

DETAILED ASSET MANAGEMENT PLAN



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Data Confidence

Low

Medium

High 4

2.0 INTRODUCTION

2.1 Background / Purpose of Service

The primary purpose of the road network is to facilitate safe, effective, and efficient transportation across the Municipality of Chatham-Kent. The road network and its supporting assets ensure accessible and secure movement for people, goods, and services within the municipality. Ultimately, these assets contribute to the wider benefits of the community by supporting agriculture, education, healthcare, emergency services and the economy. They cater to the diverse needs of pedestrians, cyclists, emergency vehicles, agricultural vehicles, heavy transport, and commuters.

Over the course of several decades, Chatham-Kent has acquired its road network assets, which vary greatly in terms of condition, design standards, construction materials, expected lifespan, and intended use. These differences primarily stem from the 1998 amalgamation that formed Chatham-Kent, bringing together Blenheim, Bothwell, Camden, the City of Chatham, the Township of Chatham, Dover, Dresden, Erie Beach, Erieau, Harwich, Highgate, Howard, Orford, Raleigh, Ridgetown, Romney, Thamesville, Tilbury East, Tilbury, Wallaceburg, Wheatley, and Zone. This consolidation resulted in a unique scenario where 21 distinct road networks were merged into one, despite their varying levels of service, design standards, condition, and age.

As part of the overall provincial government rationalization, the Ministry of Transportation in 1998 transferred to the Municipality of 274 kms of roadways, including 68 bridges and 322 culverts with a one-time funding of \$11 million for \$354 million of assets (1998 value). This transfer included the former Highway 2 and Highway 3 along the shoreline of Lake Erie where portions have been impacted by costal shoreline erosion.

As asset management knowledge matures across Chatham-Kent, the breadth and scope of the plans will be refined to ensure they capture the full cost of delivering the Road network. The intention is to update the plan annually to ensure data quality improves and to enable and support evidence-based decisions. This DAMP will have a ten-year planning horizon at a minimum and will connect fully to the Long-Term Financial Plan (LTFP) by 2027.

This Roads DAMP will communicate the requirements for the sustainable delivery of services through the management of assets, program delivery, compliance with regulatory requirements, and funding required to provide the appropriate levels of service over the entire planning period. The Roads DAMP is guided by the Chatham-Kent Strategic Asset Management Policy as well as other documents such as:

- Policies and Bylaws
- Legislatively required levels of service
- Municipality of Chatham-Kent Strategic Plan 2022-2026

- 2024 2027 Multi-Year Budget
- Short-term and long-term financial plans

The DAMP addresses infrastructure assets specific to the road network, which are essential for delivering its expected level of service. For a comprehensive overview of the assets outlined in this DAMP, please refer to **Table 2.2.2** as it provides a detailed summary.

The infrastructure assets included in this plan have a total replacement value of **\$4 Billion**.

Key stakeholders in the preparation and implementation of this DAMP are shown in **Table 2.1**.



Table 2.1: Key Stakeholders in the DAMP

Key Stakeholder	Role in Asset Management Plan
Mayor & Councillors	 Represent needs of community/shareholders, Allocate resources to meet planning objectives in providing services while managing risks, Ensure service sustainability.
General Manager, IES	 Allocate resources to meet the organization's objectives to provide services and manage risks. Overall responsibility for Asset Management, provide leadership in influencing decision-making processes related to Asset Management.
Director of Engineering	 Allocate resources and direct activities for road assets including renewals and major maintenance projects Develop the Detailed Asset Management Plan and inform them of the strategies required to meet agreed upon levels of service.
Director of Public Works	 Allocate resources and direct activities for road assets including operational activities and maintenance projects Develop the Detailed Asset Management Plan and inform them of the strategies required to meet agreed upon levels of service.
Managers in IES	 Review, update, and manage regulatory manuals, risk register, and roads operational matters, Be aware of levels of service and costs, Participate in consultation processes and provide feedback on service needs.
Community	 Be aware of levels of service and costs, Participate in consultation processes and provide feedback on service.

Organizational Chart

The organizational structure for service delivery from infrastructure assets for Chatham- Kent Municipal Roads is detailed below in **Figure 2.1**.

Figure 2.1: Organizational Chart



2.2 Asset Hierarchy & Registry

An asset hierarchy provides a framework for structuring data in an information system to assist in data collection, reporting, and decision-making. The hierarchy includes the asset class and components used for asset planning and financial reporting, as well as the service level hierarchy used for service planning and delivery.

An asset registry is a single data source containing an inventory of asset data, including attribute information for each asset. This attribute information includes a record of each individual asset, including condition, age, replacement cost, and asset-specific information (e.g., length, diameter, material, etc.). Currently, the Roads asset registry is structured in the form of an asset hierarchy, explained below.

The asset hierarchy provides a framework for structuring data in an information system to assist in data collection, reporting, and decision-making. Chatham-Kent is working towards establishing a functional asset hierarchy, which means the hierarchy has been established based on what the asset owner needs or wants the asset or system to do. Generally, assets and systems are organized according to their primary function. The service hierarchy is shown in **Table 2.2.1**.

Service Hierarchy	Service Level Objectives
Roads (base & surface)	 Provide safe road and road surface for vehicles to travel
Signage, Traffic Signals and Streetlights	 Provide instructions and guidance for drivers and assist in controlling traffic movements.
	 Streetlights illuminate roadways to make travel safer for drivers and pedestrians
Facilities	 Ensure adequate coverage of equipment across the entire municipality for staff to carry out required work in reasonable times
Vehicles and Equipment	 Allow staff to perform lifecycle activities effectively.

Table 2.2.1: Asset Service Hierarchy

Asset Registry

The Roads assets covered in this plan include all roadways, signage, vehicles, technology and equipment required for Chatham-Kent to deliver its Roads Service to the community and its customers. The assets included in this DAMP are shown in **Table 2.2.2**.

Table 2.2.2. Asset Registry

Asset Category Description		Estimated Service Life in Years	Average Age in years	Average Condition	Average Remaining Service Life	Current Replacement Cost
Paved Roads (Arterial)	528 Km Includes both Rural & Urban	45	1992	Good	17 Years	\$1 Billion
Paved Roads (Collectors)	524 Km Includes both Rural & Urban	60	1987	Fair		\$854 Million
Paved Roads (Local)	501 km	80	1981	Fair	36 Years	\$491 Million
Surface Treated Roads	194 km	80	1982	Fair	39 Years	\$150 Million
Gravel Roads	1,624 km	100+	1973	Fair	34 Years	\$889 Million
Sidewalks	420 km	40	1991	Good		\$118 Million
Vehicles & Equipment	Pick up trucks, Graders, Chippers, Backhoes, Trailers, Dump Trucks, Mowers	Pick Ups - 7 -10 Heavy Equipment - 25	2015	Fair	Varies (7-25 Years)	\$64 Million
Facilities	PW yards, salt sheds, workshops	50	1994	Fair	19 Years	\$91 Million
Tools						\$3 Million
Traffic Signals	66 Signalized intersections	25	18 Years	Fair	7 Years	\$28 Million
Traffic Signals	69 Pedestrian Crossovers	25	TBD	Fair	TBD	\$5 Million
Streetlights	4,064 Light Poles	50	32 Years	Fair	18 Years	\$20 Million
	4,064 Streetlight Heads	25	10 Years	Good	15 Years	\$70 Million
Road Signs	14,177 Regulatory signs - Stops, Yield, Speed, 15,877 Guide Signs - Bus stops, arena locations, trail locations,	Regulatory - 10 Guide Signs - 20	Regulatory - 5 Guide - 11	Good	5 Years	\$16 Million
	102 Information Signs - Protection Zones, Fire lanes	Info Signs - 20	Information - 14			
Guide Rails	42.5 km	40		Fair	10 Years	\$20 Million
Curbs & Gutter	864 km	45		Fair	14 Years	\$196 Million
Technology	Software, Cell phones, Computer	Varied	Varied	Good	Varied	\$1 Million
					Total Replacement Cost	\$4 Billion

All values are shown in 2025-dollar values.

Asset Categories

Arterial roads - These roadways are the primary corridors designed for high traffic volumes facilitating the movement of vehicles across the municipality. They provide connectivity between major destinations and typically have higher speed limits and road capacities.

Collector roads – These roadways act as intermediaries that connect arterial roads to local roads. They balance accessibility by distributing traffic from residential and commercial areas to the arterial network while accommodating moderate traffic volumes and speeds.

Local roads – These roadways primarily provide access to residential neighborhoods, businesses and properties. They carry lower traffic volumes and prioritize direct property access over mobility.

Regulatory Road Signs - In Ontario, regulatory road signs are essential for informing drivers about traffic laws and regulations that must be obeyed. These include signs for parking and stopping, lane use control, turn control, speed limit and traffic control. These signs must be inspected annually for reflectivity as per legislation.

Sidewalks - These provide safe, accessible and convenient pathways for pedestrians. Chatham-Kent inspects its sidewalks regularly and contractors manage the repair orders that are identified within the inspection.

Guiderails - The purpose of guiderails on roadways is to enhance safety by reducing the severity of accidents. They do this by preventing vehicles from leaving the road, protecting fixed objects and reducing crash severity by deflecting impact to minimize harm to vehicle occupants.

Streetlights - The purpose of streetlights is to improve safety, and visibility in public spaces during nighttime or low-light conditions. Streetlights illuminate roadways, intersections and pedestrian crossings and reduce the risk of collisions by improving visibility for drivers, cyclists and pedestrians.

Asset Data Confidence

Historically, age data for numerous assets has not been consistently gathered, resulting in generally low confidence levels on that data element. Staff will collect this information as new assets are being put in place to improve data quality over time. Furthermore, it has been observed that some inventories and repositories for replacement values are not regularly maintained (e.g., guide rails). Some elements of the roads data were input based on subject matter expert opinions to ensure the plan could be completed. It is essential to explore a process for collecting and updating relevant asset data, which has been recognized as a continuous improvement opportunity.

Asset owners generally inspect road linear assets according to the Minimum Maintenance Standards (MMS) regulation. These inspections could be modified to incorporate further data collection and condition assessment, potentially enhancing the reliability and quality of asset data.

The initial plan attempts to include all assets required to deliver the Roads service. However, it is acknowledged that as this is the first DAMP, additional assets will likely be included in the future. As assets are acquired, disposed of, discovered or considered material enough, they will also be 11 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.

2.3. Asset Condition

Condition is the preferred measurement for planning lifecycle activities to ensure assets deliver the agreed-upon levels of service and reach their expected useful life. Condition is measured using a 1 - 5 grading system, as detailed in **Table 2.3.1**. It is important that a consistent approach is used 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.

At present, road conditions are assessed using both formal and informal methods. The Engineering Division conducts a formal pavement condition inspection every three years to evaluate rideability and identify areas of concern. Additionally, the Public Works Division informally monitors the roads frequently to ensure continuous oversight between formal MMS inspections.

For certain assets, conducting condition assessments may not be cost-effective or practical; however, for many others, routine inspections are carried out to confirm that these assets remain in good working order. Some assets in the Roads DAMP do not yet have a process to determine condition. For assets without known condition information or inspections that were not output in a way that could be converted, the condition was assumed based on remaining service life.

The following conversion assumptions were made:

- For assets where a condition assessment was not completed, but age information was known, the condition was based on the % of remaining service life.
- The condition of the paved road network was determined by converting the Pavement Condition Index (PCI) values to condition ratings.
- Vehicles and Heavy equipment asset conditions are based on age and remaining service life
- The condition of the sidewalk network was determined by converting the Sidewalk Condition Index (SCI) values to condition ratings. Sidewalk inspections are also completed annually per MMS legislation requirements.
- For assets where a condition program exists and a condition score was output, those conditions were converted to the scale below in **Table 2.3.1**.

Condition is measured using a 1-5 grading system, as detailed in **Table 2.3.1**. It is important that a consistent approach is used 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.

Table 2.3.1: Condition Grading System

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

The condition profile of Roads assets is shown in Figure 2.3.2. Figure



All Figure values are shown in 2025-dollar values.

The majority of the Roads's assets are in either **good** or **fair** condition at the time of writing the DAMP.

Regulatory Description of Road Condition Rating

As part of the O.Reg 588/17 Chatham-Kent must provide a separate description of the road conditions which includes a description of the condition and examples (pictures) to help define what each rating means.

Table 2.3.3. Description & Examples of Road Condition Ratings



3.0 LIFECYCLE MANAGEMENT

The lifecycle management plan will detail how I.E.S. plans to manage the roads' assets at the agreedupon levels of service by managing its lifecycle costs. These costs are categorized by lifecycle phases, which include **acquisition**, **operations**, **maintenance**, **renewal**, and **disposal**. At present, Chatham-Kent employs a budget-based approach to its lifecycle management; however, this approach will evolve into a comprehensive lifecycle approach as the data and organizational knowledge develops and becomes more suitable.

Once Chatham-Kent acquires an asset such as a road, it must be prepared to fund the remaining lifecycle costs, such as operations, maintenance and its 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, it is essential that the Chatham-Kent approach its asset planning with a long-term view to ensure it effectively manages the assets and makes informed choices.

The condition of the road network is evaluated every 3-4 years to determine the Pavement Condition Index (PCI) of each road segment. PCI is a standardized rating system that assesses the pavement condition based on surface distresses and ride quality to determine a rating from 0 (failed) to 100 (excellent). This data is used, along with visual inspections, to determine the recommended maintenance or renewal activities required for each road segment. The highest priority roads, based on the road class, condition and function of the road are planned for maintenance or renewals based on the available budget.

Efforts are made to coordinate road work with other infrastructure maintenance and renewal projects, such as watermain replacements or sewer upgrades, to maximize economies of scale. By aligning multiple infrastructure investments, the Municipality reduces disruption, optimizes construction costs, and extends the longevity of all assets within the right-of-way.

The road network is generally managed to different target PCIs based on the road class, with arterials being maintained to a higher standard. Road assets are generally maintained on a lifecycle basis through the selection of the optimal treatment based on cost, current condition, projected deterioration and available budget. Consequently, local roads might not be kept to the same standards as arterial roads, increasing the chances that a local road could be in poorer overall condition, even though it remains operational.

3.1 Acquisition Plan

Acquisitions are lifecycle activities that add new assets or improve an existing asset's capability or function. These acquisitions may result from growth, council priorities, donation, demand, or social or environmental needs. The costs associated with acquisitions include design, training, consulting, purchase costs, and staff time to ensure the assets are ready for service and can be considered 'fit for use'.

3.1.1 Selection Criteria

Proposed acquisition of new assets and upgrades of existing assets are identified from various

sources, such as community requests, development, safety standards and legislative obligations, proposals identified by strategic plans, or partnerships with others. Potential upgrades and new works should be reviewed to verify that they are essential to the communities' needs and councils' ability to fund the assets adequately enough to maintain the desired level of service.

The priority ranking criteria are detailed in Table 3.1.1.

Table	3.1.1:	Acquired	Assets	Priority	Ranking	Criteria
	•·			·····		

Criteria	Weighting
Growth	80%
Safety	15%
Sufficient Demand	5%
Total	100%

Donated Assets

Donated assets are assets built by others and where Chatham-Kent becomes the owner of those assets. Generally, for the roads service a donated asset most commonly happens when a subdivision which is built by a developer is then assumed by the municipality once completed. On average, CK's roads network grows by approximately 2kms/year or 20kms over the entire 10-year planning period of this DAMP.

When Chatham-Kent takes on assets, it also takes on responsibility for all expenses related to operating, maintaining, and eventually renewing the road. It is crucial to ensure that Chatham-Kent allocates enough funds in the budget to effectively manage the road network, including the donated assets, throughout their entire lifecycle. **Figure 3.1.1** shows the anticipated donated assets over the life of the plan





Summary of Constructed Asset Acquisition

Forecast acquisition asset costs are summarized in **Figure 3.1.2** and shown relative to the proposed acquisition budget. Over the next ten years it is projected that Roads will acquire **\$38,000,000** of new assets which includes:

- **\$20 Million** for gravel road conversion program over the 10-year planning period
- **\$20 Million** for assumption of new roads and road assets through growth/subdivision development
- \$3 Million for Traffic Signal and Pedestrian Crossing improvements
- \$5 Million for new sidewalks and curbs 1 2 Km / year
- **\$1.2 Million** for Bloomfield Business Park (Phase 3) for the extension of roads and services along Seventh Line.



Figure 3.1.2: Asset Acquisition Constructed Summary

The long-term financial plan will accommodate expenditure on new assets and services in the capital works program, but only to the extent that funding is available. It is acknowledged that there will also be additional assets such as the assumption of subdivisions which will be included in future iterations of the DAMP.

3.2 Operations Plan

Operations include regular activities to provide services. These activities are necessary to complete the regular day-to-day operations on the Road network. Examples of typical operational costs and activities for Roads include:

- Snow removal and salting roads Public Works provides winter control measures such as a snow removal and salting annually to ensure roads are in the best condition possible for drivers to utilize. Public Works manages snow removal on the roadways and sidewalks. Public Works salts the roads before winter events as salting roads minimizes or prevents ice from forming and snow from sticking to the road which ideally creates a safer surface for traffic to continue to flow. On average salting will cost approximately \$3.4 Million annually or \$34 Million over the next 10 years.
- **Road Patrol** Chatham-Kent must conduct road patrols because the municipality has legal responsibility to ensure roads are safe for public use under the Minimum Maintenance and Standards for Highway(MMS). Patrols proactively identify and address hazards and help reduce risks to drivers, cyclists and pedestrians.
- Sign Reflectivity Testing- Over time and due exposure to weather and sun conditions reduces the effectiveness of reflectivity of road signs. To ensure that Chatham-Kents roads signs are safe and compliant with the MMS, Public Works tests all regulatory road signs each year for their reflectivity and to ensure that they are visible and legible. Over the 10-year planning process Chatham-Kent will require approximately \$1.2 Million to conduct the reflectivity testing.
- **Traffic Counts and Related Studies** Collected to understand usage patterns of the road network, support infrastructure planning and ensure that maintenance and renewals and prioritized based on demand and safety considerations.
- PCI Updates Pavement condition data is collected to assess the overall condition of the road network, prioritize maintenance and renewal needs, plan budget allocations for future multiyear budgets and model the condition of the road network based on levels of service and budget.
- **Staffing Costs** These personnel are crucial for maintaining the road network's ability to deliver its service level and provide benefits to the community. These staffing costs include both Engineering and Public Works costs.
- Fleet Costs Chatham-Kent has vehicles (pickup trucks) and heavy equipment (backhoe, graders) which require operational costs including fuel, insurance, inspections, licensing and other costs. These assets are necessary to respond to weather conditions/emergencies such as snowfall and flooding as well as everyday activities such as engineering site inspections.
- **Permitting Activities** Chatham-Kent has an interest in permitting third party work in the road allowance such as telecommunication installation, driveway access work, installation of private services and over sized vehicle loads to ensure that road assets are not damaged by third party work

Other costs included in operations include master planning, building utility costs, tree planting,

stump removal, grading, weather monitoring, sweeping, mowing and spraying roadside grass, special events, traffic control, enforcement, training staff, permitting activities, pavement markings, festive lights as well as any necessary software costs.

Summary of forecast operations costs

Forecasted operational costs are expected to vary in relation to the total value of the asset stock. When additional assets are acquired, the future costs are forecast to increase. If assets are disposed of the forecast operational costs are expected to decrease. **Figure 3.2.1.** shows the forecast operations costs relative to the proposed operations planned budget.



Figure 3.2.1: Operations Summary

Operational budget levels are insufficient to meet projected service levels over the entire 10-year planning period. In the initial years of the plan **(2024 - 2027)** operations are funded adequately enough that there will be no impact on service levels. For the remaining planning horizon, funding for the road network will be required to increase to ensure service levels are sustainable and able to complete all operational activities.

Future iterations of the DAMP will need to consider obligations to ensure that required safety and regulatory operational activities are prioritized.

Table 3.2.2: Operations Budget Trends

Year	Operational Budget
2025	\$20,337,216
2026	\$20,645,172
2027	\$21,144,580

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 activities do not substantially prolong the life of an asset; they are the actions necessary to enable assets to meet their expected lifespan by restoring them to a preferred 'improved' condition.

Examples of typical maintenance activities include repairs for operational yards and facilities, vehicles, equipment, streetlight, road signs, sidewalks. Maintenance also includes major activities on the roadways such as:

- **Pavement resurfacing** The application of a new layer of asphalt over the existing pavement to improve ride quality, maintain proper drainage and achieve the service life of the road.
- Asphalt patching and pothole repairs Addressing localized pavement failures and potholes to restore the road safety and extend the service life of the road. Regular pothole repairs are also required to meet the Minimum Maintenance Standards (MMS) regulatory requirements.
- **Pavement crack sealing** Preventative maintenance strategy that extends the condition of the pavement by sealing surface cracks to prevent water and debris from infiltrating and causing further deterioration.
- **Gravel road maintenance** Additional gravel material and regular grading ensures that the road is in a good state of repair, maintains ride quality and supports proper drainage.
- **Pavement marking maintenance** Repainting of pavement markings that have faded to increase visibility and comply with roadway safety standards.
- **Shoulder maintenance** Includes regrading and the addition of gravel to support the pavement edge, prevent drop-offs and ensure proper roadside drainage.

- **Streetlights** Repair or replacement of non-functioning streetlights to enhance the roadway illumination and enhance public safety.
- **Sidewalk maintenance** Grinding of sidewalks as identified in annual inspections to remove trip hazards to meet MMS requirements.

Planned maintenance greatly reduces the need for reactive maintenance, which is often associated with greater risks to human safety and increased financial costs.

Summary of Forecast Maintenance Costs

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





Maintenance budget levels are inadequate to meet projected service levels over the entire 10-year planning period. The initial years of the plan (2024 - 2027) are funded adequately to ensure there will be no impact on service levels. For the remaining planning horizon, the Roads network will not have sufficient budget to maintain its regular maintenance activities and will be required to either fund the level of service or will need to adjust its planned maintenance activities.

One consideration for maintenance is to recognize that costs are rising across most if not all

maintenance activities. Since 2020, prices have been rising aggressively, and careful analysis will be required to ensure that sufficient funds are put into place to ensure future maintenance activities can be completed.

Future iterations of the DAMP will need to consider obligations to ensure that required safety and regulatory maintenance is prioritized. 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 and are highlighted in this DAMP and service risks considered in the Risk Management Plan. Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement. The trend in maintenance budgets is shown in **Table 3.3.2** below.

Year	Maintenance Budget
2025	\$34,572,000
2026	\$34,748,000
2027	\$35,430,000

Table	3.3.2:	Maintenance	Budget	Trends
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3.4 Renewal Plan

Renewals are the major capital works which do not significantly alter the original service capacity provided by the asset, but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Working over and above restoring an asset to its original service potential is an acquisition resulting in additional future operations and 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). The typical useful lives of assets used to develop projected asset renewal forecasts are shown in **Table 2.2.2 Asset Registry.** Asset useful lives related to the Roads network were last reviewed on **March 31, 2022.**

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

The expected useful life of the road is dependent on the condition of the full pavement structure, which includes the surface and base asphalt layers and the granular base. The useful life of the surface asphalt ranges from 15 years for arterial roads to 25 years for local roads. Over the lifecycle of the road, it is expected that the asphalt will be renewed at least twice before the full reconstruction of the full pavement structure is required.

The expected useful life of the pavement structure varies based on the class of road, traffic volumes and type of traffic, specifically heavy vehicles. The useful life of arterial roads is 45 years, 60 years for collector roads and 80 years for local roads. For local roads, reconstructions of the full pavement structure are usually driven by the condition/needs of the underground infrastructure, whereas on arterial roads, the reconstruction may be triggered by either the underground infrastructure or general pavement deterioration.

The average age and condition of roads are assessed based on surface condition, which does not always reflect the state of the entire pavement structure. As a result, the road network may appear to be in better condition than it is due to the methods used to measure and report the condition of the road. The Municipality lacks accurate data on pavement structure composition, age and condition which limits the ability to fully assess the condition of the asset. Additionally, road reconstruction projects have not kept pace with the long-term infrastructure needs which contribute to a backlog of required work.

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 the Public Works Yard)
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. quality of the pavement surface)

The Roads prioritizes its renewals by identifying assets or asset groups that have:

- High consequences of failure
- High use and the subsequent impact on users would be significant
- Higher than expected operational or maintenance costs
- Potential to reduce life cycle costs by replacing a modern equivalent asset that would provide the equivalent service

Every road network asset has a distinct decision point where continuing to maintain it becomes unfeasible, financially burdensome, or additional effort is legally required, and renewing it becomes the optimum choice for Chatham-Kent. For this DAMP, a road is identified as requiring a renewal when a when a full depth reconstruction is required. Other road actions to repair the road (resurfacing, crack sealing etc.) are considered maintenance activities.

3.5 Summary of Future Renewal Costs

Over the 10-year planning horizon the Roads network will invest approximately **\$144 Million** on renewal activities which will include;

- **\$18.9 Million** for Vehicle and Heavy Equipment Renewals (pickup trucks, dump trucks, tractors, backhoes, loaders etc.)
- \$8.5 Million for sidewalk replacements over the 10-year planning period
- **\$2 Million** over the 10-year planning horizon for road sign replacements to ensure visibility and road safety by replacing damaged, missing, faded or signs that do not meet standards
- **\$32 Million** over the 10-year planning horizon for full depth road reconstruction.

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





3.6 Disposal Plan

Disposal encompasses activities related to the decommissioning of assets that are not slated for renewal. These activities include divestments such as through sale, demolition, and relocation. Presently, the Roads network does not anticipate disposing of any assets. Divestments will be considered through future updates to this Plan and future Municipal Budget processes. Should any disposals be Identified in the future, they will be reported in this section.

3.7 Summary of Asset Forecast Costs

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



Figure 3.7.1: Lifecycle Summary

With the current budget, the Roads network does not have enough funding for the entire 10-year planning period to maintain the current levels of service. The backlog of renewals noted in the year 2025 does not indicate that these are planned to be completed. The renewal bar in 2025 indicates that there is a significant amount of assets requiring renewal that have been historically deferred. Over time, if the backlog of work is not addressed it will continue to grow and is considered an indicator of sustainability.

4.0 LEVELS OF SERVICE

Levels of service describe the value that Roads 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 to allow those making choices to clearly understand how a dollar, will impact Chatham-Kent's ability to deliver its services. These measures also allow Chatham-Kent to communicate with the public as to the cost of the services that 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

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

Legislation	Requirement
O.Reg. 239/02: Minimum Maintenance Standards for Municipal Highways	Regulation defines technical levels of service and response times for winter maintenance, pothole repairs etc.
Electricity Act, 1998, SO 1998, c.15	Ensure the adequacy, safety, sustainability and reliability of electricity supply which applies to street lighting and traffic signals
R.R.O. 1990, Reg. 615: Signs O.Reg 402/16: Pedestrian Crossover Signs R.R.O. 1990, Reg. 619: Speed Limits	Provides guidelines and instructions for all roadway signs including timelines for inspections
Highway Traffic Act	It is a duty to maintain highways, apply to road works, alterations and the removal of encroachments.

Table 4.1.1: Legislative Requirements

4.2 Customer Research and Expectations

The first DAMP is intended to provide a snapshot of the current level of service provided by the Roads network. Future consultations with the public and the Roads customers must be undertaken before the Municipality of Chatham-Kent can adopt the planned level of service. Future iterations of the Roads DAMP will involve customer consultation, focusing on service levels and associated costs. This approach aims to assist Council and stakeholders in aligning the required level of service, potential service risks, and consequences for the customers' capacity and willingness to financially support the service.

Community consultation will be undertaken to identify customer values and expected trends in the planned budget and outcomes of the consultation and the values will be addressed in the future iterations of this plan.

4.3 Customer Values

Service levels are defined in three ways: 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
- the likely trend over time based on the current budget provision

Current Customer Value

Through previous public consultations, Chatham-Kent has identified elements that customers value from the road network.

- 1. Safety Ensure that roadway assets are safe.
- 2. Condition Customers value a smooth ride and to ensure that roads are free from potholes
- **3.** Affordability The price customers pay through their taxes is reasonable for the quality of road network they receive
- 4. **Connectivity** Customers wish to be able to get to their destinations by their preferred travel mode in a reasonable distance and travel time
- 5. Reliability Customers wish their travel times to be close to what they expect it to be
- Equitability decisions related to roads will be carried out based on need without disadvantaging any neighborhood

The Roads service will undertake community consultation in 2025-2026 to better identify customer values and expected trends on the planned budget and outcomes of the consultation and the values will be addressed in future iterations of this plan.

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 the Intended purpose ... Is it the right service?

Capacity/Use - Is the service over or underused ... do we need more/less of the service?

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.

Table 4.4.1: Customer Level of Service Measure

Measure Type	Levels of Service	Performance Measure	Current Performance	Expected Trend Based on Planned Budget
Condition	Ensure the road network and related assets are kept in a safe and acceptable state of repair	Customer Survey	TBD in 2026	TBD 2026
Capacity	Ensure transportation network is providing adequate multi-modal transportation	% of commuters utilizing active transportation or public transit	5.9% (2024)	Maintain
Function	Ensure good traffic flow and connectivity	Customer Survey	TBD in 2026	TBD in 2026
Function	Speeds and traffic volumes are appropriate for each road type	# of customer service requests and comment received annually regarding speeds/speeding, traffic volumes, and/or traffic calming.	100 + Requests (2024)	Maintain

Further investigation will be necessary to ensure that customer service levels are regularly measured, allowing Chatham-Kent 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 – To deliver the customer values and impact, the achieved customer levels of service are operational or technical measures of performance. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

These represent lifecycle performance measures that gauge how the Roads intends to attain desired customer outcomes, showcasing effective performance, legislative compliance, and management. These metrics should illustrate the alignment of the Roads service delivery with customer values and act as potential levers to affect and influence Customer L.O.S. I.E.S. will track specific lifecycle activities to measure service performance in meeting the desired service level and to shape customer perceptions of the services received from the assets.

To deliver the customer values, and impact achieved by the Customer Levels of Service, are operational or technical measures of performance. 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., widening a roadway, additional regulatory signs) or a new service that did not exist previously (e.g., a new Roads terminal building).

Operation – the regular activities to provide services (e.g., snow removal, utilities, inspections, 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., crack sealing, 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., full depth road reconstruction, vehicle replacement, regulatory sign replacement, and building replacement), Service and asset managers plans 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.

Table 4.5.1: Technical Level of Service

Lifecycle Activity	Level of Service Statement	Activity Measure	Current Performance	Recommended Performance
Acquisitions	Ensure newly acquired assets meet design specifications	Confirm donated assets meet current design standards and specifications and ensure they are inspected prior to acquisition	100%	100%
Acquisitions	Ensure the road network and related assets are kept in a safe and acceptable state of repair	Gravel road conversion program	6 km / Year	6 km / Year
		Budget	\$2,000,000 / year	
Acquisitions	Implement new guiderail installation to enhance roadside safety	Installation of new guiderails	750 m/year	750 m/year
		Budget	\$350,000/year	
Acquisitions	Implement pedestrian connections and infill sidewalk gaps to remove barriers and enhance accessibility for pedestrians	Construct new sidewalks	1 km/year	1 km/year
		Budget	\$500,000 / year	
Acquisitions	Implement the installation of new shoulder and bike lanes to enhance safety for pedestrians/cyclists	Installation of paved shoulders/bike lanes	10 km/year	10 km/year
Operations	Ensure assets and services are legislatively compliant	# of weather events reacted to in accordance with O.Reg 239/02 Minimum Maintenance Standards in 2024	15 Weather Events (2024)	Variable

Lifecycle Activity	Level of Service Statement	Activity Measure	Current Performance	Recommended Performance
Operations	Ensure assets and services are legislatively compliant	Complete regulatory sign reflectivity testing annually	100% Compliant	100% Compliant
		Budget	\$110,000/year	
Operations	Ensure asset data is in good condition	Update road network Pavement Condition Index (PCI) every 3 years	Updated every 3 years	Updated every 3 years
		Budget	\$275,000 per update	
Operation	Ensure assets and services are legislatively compliant	Road patrol completed in accordance with MMS	100% Compliant	100% Compliant
Operation	Ensure the road network and related assets are kept in a safe and acceptable state of repair	# of collisions on road network with major injuries or casualties each year	31	0
		Budget	\$250,000 / year	
Maintenance	Ensure assets and services are legislatively compliant	Ensure that potholes and other surface discontinuities are maintained in accordance with O.Reg 239/02 Minimum Maintenance Standards	100% Compliant	100% Compliant
		Budget	\$575,000 / year	
Maintenance	Ensure the road network and related assets are kept in a safe and acceptable state of repair	# km's of asphalt roads resurfaced/year	30 km / year	60 km / year
		Budget	\$10 Million / year	
Maintenance	Ensure the road network and related assets are kept in a safe and acceptable state of repair	# of kms of crack sealing completed on good condition roads to reduce water infiltration into road base	15 km / year	15 km / year

Lifecycle Activity	Level of Service Statement	Activity Measure	Current Performance	Recommended Performance
Maintenance	Ensure the road network and related assets are kept in a safe and acceptable state of repair	# of km's of grading on gravel roads to eliminate drop offs	1,000 km / year	1,000 km / year
Maintenance	Ensure the road Network and related assets are kept in a safe and acceptable state of repair	# of sidewalk repairs due to trip hazards or surface discontinuities annually (2024)	600 repairs / year	Approximately 600 repairs / year
		Budget	\$150,000 / year	
Renewal	Ensure the road network and related assets are kept in a safe and acceptable state of repair	<pre># km's of full depth reconstructions completed annually</pre>	2 km / year	14 km / year
		Budget	\$3.2 Million / year	
Renewal	Ensure assets and services are legislatively compliant	# of signs replaced annually to meet reflectivity requirements in Minimum Maintenance Standards	320 Replacements	320 Replacements on average
		Budget	\$80,000 / year	
Renewal	Ensure the road network and related assets are kept in a safe and acceptable state of repair	# of km's of guiderails reconstructed annually	1.5 km / year	1.5 km / year
		Budget	\$635,000 / Year	
Renewal	Ensure the road network and related assets are kept in a safe and acceptable state of repair	# of km's of sidewalks reconstructed annually	4 km / year	6 km / year

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 efficiency. It is acknowledged changing circumstances such as technology and customer priorities will change over time.

Proposed Level of Service

O.Reg 588/17 mandates that every municipality define its proposed level of service. The chart below illustrates the existing level of service compared to the proposed level. The planned budget reflects the funds currently available, while the required budget for the proposed level indicates whether an increase in funding is necessary to achieve the desired service level.

Level of service Statement	Current LOS (Average Condition of Roads)	Proposed LOS (Average Condition over 10-year Periond)	Anticipated LOS Based on Planned Budget	Required for Proposed
Chatham-Kent will maintain its arterial roads in good conditions over the 10-year planning horizon	Good (70)	Good (70)	PCI 65	+ \$14 million annually
Chatham-Kent will maintain its collector roads in fair conditions over the 10-year planning horizon	Fair (65)	Fair (65)	PCI 61	+ \$13 million annually
Chatham-Kent will maintain its local roads in fair condition over the 10-year planning horizon	Fair (60)	Fair (55)	PCI 51	+ \$10 million annually

It should be noted that the current practice results in too many roads being resurfaced that should be reconstructed. While this approach increases the PCI, many of the roads receiving this treatment should be fully reconstructed as the resurfacing operation does not address the underlying pavement structure issues. The proposed level of service and budget accounts for this by prioritizing overdue reconstructions and starting to address the backlog. A reconstructed road with a proper pavement structure and adequate drainage will require less maintenance over its lifecycle to maintain the proposed level of service compared to a road that is continually resurfaced.

Additionally, the proposed level of services also includes the addition of paved shoulders and roadside safety improvements on rural roads to address deficiencies in the existing road network. These elements not fully factored into the current budget and maintenance practices. As a result, the difference between the current and proposed level of service may appear to be smaller than it is when strictly comparing the PCI values.

5.0 FUTURE DEMAND

5.1 Demand Drivers

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and 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.

5.3 Demand Impact and Demand Management Plan

The impact of demand drivers that may affect future service delivery and use of assets are shown in **Table 5.3.1**.

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

Opportunities identified to date for demand management are shown in **Table 5.3.1**. Further opportunities will be developed in future revisions of this DAMP.

Table 5.3.1: Demand Management Plan

Demand driver	Current position	Projection 10 Years	Impact on services	Demand Management Plan
Population Growth	112,200	116,848	Higher usage increases costs to maintain and the need to renew assets	Continue to budget accordingly for the increased costs.
				Develop Detailed Asset Management Plan to inform choices
Legislative requirements per O.Reg. 239/02: Minimum Maintenance Standards for Municipal Highways (MMS)	Compliance with current MMS standards	Compliance with current MMS standards	Reactive maintenance costs to meet the requirements and need for staffing and machinery	Regular road patrol to identify surface irregularities and complete reactive maintenance to remain in compliance
Population Growth and Subdivision Development	Moderate growth in areas with existing road networks	Growth to occur outside of existing road network	Additional roadways constructed as part of development that will require additional maintenance and renewal costs over the life of the road	Development charges for new developments to account for these increased costs of the life of the new road
Conversion of gravel roads to hard surfaced roads	Regular requests from residents	Increase in requests due to growing traffic and safety concerns	Staff time required to review the requests and additional budget required to action the requests	Periodically updated warrant thresholds in Traffic Calming Policy to reflect available budget for traffic calming measures.
Active Transportation Facilities	Expansion of active transportation facilities	Increased demand for active transportation facilities	Direct impact: increased maintenance cost for active transportation facilities. Indirect impact: reduced auto mode share causing a reduced demand for roadway expansion.	Build out AT facilities as per Transportation Master Plan, Trails Master Plan, or successor plans, including the budget associated for the construction of new AT facilities and budget for future maintenance and renewal costs
Expansion of Sidewalk Network	Regular requests from residents	Increase demand for additional sidewalks in new and existing areas	Improved pedestrian safety but increased maintenance, operations and future renewal costs	Prioritize new sidewalks based on safety and demand, allocate budget for installation of new sidewalks and budget for future maintenance and renewal costs

The rise in Chatham-Kent's population may require the road network to expand its services and will drive the demand for additional roads and additional assets and staff to support the agreed upon level of service.

This plan aims to anticipate and address future needs comprehensively. However, the current infrastructure resources are limited and may prove insufficient over the entire planning period and as such, expansion would not be recommended if sustainability cannot be achieved.

5.4 Asset Programs to Meet Demand

The new assets required to meet demand may be acquired, donated or constructed. Acquiring new assets will commit Chatham-Kent 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 long-term financial plan.

6.0 RISK MANAGEMENT PLANNING

Risk Management is defined in ISO 31000:2018 as: Coordinated activities to direct and control regarding risk'. 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.

Chatham-Kent is developing and implementing a formalized risk assessment process to identify risks associated with service delivery and to mitigate risks to tolerable levels.

The assessment will identify risks that will result in:

- loss or reduction in service
- personal injury
- environmental impacts
- a 'financial shock'
- reputational impacts
- other consequences

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

6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Critical assets have been identified and along with their typical failure mode, and the impact on service delivery, are summarized in **Table 6.1.1**. Failure modes may include physical failure, collapse or essential service interruption.

Table 6.1.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
Paved roads	Degraded condition, insufficient maintenance	Impact on drive quality, increased customer complaints, reputational harm, increased costs for maintenance
Road Signs	Theft, failed reflectivity testing.	Missing road signs can impair driver safety, increased maintenance costs
Traffic Signals	Power failure,	Service interruption, financial impact, potential for injury.

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 problem- solving technique designed to provide a logical process for the selection of response 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, development of a risk rating, evaluation of the risk and 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 Council.

Table 6.2.1: Risks and Treatment Plans

Asset Providing the Service	What can Happen	Risk Rating	Possible Cause	Existing controls
Hard Road Surface	Overall condition of the network is reduced (PCI)	Medium	Lack of budget to renew roads when required	Annual maintenance, road resurfacing and other right-of-way improvement projects
Hard Road Surface	Surface irregularities develop in road surface	Medium	Freeze thaw, poor drainage and poor condition of asphalt	Road patrol per MMS to identify surface irregularities and they are addressed (asphalt patching, crack sealing and pothole filling, etc.)
Hard Road Surface	Winter maintenance does not meet MMS requirements	Medium	Large storm events overwhelm snow removal efforts	Current winter maintenance activities exceed MMS requirements
Gravel Roads	Poor condition of gravel roads requiring additional maintenance	Low	Lack of drainage and maintenance results in poor condition of roadway	Minor maintenance activities to maintain road surface condition
Sidewalks	Sidewalks are not compliant with MMS standards	High	Not keeping up with legislative requirements	Annual inspection and remediation program
Sidewalks	Sidewalks are not compliant with AODA standards	Medium	Existing sidewalk width does not meet current day standards	Annual replacement program to meet standards
Sidewalks	Gaps in the exiting sidewalk network	Medium	Existing sidewalk network has gaps that result in pedestrians having to use roads	Addition of sidewalks during reconstruction projects and program to fund and install new sidewalks annually

Asset Providing the Service	What can Happen	Risk Rating	Possible Cause	Existing controls
Road Network	Deterioration of roads due to lack of drainage where curb is not present	Medium	Roads were constructed with no curbs and lack drainage	Curbs are added along roads that are reconstructed and annual funding/programs to construct curbs
Road Pavement Markings	Pavement markings will fade over time and not meet OTM requirements	Medium	Weather and traffic deteriorate pavement markings	Annual pavement marking contracts
Traffic Signals	Wear and damage to traffic signal infrastructure	High	Collisions and general wear due to weather	Annual inspections and emergency call outs
Traffic Signals	Traffic signal lights not working	High	Standard light bulb burn outs	LED conversion program
Traffic Signals	Intersections do not meet applicable standards (AODA, OTM, etc.)	Medium	Intersections have not been renewed	Signal upgrade program when they are renewed
Signs	Reflectivity does not meet OTM & MMS	Medium	Degrade due to sunlight and weather	Annual reflectivity testing and replacement program
Streetlights	Streetlights stop working	High	Lights burn out, motor vehicle collisions or damage to power feeds	Annual inspection and maintenance program
Streetlights	Existing streetlights do not meet current or future standards for roadway and pedestrian illumination	Medium	Existing streetlights were designed/installed to old standards that do not meet the current requirements	Streetlights are designed and replaced with current day standards

Asset Providing the Service	What can Happen	Risk Rating	Possible Cause	Existing controls
Road network	Newer or updated standards increase complexity and costs of road projects	Medium	Change in standards	Designs incorporate current standards and best practices
Road network	Collisions resulting in injury or fatalities	Medium	Vehicular accident	Current design standards and implementation of Road Safety Action Program
Road network	Road is out of service and inaccessible - vehicles	Medium	Roadway construction, sidewalk construction or emergency failure	Traffic management plans, road closure process, and encroachment permit process
Road network	Roadway operating speeds are higher than appropriate for the road type and speed limit	Medium	Roadway design allows for operating speeds higher than target speed	Traffic calming program
Guiderail	Guiderails become obsolete/non-continuous and do not work as designed	Medium	Older style guiderail systems do not perform to current day standards or damage that's not identified/repaired degrades the performance of the guiderail	Visually inspected during road patrol and OSIM inspections and repaired as required
Bike Lanes/Paved Shoulders	Bike lanes develop surface irregularities	Low	General deterioration of the paved surface	Inspected alongside the roadway during road patrol and repaired as needed
Bike Lanes/Paved Shoulders	Increased cost for traffic signal improvements to accommodate active transportation facilities	Low	Existing traffic signals require upgrade to accommodate active transportation facilities	Budget allocation to active transportation facilities to account for the costs associated with these upgrades

6.3 Infrastructure Resilience Approach

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

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

6.4 Service and Risk Trade-Offs

The decisions made to adopt this DAMP are based on the objective of achieving the optimum benefits from the available resources.

6.4.1 What Cannot Be Done

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Increasing the levels of operation, maintenance and renewal activities
- Mitigating all risks
- Ensuring all reactive maintenance projects can be fully funded
- Ensuring that all future renewals outside of the planning period can be completed due to the scope of the plan being limited to a 10-year planning horizon

6.4.2 Service Trade-Off

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

- As the condition of buildings and infrastructure continue to deteriorate it will result in a lower level of service
- Limiting response times if facilities fall into poor condition
- Unable to expand hours of operation
- Limiting the ability to deliver new services to customers

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:

• Over the long term without sufficient funding and as the condition of assets deteriorates, they may become unsafe

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 have a significant impact on assets and the services they provide. In the context of the asset management planning process climate change can be considered as 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 well as how the I.E.S. responds to and manages those impacts.

As a minimum, I.E.S. will consider how to manage its existing Roads assets given potential climate change impacts for the region. Climate change will have a significant impact on the assets Chatham-Kent manages and the services they provide. 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 context of the asset management planning process, climate change can be both a demand and a risk. How climate change impacts on assets will vary depending on the location and the type of services provided, as well as the way in which Chatham-Kent responds and manages those impacts. There have been many weather and climate-related impacts on the Chatham-Kent community, including the following:

- Extended summer heat waves in 2017 and 2018
- Severe rainstorms of 2018 (and related flooding)
- Unseasonably wet spring and fall of 2019, which impacted crop production
- Record-breaking water levels within river systems and the Great Lakes in 2019 and early 2020 caused major erosion and flooding issues in the community. This included the closures of Erie Shore Drive, the Talbot Trail, and Rose Beach Line, etc.

Recognizing these continuing climate change impacts, 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. The CCAP actions that will be presented in the CCAP report document will be used to inform the Climate section of the DAMPs in future updates. The CCAP actions will also be presented within the Departments that will be responsible for their implementation.



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 and 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**.

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

Climate Impact (Assets level or Service level)	Projected Position (in 10 years)	Potential Impact on Assets & Services	Climate Management Plan
Increase in extreme weather events, i.e. storms	Increase in frequency and severity	Certain roads may become unavailable for periods of time due to snow or precipitation. Extreme weather can impact response times, increased costs for reactive maintenances	Reactive maintenance activities Temporary road closures
Annual Very Hot Days, (+30 degrees Celsius), Extreme heat can impact the freeze- thaw cycle of roadways which can lead to more potholes and other pavement damage	Increase in frequency and severity	Extreme heat can lead to asphalt softening which can lead to rutting (permanent grooves) and surface deformities Extreme weather can impact response times, increased costs for reactive maintenances	Increased costs for maintenance and renewal activities
Annual Precipitation increase	+45mm annually	Roads could be overtopped with water, pooling, increased water infiltration, higher maintenance costs	Temporary road closures, increase budget for maintenance costs

Climate change has become a pressing issue, impacting various elements of the Road network. Additionally, the way in which Chatham-Kent 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 levels can be sustained
- Assets that can endure may lower the lifecycle cost and reduce their carbon footprint

The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this DAMP.

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 asset management expertise within Chatham-Kent matures. It is crucial to align the budgeting process, the Long-Term Financial Plan, and the DAMPs to ensure that all the Roads needs are addressed while the Municipality establishes a definitive financial strategy with measurable goals and targets.

Effective assets and financial management will enable I.E.S. to ensure its roads 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 responsibilities. Long-term financial planning (LTFP) is critical to ensure the road networks lifecycle activities such as renewals, operations, maintenance, and acquisitions can happen at the optimal time.

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 (proposed renewal budget for the next 10 years / proposed renewal outlays for the next 10 years shown in the DAMP)
- Lifecycle Funding Ratio (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) – 16.6%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years Chatham-Kent has insufficient renewals funding to address its needs for the current planning period. As the DAMP evolves the planning horizon will extend from 10 years to 20 years and at that time there may be significant renewal activities identified. Each year the Roads DAMP will be updated to acknowledge the financial realities of the available budget and how those realities will impact the current level of service set by 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 a stewardship measure and is an indicator in determining

if Chatham-Kent is achieving intergenerational equity. Ensuring sufficient financial resources are allocated to renewing assets is essential to achieve sustainability. Funding the ARFR over time so the road network can meet its financial target is essential to ensure the service is considered sustainable.

If assets are not renewed at the appropriate time, 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 Roads reputation and risk of fines or legal costs

Future Roads DAMPs will align with the planned LTFP. This approach will enable staff to devise options and strategies for addressing future long-term renewal rates challenges. Chatham-Kent plans to reassess its renewal allocations after the full inventory is verified and consolidated.

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

The current 10-year Lifecycle Funding Ratio is 69%.

This DAMP identifies the forecast operations, maintenance and renewal costs required to provide an agreed, and affordable level of service to the community over a 10-year period. This provides input into 10-year financial and funding plans aimed at providing the required services in a sustainable manner. This forecast work should 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 operation, maintenance, and renewal of assets, 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 **90-110%.** A ratio below this range suggests that the funding for assets is not sufficient to fulfill the organization's commitments to risk management and service levels.

Financial Gap Analysis

Budget Projections	Financial Measure
Projected Budget (10 Years)	\$613,440,000
Forecast Costs (10 Years)	\$903,750,000
Annual Average Shortfall	\$29,031,000
Total Shortfall over 10-year planning horizon	\$290,310,000

The annual 'gap' of **\$29 Million** indicates that I.E.S. has **69 %** of the forecasted costs required in the forecasted budget to provide the services documented in this DAMP. The current gap indicates that the current level of service is unaffordable and must be addressed.

Completely funding an annual funding shortfall or funding 'gap' cannot be addressed immediately. The overall gap in funding for each of Chatham-Kent's services will require vetting, planning and resources to begin to incorporate gap management into future budgets. This gap will need to be managed over time to improve sustainably 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
- Influence level of service Changing expectations or demand drivers

These options and others will allow Chatham-Kent to ensure that the road network gap would be managed appropriately to ensure the level of service outcomes the customers desire is achieved. Providing sustainable services for infrastructure requires the management of service levels, risks, forecast outlays and financing to eventually achieve a financial indicator of **90-110%** over the next 25 years.

8.2 Forecast Costs (outlays) for the Long-Term Financial Plan

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

Any gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing 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 and 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 its 'gap' by developing this DAMP to provide guidance on future service levels and resources required to provide these services in consultation with the community.

As noted in **Section 3.7** (Forecast Costs), **Table 8.2.1**. reflects a backlog of historically deferred renewal and major maintenance work (particularly for renewals), based on the asset inventory, existing asset conditions and levels of service as discussed in prior sections of this plan. The backlog is currently reflected in the Renewal category, however, this will also be reviewed through further updates to this plan to determine the funding requirements between Critical Maintenance activities (such as pavement resurfacing), and Renewal activities (including full reconstruction of road assets), to determine the optimum approach to maintain the levels of service as identified in Section 4.

Year	Acquisition	Operation	Maintenance	Renewal	Disposal
2025	\$4,999,000	\$20,337,000	\$34,572,000	\$84,613,000	
2026	\$2,862,000	\$20,670,000	\$34,978,000	\$5,936,000	
2027	\$3,745,000	\$21,184,000	\$35,920,000	\$5,581,000	
2028	\$3,800,000	\$21,838,000	\$36,396,000	\$5,173,000	
2029	\$3,800,000	\$22,511,000	\$36,731,000	\$6,320,000	
2030	\$3,800,000	\$23,204,000	\$37,237,000	\$62,429,000	
2031	\$3,800,000	\$23,916,000	\$37,754,000	\$21,261,000	
2032	\$3,800,000	\$24,650,000	\$38,282,000	\$23,382,000	
2033	\$3,800,000	\$25,405,000	\$38,821,000	\$40,581,000	
2034	\$3,800,000	\$26,182,000	\$39,372,000	\$48,512,000	

Table 8.2.1: Forecast Costs (outlays) for the Long-Term Financial Plan 2025 - 2034

8.3 Funding Strategy

The proposed funding for assets is outlined in the operational budget and 10-year capital budget. These operational and capital budgets determine how funding will be provided, whereas the DAMP typically communicates how and when this will be spent, along with the service and risk consequences.

Future iterations of the DAMP will provide more detailed service delivery options and alternatives to optimize limited financial resources.

8.4 Valuation Forecasts

Asset values are forecast to increase as additional assets are added into service. As projections improve and can be validated with market pricing the net valuations will increase significantly. Additional assets will add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs for future renewals. Any additional assets will also be added to future depreciation forecasts. Any disposal of assets would decrease the operations and maintenance needs in the longer term and would remove the high costs of 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.

8.4.1 Asset valuations

The best 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)	\$4,004,062,000
Depreciable Amount	\$4,004,062,000
Annual Depreciation Expense	\$56,318,800

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 judgement.
- Budgets have been allocated based on the best available data on assets.
- An annual inflationary amount has been applied to the operational and maintenance forecast to reflect the projections that costs will increase over time. Depending on the activity the forecasted inflation ranges from 0.5% 3%.

8.6 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this DAMP are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on an **A** - **E level scale** in accordance with **Table 8.6.1**.

Table 8.6.1: Data Confidence Grading System

Confidence Grade	Description
A. Very High	Data based on sound records, procedures, investigations and analysis, were documented properly and agreed as the best method of assessment. The dataset is complete and estimated to be accurate \pm 2%.
B. High	Data based on sound records, procedures, investigations and analysis, is 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. The 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.

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

Data	Confidence Assessment	Comment
Demand drivers	High	Sufficient information to provide high quality information for demand drivers.
Growth projections	High	Growth projections are reliable. Growth will be reviewed annually to ensure staff is aware and ensure it can be properly resourced.
Acquisition forecast	High	There is sufficient data to reliably forecast the acquisitions with a high level of confidence. Donated assets need to be reliably accounted for in the future.
Operation forecast	Medium	The financial projections are satisfactory, but additional work is needed to provide essential metrics and technical levels of service.
Renewal forecast -Asset value	Low - Medium	There is still additional work to be done to ensure renewal modelling accurately reflects the practices within I.E.S.
Asset useful lives	Medium	Must align with TCA practices. Several assets still need additional evaluation to confirm that their useful lives are suitable for financial modeling.
Condition modeling	Medium	Major assets have a formalized methodology for condition modelling however some financially significant assets do not have a formalized approach.
Disposal forecast	Low	The current disposals are estimated figures based off budget allocations and asset management best practices. Work will be required to improve models.

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

The estimated confidence level for and the reliability of data used in this DAMP is considered to be of **Medium** confidence level.

9.0 PLAN IMPROVEMENT AND MONITORING

Status of Asset Management Practices

9.1. Accounting and Financial Data Source

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

- Chatham-Kent's 2025 2027 Multi-Year Budget (Capital & Operating)
- Internal Market Price Valuations
- AM Software Multi-Year Forecasting Models
- Council Reports
- Financial Exports from various software's and systems.
- Procurement documents

9.2. Asset management Data Sources

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

- Asset Registers
- AM Data Collection Templates
- Insurance Data
- Tangible Capital Asset Data
- Building Condition Assessment Data Road Condition Data
- Fleet Vehicle Data
- Inspection Logs and internal staff reports
- 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 physically improve the assets.

The improvement plan, **Table 9.3.1**, highlights proposed improvement items that will require further discussion and analysis to determine feasibility, resource requirements and alignment to current workplans. 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 date, 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**.

*ISO 55000 Refers to this as the asset management System

Table 9.3.1: Continuous Improvement Plan

Task No.	Task	Responsibility	Resources Required	Timeline
1	Update road Pavement Condition Index (PCI) data	IES	Within existing capacity	2027
2	Update road data within GIS (maintenance history, AADT, gravel road data, etc.) to improve data confidence and modelling	A&QM, IES	Summer Student	2026-2027
3	Develop standard operating procedures to update GIS data once various lifecycle activities have been completed on an asset	A&QM, IES	Within existing capacity	2025-2026
4	Develop gravel road upgrade capital plan and account for additional increased costs to maintenance, operational and renewal activities	IES	Within existing capacity	2025
5	Develop 10-year capital plan for maintenance and renewals for all road assets	IES	Within existing capacity	2025 -2026
6	Identify, budget and incorporate roads that require additional roadside safety improvements (shoulders, guiderail, drain relocation, etc.) for inclusion in the capital plan	IES	Within existing capacity	2025-2028
7	Utilize AVL system to track MMS road patrol compliance	P.W. & Fleet	Within existing Capacity	2025
8	Track work orders in alignment with asset management plans (roads, bridges & culverts) and activity type (maintenance, operations, renewal etc.)	P.W. <i>,</i> A&QM	Within existing Capacity	2026- ongoing
9	Improve pothole maintenance tracking and reporting metrics (i.e. of hours spent fixing potholes)	P.W.	Within existing Capacity	2025-2027

Task No.	Task	Responsibility	Resources Required	Timeline
10	Develop plan for alley way maintenance, renewals and disposals	IES	Within existing Capacity	2026
11	Develop divestment strategy for road assets for inclusion in the capital plan	IES	Within existing Capacity	2025-2027
12	Improve pothole maintenance tracking and reporting metrics (i.e. number of hours spent fixing potholes)	P.W.	10 Hours Annually (within existing capacity)	2025-2027

The improvements detailed above are intended to ensure that Chatham-Kent's Road Network can achieve a sustainable service level over the next **20 - 30 years**. Some of the initiatives are required to meet legislative requirements and other initiatives are to improve services or data quality. All initiatives are intended to find financial efficiencies or are required to improve planning and lifecycle activities such as operational and maintenance activities.

Certain improvements can be made within staffing capacity and should be included as work plan for I.E.S upon Council's approval of the DAMP. 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 until they can be funded. 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 because 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 will be incorporated into the Long-Term Financial Plan Which will connect the Detailed Asset Management Plans to the Budget process.

The DAMP has a maximum life of **1 year** and will be updated annually. This plan will receive complete revision and update in **2027** to enable the Chatham-Kent Roads to be prepared for the **2028** four-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 are 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%).

Appendix A - Provincially Mandated Levels of Service

As per O.Reg 588/17 there several mandatory levels of service required to be reported within the DAMP.

Service attribute	Community levels of service (qualitative descriptions)	Technical levels of service (technical metrics)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity.	Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the municipality.
Quality	Description or images that illustrate the various levels of road class pavement condition.	 For paved roads in the municipality, the average pavement condition index value. For unpaved roads in the municipality, the average surface condition (e.g. excellent, good, fair, or poor).

Required Community L.O.S.

1. Description, which may include maps, of the road network in the municipality and its level of connectivity.

The road network is crucial due to the extensive geographic area of Chatham-Kent. It encompasses 528 km of arterial roads, 524 km of collector roads, 501 km of local roads, 194 km of surface-treated roads, and 1,624 km of gravel roads. Chatham-Kent's expansive road network integrates major provincial highways, regional roads, and local streets, facilitating transportation throughout the municipality and beyond. It connects with Highway 401, Highway 40, and the former Provincial Highway 3, serving as a vital link to urban centers like Windsor, London, Sarnia, and Toronto. The local road system caters to both urban and rural needs, supporting the local economy by allowing the smooth movement of goods and services across the area. Additionally, these roads are essential for healthcare, emergency response services, education, recreational activities, senior groups, childcare, and cultural events. The road network not only promotes economic growth and accessibility but also enhances the quality of life for residents by ensuring that all necessary services and amenities are within reach.

2. Description or images that illustrate the various levels of road class pavement condition.

These images and descriptions are in Chapter 2 on page 14.

Required Technical L.O.S.

- 1. Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the municipality.
 - i. Arterial: 1.4
 - ii. Collector: 1.8
 - iii. Local: 2.4
- 2. For paved roads in the municipality, the average pavement condition index value.

The average pavement condition index (PCI) value for Chatham-Kent's paved roads is **Good.**

3. For unpaved roads in the municipality, the average surface condition (e.g. excellent, good, fair, or poor).

The average surface condition of Chatham-Kent's unpaved roads is **Fair**.

Document Control

Rev No.	Date	Revision Details	Author	Reviewer	Approver
1	April 28, 2025	1 st Plan	Sean Hilderley	Edward Soldo	Council