The operations and maintenance activities and capital projects that cannot be undertaken may sustain or create risk consequences. These risk consequences include:

- As the condition of assets deteriorates, they may become unsafe.
- If EMS assets do not meet current standards, the Authority could be at risk of litigation should an incident occur.
- We must prioritize maintenance and renewal works on components with very high safety risks and defer work on low- to medium safety risks.

These actions and expenditures are considered and included in the forecast costs and, where developed, the Risk Management Plan.



7.0 Climate Change Adaptation

Climate change will significantly impact assets and the services they provide. In the context of the asset management planning process, climate change can be considered both a future demand and a risk. How climate change impacts assets will vary depending on the location and the type of services provided, as will the way in which EMS responds to and manages those impacts.

At a minimum, EMS will consider how to manage its existing assets, given the potential climate change impacts on the region. The impacts of climate change may significantly impact the assets CK manages and the services it provides. This can include;

- Impacting Asset Lifecycle Costs
- Affect the level of service that can be provided
- Increase demand for services
- Impact Risks involved with delivering services

In the Asset Management Planning process, climate change can be considered a future demand and a risk.

How climate change impacts on assets will vary depending on the location and the type of services provided, as will the way in which CK responds and manages those impacts. There have been many weather and climate-related impacts on the CK community, including the following:

- Extended summer heat waves in 2017 and 2018;
- Severe rain storms of 2018 (and related flooding);
- Unseasonably wet spring and fall of 2019, which impacted crop production; and
- Record-breaking water levels within river systems and the Great Lakes in 2019 and early 2020, which caused major erosion and flooding issues in the community.

Recognizing these continuing climate change impacts, the Council declared a climate emergency in Chatham-Kent on July 15, 2019, and directed municipal staff to develop a climate change action plan (CCAP) to reduce CK's contribution to climate change (known as climate mitigation) and to enhance the community's resiliency to climate change (known as climate adaptation).

The Municipality of Chatham-Kent is currently in the process of completing its CCAP, which will be presented to the Council and the public by the end of 2024. The CCAP actions that will be presented in the CCAP report document will be used to inform the Climate Section of the DAMPs in 2025. The CCAP actions will also be presented within the departments that will be responsible for their completion.



Based on the Climate Atlas of Canada, historical climate patterns show that CK's climate has become hotter, wetter and wilder over the last 6 decades. This trend is expected to continue in the future.

Hotter: Average annual temperatures have risen by 0.5°C and are expected to rise between 3.5°c and 5.8°c by the 2080s.

Wetter: Average annual precipitation has increased by 49.8mm (1.96in) and is expected to increase between 78mm and 127mm (5in) by the 2080s.

Wilder: Rainstorms have increased in frequency and severity, and seasonal precipitation patterns have changed, and this is expected to continue.

"From 1983 to 2008, insurers spent on average \$400 million yearly on catastrophic claims; since 2009, the yearly average has risen to almost \$2 billion. These "once in 100 years" events are happening more frequently and are becoming more severe and more costly." (Statistics Canada, 2024)

Risks and opportunities identified to date are shown in Table 7.0.1

Climate Impact (Assets level or Service level)	Projected Position (in 10 years)	Potential Impact on Assets & Services	Climate Management Plan
Annual Precipitation (mm) increase	+45mm annually	Possible road washouts impacting levels of service such as response time	Regularly monitor weather conditions to ensure impacts can be mitigated as much as possible
Annual Very Hot Days, (+30 degrees Celsius), increase	+20 days, annually	Specific Age demographics struggle with hotter temperature. EMS will see a higher call volume during peak temperatures in summer months.	Consider climate solutions for most vulnerable populations during Very Hot Days, Staff Training, Additional levels of service will be considered

Table 7.0.1 Managing the Impact of Climate Change on Assets and Services

Additionally, the way in which EMS constructs new assets should recognize that there is an opportunity to build resilience to climate change impacts. Building resilience can have the following benefits:

- Assets will withstand the impacts of climate change.
- Services can be sustained, and
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

Future iterations of this DAMP will consider climate resilience during all phases of EMS asset lifecycle activities, including acquisitions and renewal opportunities, to ensure they are optimized and fit for the future.

8.0 FINANCIAL SUMMARY

8.1 Financial Sustainability and Projections

This section outlines the financial requirements derived from the data in the preceding sections of this DAMP. The financial forecasts will be refined through ongoing discussions about the desired service levels and as Asset Management expertise within Chatham-Kent matures. It is crucial to align the budgeting process, the Long-Term Financial Plan, and the Detailed Asset Management Plans to ensure that all EMS needs are addressed. At the same time, the municipality establishes a definitive financial strategy with measurable goals and targets.

Effective asset and financial management will enable EMS to ensure its services provide the appropriate level of service for the community to achieve its goals and objectives. Reporting to stakeholders on service and financial performance ensures the Municipality is transparently fulfilling its stewardship accountabilities. Long Term financial planning (LTFP) is critical for the EMS to ensure that network lifecycle activities, such as renewals, operations, maintenance, and acquisitions, can happen at the optimal time.

Reporting on service and financial performance to stakeholders guarantees that the Municipality is transparently fulfilling its stewardship responsibilities. Long-term financial planning (LTFP) is essential for Emergency Medical Services (EMS) to ensure that the asset network lifecycle activities, including renewals, operations, maintenance, and acquisitions, occur at the optimal times.

8.1.1 Sustainability of service delivery

Two key indicators of sustainable service delivery are considered in the DAMP for this service area. The two indicators are the:

- Asset Renewal Funding Ratio (ARFR) proposed renewal budget for the next 10 years / proposed renewal outlays for the next 10 years shown in the DAMP, and
- Lifecycle Funding Ratio (LFR) proposed lifecycle budget for the next 10 years / proposed lifecycle outlays for the next 10 years shown in the DAMP.

Asset Renewal Funding Ratio - ARFR

The current Asset Renewal Funding Ratio (ARFR) is 65%

The ARFR is an important indicator and illustrates that over the next 10 years, EMS has **65%** of the funds required for the optimal renewal of assets. This calculation is complicated due to the provincial cost-sharing element, as stated previously in the DAMP.

The current **ARFR** with provincial cost sharing is estimated to be 78.3%.

The ARFR assesses whether the EMS manages asset renewals optimally and costeffectively, considering timing, financial limitations, the acceptable risk level for Chatham-Kent, and the agreed-upon service levels. Ideally, the target renewal funding ratio should range between **90% and 110%** throughout the planning period.

A high indicator result generally indicates that service levels are achievable; however, if the expenditures are below this level, then the desired level of service is not achievable. The following year, the DAMP will be rewritten to acknowledge the financial realities of the available budget and how those realities reduce the current level of service set by the council.

Lower ARFR typically occurs due to;

- Chronic underinvestment,
- A lack of permanent infrastructure funding from senior levels of government,
- A freeze on funding allocations from senior levels of government
- Large spikes of growth throughout the years.

The ARFR is considered a stewardship measure and an indicator of whether Chatham-Kent is achieving intergenerational equity. Correcting this funding ratio so that over time, it can meet its financial target is essential to ensuring the EMS is considered sustainable.

If assets are not renewed at the appropriate timing, it will inevitably require difficult trade-off choices that could include:

- A reduction of the level of service and availability of assets;
- Increased complaints and reduced customer satisfaction;
- Increased reactive maintenance and renewal costs; and,
- Damage to EMS reputation and risk of fines or legal costs

The shortage of renewal resources will be tackled in upcoming DAMPs to ensure alignment with the LTFP. This approach will enable staff to devise options and strategies for addressing the challenges of long-term renewal rates. Chatham-Kent plans to reassess its renewal allocations after verifying and consolidating the full inventory.

Lifecycle Funding Ratio (LFR) – 10-year financial planning period

The current 10-year Lifecycle Financial Ratio is 90.6%

This DAMP identifies the forecast operations, maintenance, and renewal costs required to provide an agreed-upon and affordable level of service to the community over a 10year period. This provides input into 10-year financial and funding plans aimed at providing the required services in a sustainable manner. This forecast work can be compared to the proposed budget over the first 10 years of the planning period to identify any funding shortfall.

The 10-year Lifecycle Financial Ratio evaluates the Planned Budget against the Lifecycle Forecast to ensure optimal asset operation, maintenance, and renewal, aiming to deliver a consistent level of service over the 10-year planning period. As with the Asset Renewal Funding Ratio (ARFR), the ideal range for this ratio is between **90%** and **110%**. A ratio below this range suggests that the funding for assets is insufficient to fulfill the organization's risk management and service levels commitments.

The forecast operations, maintenance and renewal costs over the 10-year planning period is **\$18,319,000** on average per year. The proposed (budget) operations, maintenance and renewal funding is **\$16,642,000** on average per year, giving a 10-year funding shortfall or 'Gap" of **\$1,641,000** per year. With provincial cost sharing and the 1-year lag in the province's timing of that funding, the shortfall would be approximately **\$830,000** annually for Chatham-Kent to contribute. This indicates that **90.6%** of the forecast costs needed to provide the services documented in this DAMP are accommodated in the proposed budget.

Funding an annual funding shortfall or funding 'gap' cannot be addressed immediately. The overall gap in funding for each of Chatham-Kents' services will require vetting, planning, and resources to begin incorporating gap management into future budgets. This gap will need to be managed over time to reduce it in a sustainable manner and limit financial shock to customers.

Options for managing the gap include;

- **Financing strategies** increased funding, grant opportunities, envelope funding for specific lifecycle activities, long-term debt utilization;
- Adjustments to lifecycle activities increase/decrease maintenance or operations, increase/decrease frequency of renewals, extend estimated service life, limit acquisitions or dispose of underutilized assets; and,
- Influence level of service managing expectations or influencing demand drivers.

These options and others will allow EMS to ensure the gap is managed appropriately and ensure the level of service outcomes the customers desire. Providing sustainable services from infrastructure requires managing service levels, risks, forecast outlays, and financing to eventually achieve a financial indicator of **90-110%** for the first years of the DAMP and ideally over the 10-year life of the Long-Term Financial Plan.

8.2 Forecast Costs (outlays) for the long-term financial plan

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 1.0 for the first years of the DAMP and ideally over the 10-year life of the Long-Term Financial Plan (LTFP).

Table 8.2.1 shows the forecast costs (outlays) required for consideration in the 10-year long-term financial plan. Providing services in a financially sustainable manner requires balancing the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long-term financial plan.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates that further work is required to review service levels in the DAMP and/or financial projections in the LTFP. The initial DAMP only attempts to quantify the financial gap for the service. Future plans will focus on the methods and strategies to manage that gap over time to achieve sustainable services and intergenerational equity.

Chatham-Kent will manage any 'gap' by developing this DAMP, which will provide guidance on future service levels and resources required to provide these services in consultation with the community. Forecast costs are shown in 2024 dollars.

Year	Acquisition	Operation	Maintenance	Renewal	Disposal
2024	\$105,000	\$15,505,000	\$134,000	\$3,485,000	-
2025	\$105,000	\$15,602,000	\$190,000	\$904,000	-
2026	-	\$15,665,000	\$137,000	\$155,000	-
2027	-	\$15,679,000	\$256,000	\$1,021,000	-
2028	-	\$16,557,000	\$194,000	\$1,287,000	-
2029	-	\$16,880,000	\$232,000	\$3,693,000	-
2030	-	\$17,209,000	\$603,000	\$824,000	-
2031	-	\$17,544,000	\$143,000	\$306,000	-
2032	-	\$17,886,000	\$399,000	\$1,011,000	-
2033	-	\$18,235,000	\$145,000	\$1,107,000	-
Total	\$210,000	\$166,762,000	\$2,433,000	\$13,793,000	-

Table 8.2.1: Forecast Costs (outlays) for the Long-Term Financial Plan

All figure values are shown in 2024 dollar values.

8.3 Funding Strategy

Chatham-Kent's multiyear budget and LTFP detailed the proposed asset funding. These operational and capital budgets outline the provision of funds incorporated into the DAMP. The DAMP details the expenditure timeline and associated service and risk implications. Subsequent versions of the Asset Management Plan will offer service delivery choices and alternatives to optimize using limited financial resources.

8.4 Valuation Forecasts

8.4.1 Asset valuations

Asset values are forecast to increase as additional assets are added to the service. As projections improve and are validated with market pricing, net valuations will likely increase significantly over the 10-year planning horizon. Additional assets will increase operations and maintenance costs in the longer term and future renewal costs.

Any asset disposals would decrease operations and maintenance needs in the longer term and remove the high-cost renewal obligations. At this time, it is not possible to separate the disposal costs from the renewal or maintenance costs; however, this will be improved for the next iteration of the plan. The best available estimate of the value of assets included in this DAMP are shown below.



The assets are valued utilizing Current Replacement Cost (Market Prices Index)

Table 8.4.2 Asset valuation table

Assets Valuation	Financial Value
Replacement Cost (Gross)	\$14,020,000
Depreciable Amount	\$14,020,000
Current Replacement Cost	\$ 7,031,000
Annual Depreciation Expense	\$ 1,467,000

8.5 Key Assumptions Made in Financial Forecasts

In compiling this DAMP, it was necessary to make some assumptions. This section details the key assumptions made in the development of this DAMP and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions made in this DAMP are:

- Assumptions were made regarding the existing and planned budget for maintenance and renewal, using professional judgment.
- Omission of select disposal assets during this budget period; small projects will have a minor impact on disposal projections.
- Budgets have been allocated based on the best available data on assets.
- A 2 % annual inflationary amount has been applied to the operational and maintenance forecast to reflect the projections that costs will increase over time
- Replacement Costs are based on current market pricing and are determined to be a like-for-like replacement.
- Maintenance forecasts are based on the current budget allocation and require further refinement to align the costs with the technical levels of service.
- Operational Forecasts are based on current budget allocations and encompass anticipated needs that are known

8.6 Forecast Reliability and Confidence

This DAMP's forecast costs, proposed budgets, and valuation projections are based on the best available data. Current and accurate information is critical for effective asset and financial management. Data confidence is classified on the A-E scale per **Table 8.6.1**.

Confidence Grade	Description
A. Very High	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate ± 2%
B. High	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 10%
C. Medium	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated ± 25%
D. Low	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy ± 40%
E. Very Low	None or very little data held.

Table 8.6.1: Data Confidence Grading System

The estimated confidence level for and reliability of data used in this DAMP is shown in Table 8.6.2.

Table 8.6.2: Data Confidence Assessment for Data used in DAMP

Data	Confidence Assessment	Comment
Demand drivers	Low	Data available however requires resources to compile and improve confidence rating
Growth projections	Low	Demographics trending analysis would improve data quality
Acquisition forecast	Medium	Possible growth in the future creates uncertainty and will be reviewed annually to improve quality
Operation forecast	Medium	Operating costs lack details are they are consolidated into contract
Maintenance forecast	Low	Maintenance costs lack details are they are consolidated into contract
Renewal forecast - Asset value	Medium	Requires alignment with reserve contributions and estimated service life
Asset useful lives	Medium	Most align with purchasing practices. These should be improved and vetted annually
Condition modeling	Low	Age based with minimal condition inspection data
Disposal forecast	Low	This requires improvement to process and administration of disposals

The estimated confidence level for and reliability of data used in this DAMP is considered to be <u>Low to</u> <u>Medium</u> Confidence Level.

9.0 PLAN IMPROVEMENT AND MONITORING

Status of Asset Management Practices ISO 55000 Refers to this as the Asset Management System

9.1. Accounting and financial data source

This DAMP utilizes accounting and financial data. The source of the data is

- Chatham-Kent 2024 2027 Multi-Year Budget (Capital & Operating)
- Internal Market Price Valuations
- AM Software Multi-Year Forecasting Models
- Council Reports
- Financial Exports from various systems
- Fleet procurement documents
- Provincial Reporting

9.2. Asset management data sources

This DAMP also utilizes asset management data. The sources of the data are;

- Asset Registers
- Asset Management Data Collection Templates
- Insurance Data
- Tangible Capital Asset Data
- Building Condition Assessment Data
- Fleet Vehicle Data
- Inspection Logs
- Subject Matter Expert Knowledge and Anecdotal Information

9.3 Continuous Improvement Plan

It is important that Chatham-Kent recognizes areas within the DAMP and within its planning processes that require future improvements to ensure effective asset management and informed decision-making. The tasks listed below are essential to improving the DAMP and the Municipality's ability to make evidence-based and informed decisions. These improvements span from improved lifecycle activities, improved financial planning, and plans to improve the assets physically. The improvement plan, **Table 9.3.1**, highlights proposed improvement items requiring further discussion and analysis to determine feasibility, resource requirements and alignment to current work plans. Future iterations of this DAMP will provide updates on these improvement plans. The costs and resources to complete each of these tasks have not been included in the lifecycle models to data, and resource requirements would need to be reviewed for internal resource-driven projects

The improvement plan generated from this DAMP is shown in Table 9.3.1.

Task	Task	Responsibility	Resources Required	Timeline
1	Complete Customer Survey to inform Customer Levels of Service	EMS, A&QM, Communications	30 Hours FTE Bi-Annually	Ongoing
2	Begin to track age information for equipment assets	EMS, A&QM	Within Existing Capacity	2025
3	Review EMS reserves to determine funding allocation required over 10-year planning horizon	EMS, A&QM, Flnance	20 Hours FTE	2025
4	Define Level of Service for 2025 DAMP	EMS, A&QM	15 Hours FTE	Q2 2025
5	Annual update of response time performance for DAMP Technical LOS	EMS, A&QM, Contractor	5 Hours FTE	Q2 2025
6	Develop condition rating for key assets	EMS, A&QM	Within Existing Capacity	2025-2027
7	Complete Lifecycle Models for all major asset types	EMS, A&QM	10 Hours FTE Annually	2025-2027

Table 9.3.1: Continuous Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
8	Gather Technical Levels of Service Data for DAMP	EMS, A&QM, Contractor	10 Hours FTE Annually	2025-2027
9	Determine the appropriate amount of spare vehicles required to meet defined level of service	EMS, A&QM, Finance	5 Hours FTE	2025-2027
10	Assess back up power capabilities at each EMS station and develop regular testing program	EMS, A&QM, Finance	20 Hours FTE	2025-2027
11	Operational Cost reporting for technical LOS to be incorporated in next contract	EMS, A&QM, Contractor	15 Hours FTE	2027-2028

The improvements detailed above are intended to ensure that EMS can achieve sustainable service over time. Some of the initiatives are required to meet legislative requirements, and other initiatives improve service or data quality and, while not legislative, are intended to find financial efficiencies or are required for other operational improvements.

Upon council approval, certain improvements can be accomplished within staffing capacity and should be included as work plan items for EMS. Other initiatives necessitate resources beyond those allocated in the current budget. Should resources be inadequate for the identified items, the strategy is to postpone them. Annually, the DAMP will be revised to align Continuous Improvement items with the opportunities and constraints of the budgetary provisions.

9.4 Monitoring and Review Procedures

This DAMP will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets as a result of budget decisions.

The DAMP will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget are incorporated into the LTFP or will be incorporated into the LTFP once completed.

The DAMP has a maximum life of 1 year and will be updated annually. This plan will receive a complete revision and update in 2027 to enable the Chatham Kent EMS is prepared for the 2028 4-year budget process.

9.5 Performance Measures

The effectiveness of this DAMP can be measured in the following ways:

- The degree to which the required forecast costs identified in this DAMP are incorporated into the long-term financial plan,
- The degree to which the 1-5 year detailed works programs, budgets, business plans and corporate structures consider the 'global' work program trends provided by the DAMP,
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans,
- The Asset Renewal Funding Ratio achieves the Organizational target (this target is often 90 100%).

Document Control

Rev No	Date	Revision Details	Author	Reviewer	Approver
1	August 2024	1st Detailed Asset Managment Plan	Sean Hilderley	EMS	Council

For more information, email To view all the asset management plans, visit www.chatham-kent.ca/assetplans