To: **Warden and Members of County Council**

From: **Director of Public Works**

2018-2020 Transportation Network Service Delivery Review – Outcomes and Recommendations

RECOMMENDATIONS

1. **That Oxford County Council direct staff to proceed to consider and implement the Status quo plus B opportunities with the Area Municipalities in order to further optimize operational levels of service and cost efficiencies, as detailed in Report No. PW 2022-30;**

2. **And further, that Council direct staff to establish a municipal working group, comprised of County and Area Municipality staff, to encourage implementation of the Status quo plus B opportunities;**

3. **And further, that Council direct staff to pursue any necessary funding for implementation of the Status quo plus B opportunities as part of the 2023 Budget process and/or future municipal modernization funding streams;**

4. **And further, that Council direct staff to annually report on implementation progress of the Status quo plus B undertakings.**

REPORT HIGHLIGHTS

- The purpose of this report is to provide Oxford County Council with specific recommendations and outcomes pertaining to the independent joint Transportation Network (Roads and Bridges) Operations and Maintenance Service Delivery Review (SDR) project.

- Oxford County aligns its arterial transportation network levels of service with the provincial Municipal Maintenance Standards (MMS) for Municipal Highways regulation (*O. Reg 239/02*) and associated road classes. The MMS road classification impacts the required levels and cost of service in each respective municipality as each municipality will need to maintain roads to different road class MMS (i.e. Class 1 road = Highest Class road which requires the highest MMS levels of service).

- Approximately 85% (1,049 km) of the arterial transportation network operated and maintained by the County across the rural municipalities are Class 2 and Class 3 roads. While a small portion of the County's Class 2 road network is being operated and maintained by Woodstock (9 km) and Tillsonburg (2 km) respectively, the majority (84%) of the road network operated and maintained by the urban municipalities is comprised of Class 3 and Class 4 roads which generally require a lower MMS level of service.

- Despite having a significantly lower proportion of higher class roads, the overall average maintenance costs (per lane kilometre) by the three urban municipalities are higher than Oxford County's average costs to maintain the arterial road network across the five rural municipalities. In comparison, the overall average road maintenance costs (per lane kilometre) by the five rural municipalities are lower than Oxford County's average road maintenance costs and representative of their lower MMS road classes.

- The SDR carried out a formal comparative analysis of the road and bridge/culvert maintenance activity costs across the nine municipalities to determine level of service performance and service cost effectiveness. However, the overall cost and levels of service for all current state maintenance activities (especially winter control) could not be fully allocated to specific transportation network assets (by comparable MMS road class) due to a lack of data maturity in some areas. Due to these limitations, implementation recommendations pertaining to the Status quo plus A (defined as Status quo plus in the SDR) or the three alternative service delivery models studied in the SDR were not considered.

- Alternatively, a number of general opportunities (Status quo plus B) were identified that could be further explored by the County and its Area Municipalities. These opportunities involve considerations for service yard facility optimization, joint procurement/contracted service bundling, performance monitoring, levels of service identification, organizational structure review and implementing technologies to link maintenance activities to specific road/bridge assets (i.e. activity based costing by road class).

Implementation Points

Subject to approval of the recommendations contained in this report, staff will continue to work with Area Municipality staff to consider and implement the Status quo plus B (modification to Status Quo Plus in the SDR) opportunities identified in Report No. PW 2022-30.

Staff will also pursue any necessary funding for implementation of the Status quo plus B opportunities as part of the 2023 Business Plan and Budget process and/or future municipal modernization funding streams.

Financial Impact

Based on 2018-2020 data collected by study's consultant, KPMG, in conducting the SDR, the County's average net total expenditures to operate and maintain its arterial transportation network (roads and bridges) was approximately $5,045,000. Of this, Oxford County contracts a portion (~103 km) of its arterial transportation network road and bridge operation and maintenance activities to the three urban Area Municipalities (Ingersoll, Tillsonburg, Woodstock) within their urban limits, at an average annual contract cost of approximately $502,000 (included in the overall expenditure above). KPMG derived comparative road and bridge maintenance efficiency metrics for each Area Municipality as part of the current state base case financials (2018-2020 average actual operating expenditures).

The comparative metrics (cost per lane km, cost per square meter of bridge/culvert surface area) generally reflect all of the operation and maintenance activities performed across each Area Municipality's total road network (total of local and/or arterial). However, activity based costing by specific road Class could not be further delineated within the overall road network totals since this level of information maturity does not currently exist within Oxford County or the Area Municipalities.

Table 1: Overall Arterial and Local Road Maintenance Cost Efficiencies

	2018-2020 Maintenance Activity Efficiency Metrics[1]		
	Summer Road ($ / lane km)	**Winter Road ($ / lane km)**	**Bridges/Culverts ($ / m²)**
Rural Municipalities:			
Norwich	2,022	1,027	11.00
Zorra	1,479	1,841	2.00
South-West Oxford	2,074	874	1.00
Blandford-Blenheim	2,472	1,081	1.00
East Zorra-Tavistock	1,385	1,348	2.00
Urban Municipalities:			
Woodstock	2,754	2,025	10.00
Tillsonburg	3,139	2,655	2.00
Ingersoll	3,986	2,787	2.00
Oxford County[2]	2,016	1,732	3.80

[1] Overall maintenance activities performed on total arterial and/or local roads (3 year average)
[2] County arterial road network across five rural Area Municipalities, excludes urban service contract areas

In terms of high level quantitative analysis, the current state service delivery model was comparatively assessed with enhanced current state model scenario (Status quo plus A) as well as with three alternative model scenarios (Centralized, Localized, Full asset download) as shown in Table 2 (with rounding).

Table 2: Service Delivery Model Quantitative Comparative Analysis (with Rounding)

	Status Quo+ A	**Centralized**	**Localized**	**Full Asset Download**
Base Case Total Operating Expenses [1]	$ 21,006,000	$ 21,006,000	$ 21,006,000	$ 21,006,000
Scenario Total Operating Expenses	$ 20,737,000	$ 20,677,000	$ 21,758,000	$ 22,347,000
County Cost Increase / (Savings)	($ 284,000) (5.6 %)	($ 393,500) (7.8 %)	($ 412,500) (8.2 %)	($ 4,450,000) (89.2 %)
County / AM (global) Cost Increase / (Savings)	***($ 269,000)*** ***(1.3 %)***	***$ 329,000*** ***(1.6 %)***	***$ 752,000*** ***3.6 %***	***$ 1,341,000*** [2] ***6.4 %***

[1] Average annual historical operating expenditures between 2018 and 2022
[2] Excludes additional costs related to asset valuation, sale of assets, incremental facility modifications, etc.

Communications

As per Report No. PW 2022-18, KPMG actively engaged staff from Oxford County and its member municipalities throughout the independent SDR project to review and analyze existing transportation network (roads and bridges) operations and maintenance practices/processes, organizational structures, levels of service/performance outputs, risk, historical financial performance, etc., consistent with the Request-For-Proposal scope.

Through various joint and individual workshops, data and information sharing, staff team interviews and regular staff correspondence (email, phone), a number of comprehensive technical memorandums (TMs) were drafted, reviewed by staff teams and finalized over the course of the joint SDR study between September 2021 and March 2022.

The final SDR report was released for public consumption on March 18, 2022 as part of the March 23, 2022 Council agenda bundle release. As per a Transfer Payment Agreement requirement with the Ministry of Municipal Affairs and Housing (MMAH), the final SDR report was also publicly posted on the County website on March 18, 2022.

Through Report No. PW 2022-18 (March 23, 2022), the final SDR report was provided as information to Oxford County Council and was subsequently circulated to all Area Municipality Councils as correspondence information on March 24, 2022. Additional CAO correspondence regarding the SDR was issued on April 11, 2022 (refer to Attachment 1).

Since that time, KPMG provided formal information delegation presentations to the Councils of Town of Ingersoll (April 11, 2022), City of Woodstock (April 21, 2022) and Town of Tillsonburg (April 25, 2022) respectively. The remaining five Area Municipalities did not seek similar information delegations to their respective Councils. Staff considered SDR correspondence received from the City of Woodstock on May 24, 2022 (refer to Attachment 2) and Town of Tillsonburg on May 27, 2022 (refer to Attachment 3).

Following Council deliberation, Report No. PW 2022-30, along with any potential amendments, will be circulated to the Area Municipalities for information.

Strategic Plan (2020-2022)

					
WORKS WELL TOGETHER	***WELL CONNECTED***	***SHAPES THE FUTURE***	***INFORMS & ENGAGES***	***PERFORMS & DELIVERS***	***POSITIVE IMPACT***
		3.iii.		5.ii.	

DISCUSSION

Background

As per Report No. CS 2021-14, staff received direction from Oxford County Council on March 10, 2021 to seek Municipal Modernization funding to undertake a joint Transportation Network (Roads and Bridges) Operations and Maintenance SDR project in order to identify potential opportunities to modernize service delivery and reduce future operating costs. This joint SDR Project was one of six initiatives that was ultimately approved for provincial funding (June 30, 2021) under the 2021 Review Stream Modernization Project category.

The joint SDR project was facilitated and completed by an independent study consultant (KPMG) over approximately seven months (September, 2021 to March, 2022) through extended information sharing and collaboration with staff from Oxford County and its member municipalities. The objective of the SDR was to determine the most appropriate and cost effective way of operating and maintaining the regional (arterial) transportation network in the County while maintaining or improving service levels. As described in Report No. PW 2022-18, the SDR also provided a comparative analysis of three alternative service delivery models (Centralized, Localized, Full asset download), along with potential enhancements to the current state service delivery model (Status quo plus A).

Current State - Transportation Network Operations and Maintenance

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 (arterial) roads and bridge assets that are located within the urban limits of Woodstock, Ingersoll and Tillsonburg.

While there is one road authority (Oxford County), there are four road operators of the regional (arterial) road network. Oxford County operates and maintains the arterial transportation network (~ 1,185 lane km) throughout the 5 rural Area Municipalities. Woodstock, Ingersoll and Tillsonburg operate and maintain a portion of the arterial transportation network (~ 103 km) within their urban centres, on behalf of Oxford County, under urban road maintenance service contract agreements and are responsible for the provision of winter control, pavement marking, road signage and bridge/culvert, roadside and asphalt/shoulder maintenance activities.

A general overview of the transportation network infrastructure and operational staff levels are detailed in Table 3.

Table 3: 2020 Transportation Network Infrastructure and Staffing Levels

	Road Lane KM		Bridge / Culverts (m^2 surface area)		Operators – FTE		Operator per 100 Road Lane KM [3]
	Local [1]	Arterial	Local	Arterial	Full-Time	Seasonal [2]	
Rural Municipalities:							
Norwich	721	**312** [4]	1,383	**4,804**	10	0	**1.4**
Zorra	1019	**278** [4]	6,513	**5,969**	13	0.84 (2)	**1.4**
South-west Oxford	616	**188** [4]	2,141	**2,802**	8	0	**1.3**
Blandford-Blenheim	667	**208** [4]	1,778	**10,690**	5	1.25 (3)	**0.9**
East Zorra-Tavistock	435	**164** [4]	220	**4,145**	7	0.84 (2)	**1.8**
Urban Municipalities:							
Woodstock	486	**61** [5]	1,447	**2,879**	44	1.67 (4)	**8.4**
Tillsonburg	236	**16** [5]	5,126	**202**	8	1.25 (3)	**3.7**
Ingersoll	151	**26** [5]	2,344	**1,856**	10	0	**5.7**
Oxford County:	**-**	**1150** [6]	**-**	**28,437**	**22**	**3.33 (8)**	**2.1**

[1] Total lane KM includes paved and unpaved KMs
[2] Assumes seasonal operator equivalent to 0.4175 FTE
[3] Based on total number of local and/or arterial road KMs operated and maintained
[4] Arterial roads owned, operated and maintained by Oxford County
[5] County owned arterial roads operated and maintained by Area Municipality under service contract
[6] Excludes 103 km of County owned arterial roads operated and maintained by local municipalities and 35 km of arterial roads owned, operated and maintained by the County along the perimeter of the urban municipalities

Closely related to the above overview of the transportation network, the County arterial road network was further quantitatively delineated by Ontario Minimum Maintenance Standards for Municipal Highways (MMS) road classifications as shown in Table 4. As per *O. Reg 239/02 – Municipal Maintenance Standards for Municipal Highways* under the *2001 Municipal Act,* the MMS classification of roads (and associated road Levels of Service minimums) is solely based on posted speed and average daily traffic volume. Oxford County Council adopted this level of service on its arterial road network as per Report D-4 2003-148. The MMS road classification impacts the required levels and cost of service in each respective municipality as each municipality will need to maintain roads to different road class MMS standards (refer to Attachment 4).

Table 4: Arterial Road (County) Network Levels of Service Road Classification

	Arterial (County) Road Network by MMS Road Classification				
	Class 1 (km) [1]	Class 2 (km)	Class 3 (km)	Class 4 (km)	Class 5 (km)
Oxford County [2]	-	264 (21%)	785 (64%)	156 (13%)	28 (2%)
Woodstock [3]	-	9 (15%)	43 (73%)	7 (12%)	
Tillsonburg [3]	-	2 (12%)	3 (18%)	6 (38%)	5 (32%)
Ingersoll [3]	-		6 (22%)	21 (78%)	

[1] Road Class 1 (Highway 401) maintained by province
[2] County arterial road network across the five rural Area Municipalities and along the perimeter of the three urban Area Municipalities
[3] County owned arterial roads operated and maintained by the respective local municipalities

The arterial road network serves similar primary functions, to provide mobility, access and goods movement, in both small/medium sized urban and rural areas of the County. The arterial road network provides for movement for all vehicle types (car, truck freight, bus, farm machinery, emergency response, etc.) and supports all road users (motorists, cyclists, pedestrians, horse and buggy, motorcyclists, etc.). As highlighted in Table 5, there are also some arterial (County) road characteristics which differ in small/medium sized urban and rural municipality areas (including smaller sized urbanized settlements) that can affect how road maintenance activities are performed and levels of service is achieved.

Table 5: Comparison of Arterial (County) Road Characteristics – Rural and Urban Areas

Roadway Characteristic	Rural Municipalities	Urban Municipalities
Road Class:	Predominately Class 2,3 (1,049 km of 1,150 km)	Predominately Class 3,4 (86 km of 103 km)
Official Plan Right-of-Way Width:	30 m, Some multi-lane (30-40 m)	26 m Some multi-lane (30-40 m)
Traffic Flow:	Predominately free flow, except at signalized intersections, controlled stops and crosswalks. Higher operating speeds and lower traffic volumes.	Moderately free flow, except at signalized intersections, controlled stops and crosswalks. Lower operating speeds and higher traffic volumes.
Traffic Composition:	Mixed, including intercommunity transit, emergency response vehicles and slow moving vehicles.	Mixed, including local transit and emergency response vehicles.
Road Parking:	On-street parking in most Urbanized Villages.	On-street parking is limited in most areas.
Road Shoulders:	Largely gravel (some paved).	Predominately paved and/or grass boulevard.
Road Urbanization:	Curb / sidewalks (Urbanized Villages).	Curb / sidewalks (Towns, City).
Stormwater / Drainage:	Predominately open ditch and cross/entrance culverts. Buried stormwater infrastructure (catch basins, sewers, manholes) in Urbanized Villages.	Predominately underground stormwater infrastructure (sewers, catch basins, manholes).
Surrounding Land Features:	Largely rural open fields, naturalized areas. Smaller urban environment.	Predominately small/mid sized urban environment.
Environmental Considerations:	Many road segments within well head protection areas. Road segments more susceptible to high wind damage and blowing/drifting snow.	Few road segments within well head protection areas. Road segments less susceptible to wind damage and blowing/drifting snow.

Comments

As per the approved scope of the joint SDR project, KPMG qualitatively and quantitatively examined the effectiveness of the existing transportation service delivery model (base case) and compared it with three alternative service delivery models (Centralized, Localized, Full asset download) in terms of both operational levels of service performance and overall financial performance. KPMG also identified a number of potential enhancements to the current state.

Base Case Comparative Analysis - Transportation Network Operations and Maintenance

Approximately 85% (1,049 km) of the arterial transportation network operated and maintained by the County across the rural municipalities are Class 2 and Class 3 roads as shown in Table 4. While a small portion of the County's Class 2 road network is being operated and maintained by Woodstock (9 km) and Tillsonburg (2 km) respectively, the majority (84%) of the road network operated and maintained by the urban municipalities is comprised of Class 3 and Class 4 roads which generally require a lower MMS levels of service as per *O. Reg 239/02 – Municipal Maintenance Standards for Municipal Highways* under the *2001 Municipal Act*.

Based on the comparative analysis shown in Table 1 and respective road classifications (Table 4), it appears that the urban municipalities are performing levels of service (summer and winter road operation and maintenance activities) on both local and County arterial roads that is above the MMS road class requirements (higher overall cost per lane km assumes higher levels of service) when similarly compared to Oxford County which, in contrast, has a significantly greater proportion of higher class arterial roads. In comparison, the five rural municipalities appear to be performing a level of service on their local roads that is representative of the lower MMS road class (lower overall cost per lane km assumes lower levels of service) when similarly compared to Oxford County.

The overall costs for annual bridge and culvert maintenance on the County arterial road network were generally nominal in comparison to annual summer and winter road maintenance activity costs. Norwich and Woodstock had significantly higher bridge and culvert maintenance cost efficiency metrics ($10 to $11 per square metre) comparatively to the County and the other Area Municipalities ($1 to $3 per square metre); however, some of this over-variance may be due to higher salary and/or materials cost allocations during financial modelling.

The arterial road maintenance activities provided by the County across the five serviced rural municipalities may achieve service efficiency advantages related to more free flow of traffic, less urbanization (i.e. less lane curbs), and easier snow clearing (roadside snow storage). However, the County service in the rural municipality areas also faces several service efficiency challenges, such as large service area geography, open field snow drifting, surface stormwater drainage, shoulder maintenance (snow clearing, gravel shouldering) and road salt management within source water protection areas, all of which are not typically faced during service provision in the three urban municipalities. Accordingly, while the arterial road characteristics in the urban and rural municipality serviced areas qualitatively differ in some ways as noted in Table 5, the resulting impact to road maintenance activity costs within the two areas are generally offsetting.

The costs to undertake summer road maintenance activities generally should not vary significantly based on MMS road classification. Summer maintenance activities can be proactively and predictively scheduled based on MMS requirements and costs to perform road service activities should be similar despite road classification (i.e. costs to fix a pothole on a Class 3 road versus a Class 4 road will not vary significantly). On that premise, future road maintenance service contracts between the County and participating Area Municipalities, could consider employing a fixed price cost metric per lane km for summer maintenance activities (based on a representative lane km basis equivalent to County averaged costs ~ $2,016 per lane km).

However, costs to perform winter maintenance activities should increase for higher class roads due to the service reactiveness required under the MMS. Should winter control cost and levels of service data be allocated to road class in the future, allocation of winter maintenance costs could be based on a weighted lane km metric that reflects the effort required to maintain MMS levels of service by road class. Another approach to winter maintenance costing is to derive a variable cost metric per lane km that is annually tied to Environment Canada reported snowfall records (current approach by Waterloo Region). Either approach should be considered when future road maintenance service contracts are either established or renewed.

Aside from the above noted generalized inferences, the overall cost and levels of service for all current state road operation and maintenance activities could not be fully allocated to specific transportation network assets (by comparable MMS road class) given this level of information maturity (especially around winter maintenance activities) is not currently captured by the Area Municipalities and County by specific activity based cost allocation by road class (labour, fleet, equipment, fuel, materials, contracted services). In the future, this level of data maturity could be obtained through regular application of GPS technology, specific activity cost tracking and work order system integration based on road classification.

Alternative Service Delivery Model Comparative Analysis

The current state service delivery model was quantitatively (Table 2) and qualitatively comparatively assessed with an enhanced status quo (Status quo plus A) and three alternative models (Centralized, Localized, Full asset download). The analyses considered operational (summer/winter road maintenance and bridge/culvert maintenance), staffing and major equipment requirements under each scenario.

As shown in Table 1, each operational and maintenance (O&M) scenario was costed against the County's current historical summer maintenance cost metric which corresponds to the equivalent levels of service performed on the County operated arterial network. The comparative analysis assumes the County would only pay for O&M activities up to this level of service. Any Area Municipalities providing contracted service on the County arterial which chooses to perform service activities above this expected level of service would incur the associated additional costs.

Global O&M cost savings (County and Area Municipality combined) were anticipated under the Status quo plus A model (1.3% decrease ~$269 K) and the Centralized model (1.6% decrease ~$329 K) largely due to normalized levels of service costing for summer maintenance activities, operational efficiencies, and economy of scale savings (10%) derived from potential joint procurement and service bundling opportunities.

Conversely, global O&M cost increases were anticipated under the localized model (3.6% increase ~$752 K) and the Full asset download model (6.4% increase ~$1.341 M) largely due to additional staffing/major equipment resource requirements and higher costs related to levels of service. Some offsetting cost savings may be derived through increased operational efficiencies (5% - urban, 2% - rural) as well as economy of scale savings (10%) derived from potential joint procurement and service bundling opportunities. The full asset download model also excludes significant additional costs related to asset valuation, sale of assets, incremental facility modifications, tax impact assessments, reserve transfers, etc.

Under all of the above model scenarios, any cost expenditures related to additional major fleet equipment (i.e. snow plows, light duty trucks) and net staffing were annualized. While the scope of the assignment excluded analysis of any incremental costs of facility alterations to house any additional equipment, it is recognized the costs could vary substantively pending the service delivery model and would need to be studied in further detail.

Preferred Service Delivery Model Approach

As part of the approved SDR scope, normalization of arterial (County) transportation network levels of service was considered across similar MMS road class(es) within urban and rural municipality areas along with the associated maintenance cost to maintain the same. The associated maintenance costs to employ a consistent level of service could be estimated using a fixed price cost metric per lane km for summer maintenance activities and a variable cost metric for winter maintenance activities. While a level of data certainty existed with the normalized summer maintenance cost metric, more concern was raised by some Area Municipality staff over the accuracy of the normalized winter maintenance cost metric generated during the SDR and that more granular data analysis was required.

Although a variable cost metric for winter maintenance could be based on Environment Canada reported snowfall records, the urban Area Municipalities expressed a significant preference to seek greater accuracy of an actual winter maintenance cost metric before considering any application of the same to future urban road maintenance agreements as part of the Status quo plus A or Localized service delivery model approaches. In order to obtain this desired level of accuracy, additional work would be required by Oxford County and the Area Municipalities to monitor and track maintenance activities and service activity costs to specific transportation networks (by MMS road class). This work is similarly being requested by certain Area Municipalities to more fully confirm potential cost efficiencies associated with the Centralized service delivery model prior to any further consideration of that approach.

Lastly, as noted above, the Full asset download model is the most complex and least preferred alternative service delivery approach as it represents the highest impact to taxpayers and the nine municipalities.

Given the above considerations and potential limitations of the service delivery approaches studied in this SDR, staff support the consideration of a number of general opportunities (service delivery model denoted as **Status quo plus B**), as identified by KPMG, which could be further explored by the County and its Area Municipalities as follows:

- ***Facility Optimization*:**
  Pending the future state service delivery model chosen, the 16 road service/patrol yards could undergo a rationalization review to assess potential facility sharing and/or consolidation cost savings.

- ***Joint Procurement/Contracted Service Bundling*:**
  The County and Area Municipalities currently expend ~ $2.7 M of contracted services on an annual basis. Leveraging joint procurement for common outsourced maintenance activities (i.e. right-of-way maintenance, hard top maintenance, pavement markings) could result in savings of up to ~ 5 to 10% annually.

- ***Performance Monitoring:***
  Expand the County's performance measurement evaluation (KPI) framework for transportation network maintenance activities to more effectively monitor service performance and road/bridge asset maintenance.

- ***Identify Levels of Service:***
  Levels of service for transportation network related activities will be reviewed in preparation for the Phase 4 requirements of the *Asset Management Planning for Municipal Infrastructure Regulation (O. Reg. 588/17),* in order to identify current levels of service and the associated maintenance cost to maintain those levels of service.

- ***Linking Maintenance Activity to Specific Assets:***
  Utilization of technologies (GPS, work order management systems) to monitor and track specific transportation network assets, asset maintenance activities and service activity costs (i.e. labour, fuel, materials, fleet/equipment, contracted services) in order to ensure transportation assets are adequately and cost effectively maintained as per MMS levels of service requirements.

- ***Organization Structure Review:***
  Review organizational structure and resourcing opportunities to further optimize service delivery performance and cost.

While the above proposed Status quo B undertakings were not part of the SDR scope, they collectively offer a number of potential enhancements to the current state service delivery model that were not fully analyzed as part of the previously noted status quo plus A, centralized, localized or full asset download service delivery models. It is recognized that the Status quo plus B undertakings will require ongoing staffing resourcing and notable additional costs.

Potential reconsiderations of the status quo plus A or three alternative service delivery models studied in this SDR could be further informed at some point in the future using outcomes derived from the completion of the above proposed undertakings.

Conclusions

Despite having a significantly lower proportion of higher class roads, the overall average maintenance costs (per lane kilometre) by the three urban municipalities are significantly higher than Oxford County's average costs to maintain the arterial road network across the five rural municipalities. In comparison, the overall average road maintenance costs (per lane kilometre) by the five rural municipalities are lower than Oxford County's average road maintenance costs and representative of their lower MMS road classes.

However, the overall cost and levels of service for all current state road operation and maintenance activities could not be fully allocated to specific transportation network assets (by comparable MMS road class) due to a lack of data maturity in some areas with specific road/bridge maintenance activity based cost allocation (labour, fleet, equipment, fuel, materials, contracted services). The SDR findings suggest that future enhancements could be considered by utilizing GPS technology, specific activity cost tracking and work order system integration (based on road classification) to more fully acquire data maturity and inform future analysis.

SIGNATURES

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ATTACHMENTS

Attachment 1: CAO SDR Correspondence
Attachment 2: SDR Correspondence from the City of Woodstock
Attachment 3: SDR Correspondence from the Town of Tillsonburg
Attachment 4: Ontario Minimum Maintenance Standards Levels of Service