

REPORT TO COUNTY COUNCIL

2023 Annual Transportation System Performance

To: Warden and Members of County Council

From: Director of Public Works

RECOMMENDATION

1. That County Council receive Report PW 2024-10 entitled “2023 Annual Transportation System Performance” as information.

REPORT HIGHLIGHTS

- This report provides an overview of the performance of Oxford County’s regional transportation system, along with the activities undertaken in 2023 related to the planning, design, construction, operations and maintenance for the same.
- A summary of annual transportation system capital investments (forecast ~ \$27 M) and an overview of key maintenance activities that were completed on the transportation infrastructure assets is also noted. The ongoing adherence to preventative maintenance standards and road pavement and bridge condition reviews ensure that all County roadways are maintained in a good state of repair for residents, businesses and visitors.
- Oxford County continues to ensure the safe and efficient operation of its regional road network through proactive programs such as pedestrian crossing studies, Community Safety Zone (CSZ) evaluations, illumination studies, traffic calming, speed management and road safety reviews.
- Consistent with the County’s direction of innovative and green technology, various green infrastructure and technology practices were completed in 2023 to further offset fossil fuel consumption and reduce greenhouse gas emissions (i.e. roundabout intersection improvements, Cold-in-Place asphalt recycling during road resurfacing, transportation demand management, traffic signal optimization, LED illumination, solar powered beacons, etc.).

IMPLEMENTATION POINTS

Following Council receipt, this report will be posted on the County's website for public access.

An annual performance report of the County's storm water system is required to be submitted to the Ministry of Environment, Conservation, and Parks (MECP) by April 30 each year as a regulatory requirement of the new Consolidated Linear Infrastructure Environmental Compliance Approval (CLI_ECA) that was issued to the County on February 3, 2023. A copy of this report must also be posted on the County's website by June 1 of each reporting year.

The first annual storm water system performance report will cover the period from January 1, 2023 to December 1, 2023 and will be submitted to the MECP and posted on the County's website in accordance with regulatory requirements.

Financial Impact

There are no financial impacts that will result from the recommendation contained in this report.

Communications

The 2023 Transportation Annual Report will be available for public viewing on the County's website on March 13, 2024, at <https://www.oxfordcounty.ca/en/your-government/reports-and-publications.aspx#Public-Works-Annual-Reports>.




This Council report will also be circulated to Area Municipalities, Woodstock Police and Ontario Provincial Police.

In addition, the County will further communicate 2023 performance highlights of key Public Works systems, including Transportation, to the public through an annual social media campaign during National Public Works Week (May 19 – 25, 2024).

2023-2026 STRATEGIC PLAN

Oxford County Council approved the [2023-2026 Strategic Plan](#) on September 13, 2023. The Plan outlines 39 goals across three strategic pillars that advance Council's vision of "Working together for a healthy, vibrant, and sustainable future." These pillars are: (1) *Promoting community vitality*, (2) *Enhancing environmental sustainability*, and (3) *Fostering progressive government*.

The recommendation in this report supports the following Strategic Plan pillars and goals:

		
Promoting community vitality	Enhancing environmental sustainability	Fostering progressive government
<p>Goal 1.2 – Sustainable infrastructure and development</p> <p>Goal 1.3 – Community health, safety and well-being</p> <p>Goal 1.4 – Connected people and places</p>	<p>Goal 2.1 – Climate change mitigation and adaptation</p>	<p>Goal 3.1 – Continuous improvement and results-driven solutions</p> <p>Goal 3.2 – Collaborate with our partners and communities</p>

See: [Oxford County 2023-2026 Strategic Plan](#)

DISCUSSION

Background

Under the *Municipal Act, 2001*, the County of Oxford holds non-exclusive municipal authority over “Highways, including parking and traffic on highways” where both upper and lower-tier municipalities have the power to pass by-laws under this sphere. Accordingly, the *Municipal Act* also affords the County with the ability to delegate its powers and duties pertaining to the same through agreements with Area Municipalities on behalf of the County.

In the current state service delivery model, Oxford County (road authority) owns all of the transportation network assets within its regional (arterial) road right-of-ways. Oxford County also operates and maintains all of these same system assets, with the exception of regional roads and bridge assets that are located within the urban limits of Woodstock, Ingersoll and Tillsonburg. In these cases, Woodstock, Ingersoll and Tillsonburg operate and maintain the arterial transportation network (roads and bridges) on behalf of Oxford County, under urban road maintenance service contract agreements.

Additionally, Oxford shares operational and maintenance responsibilities of its boundary road with other out-of-County municipalities through various service contract agreements.

The County road network is shown on Attachment 1.

Transportation System Operations and Maintenance Levels of Service

To ensure that monitoring and maintenance of the County’s Regional Road Network is undertaken in accordance with established Provincial Level of Service standards, Oxford County adopted the road classification system used by the Ministry of Municipal Affairs and Housing in O.Reg. 239/02 - Minimum Maintenance Standards for Municipal Highways (MMSMH), under the *Municipal Act, 2001*.

The MMSMH establishes six road classifications. All County Regional roads are major arterial roads with Class 2 through Class 5 classifications which carry relatively high volumes of traffic. To comply with Ontario Regulation 239/02, road classifications are reviewed annually to ensure they are current. The review is based on average annual daily traffic volumes and speed limits. Using these two values, road classifications are set to meet the Provincial standards. As a result of road classification adjustments, maintenance requirements may be amended accordingly.

In 2003, (Report [PW 2003-148](#)) County Council adopted the Winter Road Maintenance Level of Service (LOS) in accordance with MMSMH and hours of service for winter maintenance from 5:00am to 11:00pm.

Traffic control devices (signage, traffic signals, pavement markings) are installed and maintained in accordance with the Ontario Traffic Manual (OTM) and Manual of Uniform Traffic Control Devices (MUTCD) to ensure consistent application and regulatory compliance in accordance with the Ontario Highway Traffic Act (HTA).

County Transportation System Overview

The Transportation division within Oxford County's Public Works Department is responsible for management of the County's transportation network and associated assets including annual operations and maintenance, transportation planning and traffic and corridor management in order to provide a safe and efficient multi-modal transportation system for the movement of people and goods into and through the County.

The function and hierarchy of the County transportation network as defined in the Oxford County Official Plan (OP) is to serve moderate to high volumes of inter-municipal and long-distance traffic movements between Provincial highways and local roads. The strategic approach established in the OP is intended to minimize conflict between non-local and local traffic, identify necessary improvements over time, provide a safe pedestrian environment, and integrate transportation facilities provided by Area and adjacent Municipalities.

The functionality of the County's transportation network is maintained through corridor management policies to limit direct access to abutting properties where possible, control the number of access points to Residential and Industrial, Commercial, and Institutional (IC&I) development, and restriction of on-street parking as necessary.

The County's entrance By-law 5222-2010 and accompanying guidelines (Attachment 2) was adopted by County Council in 2010 and regulates the number, location, spacing and function of County road access points from abutting properties and developments.

The County is responsible for the operation and maintenance of ~ \$1.15 B of transportation network infrastructure assets as follows:

- 1,335 lane km of roads (includes 43 lane km acquired during 2021 Road Rationalization)
- 163 bridges/culverts (> 3m span)
- 128 retaining walls
- 175 km of storm sewer
- 1,200 km of ditches/swales

- 39 signalized traffic light intersections
- 2 roundabouts
- 13 pedestrian crossings (PXOs)
- 5,562 regulatory/warning signs
- 21 km of active transportation infrastructure (bike lines, multi-use paths, trails)
- 22 grade level railway crossings*

* Ownership of grade level crossings is by the Rail Authority who are generally responsible for the condition of the crossing surface and warning devices. Road authorities are responsible for approaches, warning signs, and sightlines.

Comments

2023 Annual Transportation System Summary

Highlights of the activities undertaken in 2023 related to the planning, design, construction, operations and maintenance of Oxford County's regional transportation system include, but are not limited to:

- Completion of 40 km of road reconstruction and/or road asphalt resurfacing, including 20 km of Cold-in-Place asphalt recycling
- 2 bridge/culvert (>3m span) replacements/rehabilitations completed
- 510 m of guard rails installed (replaced and/or new)
- Completion of 14 traffic calming, speed management and road safety reviews and associated implementation of 18 Speed Feedback Signs, 20 Community Safety Zones (CSZs), one new School Safety Zone and one controlled Intersection Pedestrian Signal (IPS)
- 3 traffic signal optimizations completed and 15 studies completed (i.e. Class EA Studies, Intersection Control / Pedestrian / Feasibility Studies, etc.)
- Winter control response (2022/2023 winter season) to 54 storm weather events
- Development and implementation of a new stormwater Environmental Certificate of Approval process for Consolidated Linear Infrastructure (which imposes a consistent set of conditions intended to improve environmental protection in relation to the stormwater collection system)
- 779 annual motor vehicle collisions reported, with 4 fatal collisions
- 232 Municipal 511 Road Issue Notifications – Automated Notification
- Seasonal load restrictions maintained over 28% of road network

Traffic and Road Safety Management

Initiatives to promote traffic calming, speed management and road safety have been undertaken in recent years to provide a safe, sustainable, and multi-modal transportation network that supports all road users and are further summarized below.

Active Transportation

Ongoing initiatives to support active transportation (AT) include incorporation of cycling infrastructure and improvements to pedestrian facilities that meet current AODA standards as part of scheduled capital improvements and asset management. In 2023, these initiatives resulted in the following AT improvements:

- Cycling infrastructure on Oxford Road 59 (Wilson Street) in Woodstock;
- Wider asphalt platform on OR 2 and OR 20 resurfacing projects;
- Audible pedestrian signals and sidewalk enhancements (ramps, tactile plates) at signalized intersections in Tavistock and Norwich;
- Installation of pedestrian bridge and accessible ramp on the Trans Canada Trail in Tillsonburg, and;
- Sidewalk and crosswalk enhancements on OR 20 through Brownsville.

Rail Crossing Review

In Canada, railway companies and road authorities share jurisdiction of railway grade crossings. Within Oxford County, there are several grade crossings spanning the Canadian National (CN) and Canadian Pacific (CP) and short rail line (Ontario Southland Rail, GoRail) corridors. In 2014, Transport Canada updated regulations relating to at-grade railway crossings. The update involved extensive consultation with railway companies and road authorities to ensure the concerns of all interested groups were incorporated. The safety review promotes uniformity at grade crossings within Canada to all public and private grade crossings on federally regulated railways and aims to bring them all under one common standard.

In response to updated Transport Canada regulations, a comprehensive review of at-grade crossings was undertaken by Oxford County in 2020 to identify potential safety deficiencies and recommend remedial improvements to ensure the County's 22 grade level road/rail crossings comply with the applicable standards. From this review, a number of feasible improvements were proposed and completed as show in Attachment 3. In addition to the completed remedial measures, the review also developed a monitoring program to ensure compliance in the future.

Community Safety Zone (CSZ) Implementation

In 2023, a total of 20 locations throughout Oxford were approved by County Council for CSZ implementation (refer to Report [PW 2023-05](#)) following a comprehensive evaluation that was completed in 2022 in accordance with the County's CSZ criteria and warrant process adopted by County Council in 2021 (Report [PW 2021-31](#)).

Designated CSZs will also be eligible for Automated Speed Enforcement (ASE) applications should a potential future County-wide ASE program be adopted as a measure to further promote road safety for all users and potentially reduce the number of collisions and fatalities on the County regional road network.

County-wide Approach to Speed Management and Traffic Calming

In 2023, speeding and intersection safety concerns across various segments of the County's transportation system were newly assessed through the review of traffic speed, volume, vehicle class, turning movements, sight line assessments, pedestrian volumes, and collision data at the following locations:

- East Zorra-Tavistock – Intersection of Oxford Road 59 and Oxford Road 33
- East Zorra-Tavistock – Punkeydoodles Corners (Oxford Road 5, Oxford Road 24)
- Tillsonburg - Oxford Road 20 (North Street East) from Broadway to Tillson Avenue
- Woodstock - Oxford Road 15 (Parkinson Road) from Beard's Lane to Oxford Road 4
- Woodstock - Oxford Road 35 (Devonshire Avenue) from Vansittart Avenue to Huron Street
- Woodstock - Oxford Road 17 from 14th Line to Oxford Road 4
- Ingersoll - Intersection of Oxford Road 7 (Thames Street North) and North Town Line
- Curries - Oxford Road 40 from Oxford Road 59 and 1 km west
- Springford - Oxford Road 13 and Oxford Road 19 within the village limits
- Foldens - Oxford Road 6 from and Oxford Road 12 within the village limits
- Sweaburg - Oxford Road 12 within the village limits
- Culloden - Oxford Road 10 within the village limits
- Verschoyle - Oxford Road 10 within the village limits
- Dereham Centre - Oxford Road 27 within the village limits

Similarly, a number of post monitoring speed reviews were completed in 2023 (where traffic calming measures were previously implemented) at the following locations:

- Drumbo – Oxford Road 3 from and Oxford Road 29 within the village limits
- Plattsville – Oxford Road 8 from Duoro Street to Hofstetter Road
- Bright – Oxford Road 8 and Oxford Road 22 within the village limits
- Harrington - Oxford Road 28 within the village limits.

Staff utilized traffic management principles and engineering best practice methodologies to develop and implement various site specific evidence based recommendations (refer to Reports [PW 2023-06](#), [PW 2023-17](#), [PW 2023-28](#), [PW 2023-44](#) and [PW 2023-45](#)) intended to improve speed management, traffic calming and road safety measures at the above noted locations including, but not limited to, one or more of the following:

- Installation of electronic speed feedback signs;
- Controlled PXOs;
- All-way stop condition(s);
- Regulatory and warning signs;
- Changes to posted speed limits;
- Speed zone adjustments to align with built up areas and TAC guidelines;
- Overhead flashing lights;
- Oversized stop signs with flashing beacons;
- Rumble strips;
- Extensions of street lighting to limits of urban boundary;
- Pavement markings (sharks teeth, transverse bars, edge lines);

- Flexible centre line delineators;
- Gateway features (community signs, lighting, future plantings); and
- CSZ designations.

Frequency and Severity of Collisions

A review of the collision data shows that the total number of collision across the County’s road network has remained relatively consistent with an average of 760 total collision occurrences over the past five years (refer to Figure 1) despite increased traffic volumes and community growth. The total number of combined injury and fatal collisions has reduced over the same period, with an average of 109 injury/fatal collisions per year. Most notably, the number of fatal collisions on the County road network has averaged 6 per year, ranging from 4 to 8 fatalities over the last five years (5.5% of the total injury/fatal collisions).

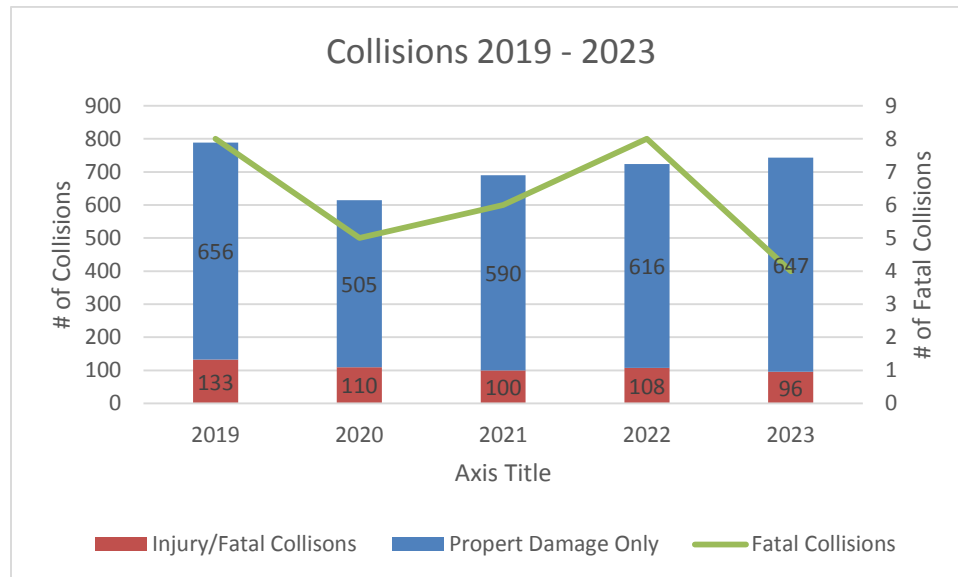


Figure 1 – 2019-2023 Collision Occurrences on County Road Network

The distribution of collision occurrences throughout the County between 2019 and 2023 is shown on Attachment 4 with the highest number of collisions occurring in the three urban municipalities (Woodstock, Ingersoll, and Tillsonburg). An excerpt from the 2024 Transportation Master Plan is included as Attachment 5 and shows the top ten rural and urban collision locations from 2018 to 2022 and the improvements that have been either completed or currently in progress.

Collision occurrences are typically higher at intersections where the risk of conflicts is greater as a result of turning movements, speed differential (rear-end collisions), and driver non-compliance (failure to yield, failure to stop, etc). The top ten urban collision locations are at County intersections within the City of Woodstock and can be attributed to generally higher traffic volumes at these locations. In rural areas, 70% of the collisions occurred within North Oxford.

Transportation System Asset Management

The overall asset condition of the County regional transportation system is monitored regularly through the Road Needs Study and biennial Bridge and Culvert inspections. Other inspection programs are initiated from time to time and include retaining walls, guide rails and grade level crossings.

These programs provide an inventory of assets, quantitative condition and performance measures, performance prediction as well as engineering and economic analysis tools to provide costs for future transportation system improvement needs such as resurfacing, rehabilitation, replacement and reconstruction.

2022 Asset Management Plan Update

Oxford continues to prioritize the long term sustainability of its transportation system. The County's Asset Management Plan provides the current asset condition and lifecycle needs of the County's transportation system.

This information continues to be used as a primary source for identified future capital requirements and to determine appropriate reserve contributions to sustainably finance such capital works. The summary of these findings were detailed in the County's 2022 Asset Management Plan (Report [CS 2022-20](#)).

A quick summary of the overall condition of transportation infrastructure and related assets is detailed in Figures 2 and 3.

Bridges and Major Culvert Assets:

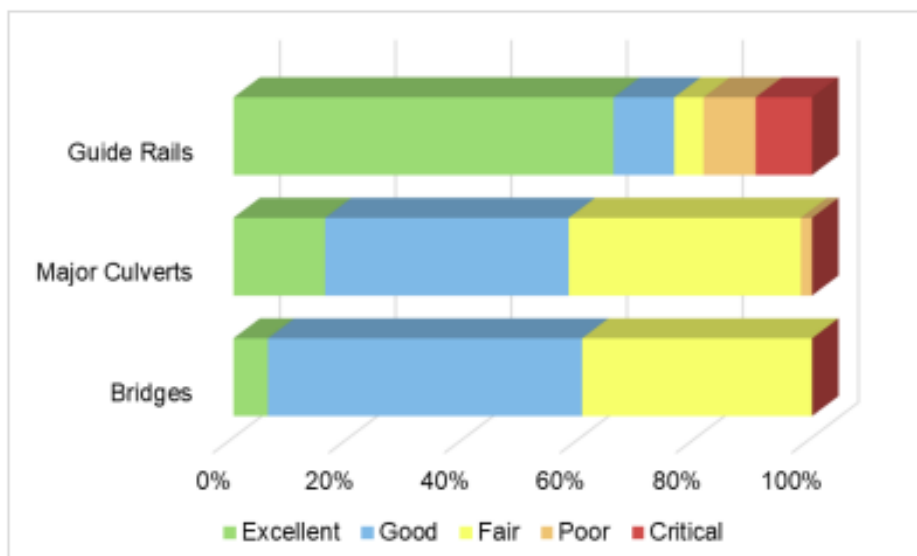


Figure 2 - County Bridge and Major Culvert Asset Condition (2022)

The asset condition monitoring of Oxford County's bridges and major culverts is done through biennial Ontario Structural Inspection Manual (OSIM) inspections as per Provincial legislation O.Reg. 104/97 'Standard For Bridges'. This legislation requires that inspections be undertaken

on all structures that have a span greater than three meters in accordance with the OSIM, every two years under the direction of a Professional Engineer.

Public Works retains an engineering consulting firm to update and keep an inventory of the County bridges and culverts through a close-up visual inspection and appraisal of each structure. An OSIM inspection report is completed for each structure including material and performance ratings, functional data and recommendations for engineering investigations, rehabilitations, repairs and/or replacements. The overall inventory and report summarizes the results of the inspections, weight limit assessment, structure priorities, recommendations and estimated cost for rehabilitation or replacement of each asset by its time of need. The recommendations ensure that preservation, upgrading, and timely replacement of bridge and culvert assets are performed through cost-effective management and programming.

The condition of bridges and major culverts is assessed using the MTO methodology Bridge Condition Index (BCI) and is used to prioritize capital improvements.

Roadway Assets:

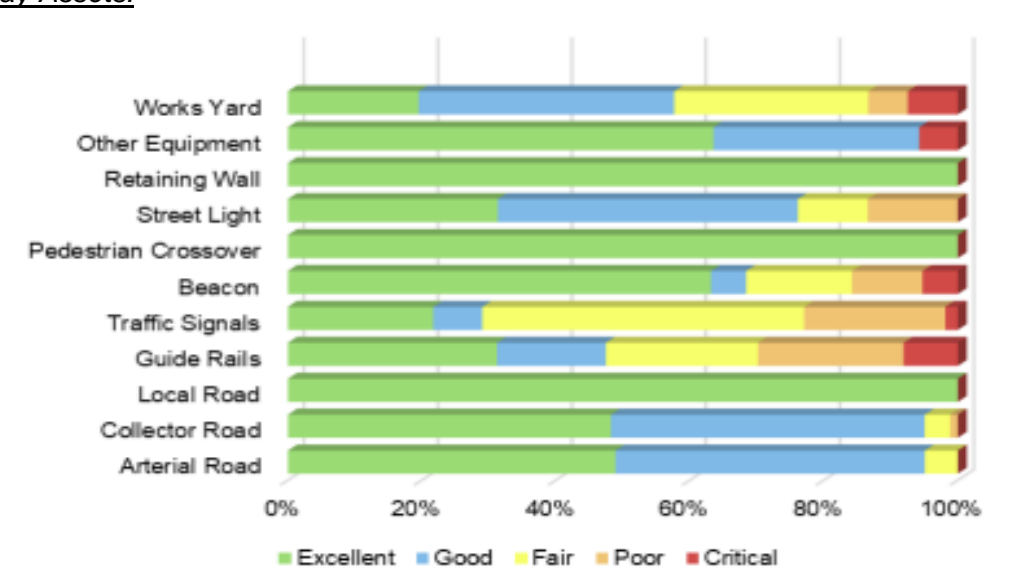


Figure 3 - County Road Network Asset Condition (2022) *

* Note: The hierarchy of the transportation network as identified in the OP identifies the County road network as arterial or regional roads providing connection to Provincial and local roads; however, for the purposes of asset management, County roads are further categorized as arterial (Class 1 and 2), collector (Class 3 and 4) and local roads (Class 5 and 6) in accordance with the road classification matrix included in the MMSMH regulation.

A Road Needs Study is performed every five years through a visual examination to inventory and appraise improvement needs within each road section. The study provides an overall rating of the road system by section, including factors such as surface type, surface width, capacity, structural adequacy, drainage and geometry. The Study reports on the deficiencies, needs and conditions captured through the Road System Inventory, Road Appraisal Sheets and Railway Level Crossing Inventory. The Study also identifies recommended timing and estimated cost of the proposed construction and/or rehabilitation improvements.

These recommendations guide the scheduling of improvements to ensure that preservation, upgrading, and timely replacement of roadway assets are undertaken through cost effective management and programming in conjunction with the annual capital works in progress.

Similarly to bridges and major culverts, the road network is assessed using the MTO Pavement Condition Index (PCI) methodology to rank the current condition of the road segment and identify maintenance and rehabilitation requirements.

2023 Transportation System Infrastructure Capital Investments

As per the revised 2023 Forecast in the 2024 Business Plan and Budget, the County invested approximately \$27 million in tax supported transportation infrastructure which included, but is not limited to, several notable capital projects as follows:

- Oxford Road 29 – horizontal and vertical realignment at Blenheim Rd (\$2,000,000)
- Oxford Road 59 (Wilson St) reconstruction (\$2,400,000)
- County-wide road resurfacing (\$5,000,000)
- County-wide rural storm replacement (3,400,000)
- Bridge Rehab – Oxford Road 12 (Mill St) (\$1,250,000)
- Bridge Rehab – Oxford Road 45 (17th Line) (\$1,400,000)
- Pedestrian Bridge – Trans Canada Trail (\$2,600,000)
- Traffic Signal Replacements (\$1,400,000)
- Princeton Drain (\$1,000,000)

2023 Maintenance of Transportation System Infrastructure

In addition to the transportation system capital investments noted above, several planned operational preventative maintenance activities are carried out annually to help optimize the useful service life and efficiency of transportation infrastructure assets. The 2023 Roads Operational Expense was approximately \$23 million and included a number of key annual maintenance activities performed on the transportation network as noted in Table 1.

Table 1: Transportation System Infrastructure Maintenance (2023)

Preventative Maintenance Activity	Quantity
Road Salt Application - tonnes of salt (2022/2023 Winter)	9,840 tonnes
Road Sand Application - tonnes of sand (2022/2023 Winter)	6,200 tonnes
Road Side Maintenance / Shouldering - tonnes of gravel placed	13,800 tonnes
Ditch Clean Outs - Length of ditches cleaned out	12,000 metres
Asphalt Patching / Pothole Repair – tonnes of hot mix placed	1,500 tonnes
Line Painting (metres)	1,666,700 metres
Sign Inspections / Reflectivity	6,297 signs
Bridge Washing (area)	8,740 square metres
Snow Fence Installation/Removal - metres	17,540 metres
# of Regulatory Signs Replaced	454

CONCLUSIONS

The 2023 Annual Transportation System Performance Report demonstrates Public Works' continued oversight of the County's transportation systems in order to effectively serve Oxford residents and businesses, and promote safe, efficient and sustainable movement of people and goods into, out of and throughout Oxford County.

The County continues to institute industry best management standards to annually monitor the levels of service and financial performance of its transportation infrastructure and to ensure transportation infrastructure assets are maintained in optimal condition through effective preventative maintenance and optimized infrastructure decision-making.

Through on-going investment into capital expansion, state-of-good repair works, and operational improvement measures, the performance of the system will continue to meet or exceed current levels of service.

SIGNATURES

Report author:

Original signed by

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Manager of Transportation and Waste Management Services

Departmental approval:

Original signed by

David Simpson, P.Eng., PMP
Director of Public Works

Approved for submission:

Original signed by

Benjamin R. Addley
Chief Administrative Officer

ATTACHMENTS

- Attachment 1 – Map of County Road Network
- Attachment 2 – County's entrance By-law 5222-2010 and Guidelines
- Attachment 3 – Remedial Actions for Grade Level Crossings
- Attachment 4 – Heat Map of Collisions in the County
- Attachment 5 – Top 10 Rural and Urban Collision Locations