

To: Warden and Members of County Council

From: Director of Public Works

2022 Annual Waste Management Reports

RECOMMENDATION

1. That County Council receive Report No. PW 2023-18 entitled “2022 Annual Waste Management Reports” as information.

REPORT HIGHLIGHTS

- This report summarizes the annual performance of Oxford County’s waste management facilities and programs in 2022 and provides insight into operational and program needs anticipated within the next five years.
- Oxford County’s waste management facilities and programs provided effective services in 2022 and operated in general compliance with all applicable legislation.
- Based on the County’s current waste diversion activities, the County achieved an overall landfill waste diversion rate (of residential and Industrial, Commercial and Institutional (IC&I) waste material handled by Oxford County) of approximately 45% in 2022 and has an estimated remaining landfill service life of approximately 28 to 33 years.
- 2022 waste diversion achievements include the collection of 15,100 tonnes of leaf, brush and yard waste material, 8,050 tonnes of residential curbside blue box material, 15 tonnes of recycled bulky expanded polystyrene (Styrofoam) materials and 6.5 tonnes of film plastic material. Of note, the amount of waste material landfilled decreased by 5%.

Implementation Points

The “2022 Annual Waste Management Reports” will be submitted to the Ministry of the Environment, Conservation and Parks (MECP) in accordance with regulatory requirements and posted on the County’s website for public access.

Financial Impact







There are no financial impacts as a result of this report. Any required actions that will result in expenditures have been accounted for in the 2023 Operating or Capital Budget for Waste Management.

Communications

The 2022 Waste Management Annual Reports will be available for public viewing on the County’s website on March 23, 2023, at www.oxfordcounty.ca/wasteline. This Council report will also be circulated to Area Municipalities and Zero Waste Oxford.

The County communicates the performance of key Public Works systems (Waste Management, Water and Wastewater) annually to the public through an annual social media campaign after the last performance report has been submitted to Council.

Strategic Plan (2020-2022)

					
<i>WORKS WELL TOGETHER</i>	<i>WELL CONNECTED</i>	<i>SHAPES THE FUTURE</i>	<i>INFORMS & ENGAGES</i>	<i>PERFORMS & DELIVERS</i>	<i>POSITIVE IMPACT</i>
		3.iii.	4.ii.	5.ii.	

DISCUSSION

Background

Waste Management Services

As the Waste Management Authority, the County is responsible for residential curbside waste collection (garbage, recycling, large items) and management of waste generated within the County through landfill disposal, waste diversion, and resource recovery programs. The Oxford County Waste Management Facility (OCWMF) is operated by County staff and receives solid waste from residential and IC&I sources. Residential waste collection services are managed by the County through various contracts with third-party Contractors and municipal service agreements with Area Municipalities (City of Woodstock and Township of South-West Oxford).

Curbside collection of residential garbage, recycling (blue box) and large items is further supplemented by convenience depots located throughout the County where residents can drop off various waste materials (yard waste, film plastic, bulky Styrofoam, large items, recyclables, household hazardous waste, electronics, tires, and scrap metal). Convenience depots are operated by Area Municipalities on behalf of the County and are funded through the County’s Waste Management budget.

A summary of the County-wide residential waste collection services and associated County service providers is provided in Table 1.

Table 1: Residential Waste Management Collection Services/County Service Providers

Waste Collection Services		Ingersoll, Blandford- Blenheim, East Zorra- Tavistock, Norwich, Zorra	Tillsonburg	South- West Oxford (SWOX)	Woodstock
Garbage and Blue Box Service Providers	Curbside Collection	County Contractor <i>(weekly co-collection garbage & single stream recycling)</i>		South-West Oxford * <i>(six day co- collection garbage and single stream recycling)</i>	Woodstock * <i>(weekly garbage and bi-weekly two stream recycling collection)</i>
	Garbage Disposal	Oxford County Waste Management Facility (OCWMF) <i>(User Fees Apply)</i>			
	Blue Box Processing	County Contractor			Woodstock Contractor *
Convenience Depots Service Providers <i>(includes Blue Box, Cardboard, Film Plastic & Bulky Styrofoam, Scrap Metal, Household Hazardous Waste, Tires, Electronics, and Construction and Demolition)</i>		Woodstock Enviro Depot * <i>(User Fees Apply for Non Woodstock Residents)</i>			
		South-West Oxford - Beachville Fire Hall * <i>(Film Plastic Only)</i>			
		Tillsonburg Transfer Station * <i>(Excludes collection of blue box, household hazardous waste, tires, electronics) (Open to all County residents in 2023, User Fees for Non-Tillsonburg Residents)</i>			
		Oxford County Waste Management Facility (OCWMF) <i>(User Fees for Some Materials May Apply)</i>			
Leaf and Yard Waste Depots Service Providers	Collection	Ingersoll, Zorra, East Zorra- Tavistock, Blandford-Blenheim, and Norwich Leaf and Yard Waste Depots	OCWMF Leaf and Yard Waste Depot	City of Woodstock Leaf and Yard Waste Depot *	
	Processing	Oxford County Compost Facility			
Large Items Service Providers	Collection	County Contractor <i>(once annual curbside collection; Tillsonburg added in 2023)</i>			Woodstock * <i>(once annual curbside collection)</i>
	Convenience Depots	Woodstock Enviro Depot <i>(User Fees Apply) *</i>			
		Tillsonburg Transfer Station * <i>(Open to all County residents in 2023 with User Fees)</i>			
		Oxford County Waste Management Facility (OCWMF) <i>(User Fees Apply)</i>			
Processing	Oxford County Waste Management Facility (OCWMF)				

* Services provided by the Area Municipality under contract to the County

Curbside Waste Collection Services

As shown in Table 1, residential curbside waste (garbage, recycling, large items) collection service is provided by SWOX (except large items) and Woodstock by their municipal staff, and by the County's contractor (Emterra Group) in the remaining six Area Municipalities. Collection of garbage and recycling is offered to all households, including some multi-residential and commercial properties, provided they meet collection program requirements and are situated within an existing residential curbside collection route.

Emterra is currently in year three of a five-year contract with the County for curbside waste collection services that started in May 2020. In 2022, staff continued to work closely with Emterra to ensure appropriate mitigation measures and contingency plans were in place in order to address any level of service performance concerns associated with changing economic and labour force drivers (i.e. waste collection driver recruitment and retention pressures) and to ensure contract performance requirements were effectively met (refer to Comments section).

Blue Box Material Processing and Marketing

The County's waste management responsibilities include processing and marketing of Blue Box material from curbside collection and convenience depots. The County is currently under a five-year contract (2020-2025) with Emterra for the processing of Blue Box material collected from both the County and SWOX's curbside collection programs and the OCWMF convenience depot. Material is transported to Emterra's material recycling facility (MRF) where it is processed for end-markets, with the County receiving 85% of revenue generated recycled material sales.

Similarly, the City of Woodstock is currently under contract with GFL Environmental (GFL) for processing of Blue Box material from their curbside collection program and convenience depot. In 2022, County staff worked with City of Woodstock staff to negotiate a new contract with GFL to align with the terms of the County's processing contract in an attempt to maximize Blue Box revenue and reduce net operating costs by Woodstock which are billed back to the County under the contract service agreement.

Both the County and Woodstock's Blue Box processing contracts include requirements for semi-annual external third-party audits of curbside collection material streams. The audits are used for revenue calculations and to determine material contamination rates as an indicator of program efficiency. Similarly, the County's service agreement with SWOX requires semi-annual third-party audits of Blue Box material from their curbside collection program.

Transition of Blue Box Program to full Extended Producer Responsibility (EPR)

Starting in July 2023 and over the next three years, Ontario municipalities will begin transitioning all aspects of their Blue Box programs to full EPR, where Producers will ultimately be responsible for the end-of-life management of their products and product packaging under the new regulatory model. Oxford County and its eight Area Municipalities are scheduled to transition to full EPR on December 31, 2025. With the transition to full EPR by January 1, 2026, Ontario municipalities will no longer be responsible for managing and financing the traditional Blue Box program (collection and processing).

Staff will be presenting an interim update on the Blue Box transition to full EPR to Oxford County and respective Area Municipal Councils in Q2 of 2023. Following this, staff will be formally reporting to County Council regarding transition recommendations.

Environmental Regulatory Compliance

Operation of waste management facilities and waste diversion programs are regulated by the MECP through applicable legislation and issuance of Environmental Compliance Approvals (ECAs). Submission of annual reports to the MECP for various waste management services and activities is a regulatory requirement to demonstrate environmental compliance with associated legislation and specific ECA terms and conditions.

In accordance with regulatory requirements, the 2022 Annual Waste Management Reports, prepared for submission to the MECP, provide performance data on Oxford County's waste management facilities, operations, and programs. The pertinent regulatory requirement is referenced in each Annual Waste Management Report.

The annual reports generally include items such as:

- Received and/or processed material;
- Mapping of waste management facilities;
- Facility equipment and staffing;
- Summary of operational activities and services;
- Operational changes from previous years;
- Compliance issues and corrective actions taken;
- Complaints received and corrective actions taken;
- Monitoring data and analysis; and
- Required actions to ensure environmental compliance.

In addition to regulatory reporting requirements, staff provides County Council with annual Blue Box performance monitoring results for all County-funded Blue Box Programs as per Municipal Datacall Best Practices (BP).

Closed Landfill Sites

Oxford County owns the following eight closed landfill sites that were historically owned and operated at the lower-tier level and were transferred to the County in the early 1980s:

- Lakeside (East Nissouri) Landfill
- Embro (West Zorra) Landfill
- Thamesford (North Oxford) Landfill
- Blandford-Blenheim (Drumbo) Landfill
- Gunn's Hill (East Oxford) Landfill
- Otterville (South Norwich) Landfill
- Tillsonburg Industrial Landfill
- Holbrook Landfill

The local landfill sites noted above were closed prior to being transferred to the County, with the exception of the Tillsonburg and Holbrook sites that remained open and were operated by the County for a period of time until the OCWMF was opened in 1986.

Staff has been implementing monitoring at these sites as recommended in the 2019 Closed Landfill Inventory Report. This includes a phased approach for the installation of monitoring wells and associated monitoring programs as well as fencing and signage installation. Annual reporting of monitoring results to the MECP is not a regulatory requirement but is being completed to mitigate the County’s risk and potential liability.

Comments

Summary of County-Wide Waste Generation

Approximately 109,454 tonnes of waste (a decrease of 5,646 tonnes over 2021) was generated in Oxford County in 2022. Of the total amount of waste generated, 80,222 tonnes (a decrease of 5,933 tonnes over 2021) was processed at the OCWMF. The decrease in 2022 waste is attributed to waste quantities aligning to pre-COVID waste generation rates.

About 29,232 tonnes of waste was exported out-of-County (without direct handling at the OCWMF). This includes an estimated 26,190 tonnes of waste from the IC&I sector, disposed of by private haulers, and 3,045 tonnes of Blue Box material from the City of Woodstock’s curbside collection program exported directly to an out-of-County processing facility. Overall, approximately 27% of the total waste generated is being exported out of County.

A summary of County-wide waste generation in 2022 is depicted in Figure 1 with a historical summary of County-wide waste generation illustrated in Table 2. The total waste and large article generation tonnage per household (hh) for 2022 was 393 kg/hh for the entire County, representing a 2% increase over 2021.

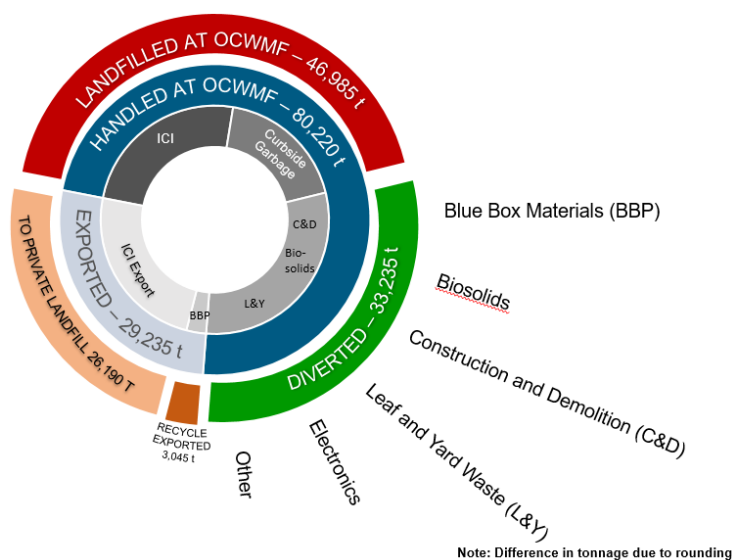


Figure 1: 2022 County-wide Waste Generation

Table 2: Historical County-Wide Waste Generation Summary (2018-2022)

Year	Total Waste Generated in Oxford County (tonnes)	Waste Exported out of County (tonnes)	Waste Processed at OCWMF (tonnes)	Waste Diverted & Recycle Exported (tonnes)	Landfill Diversion Rate
2022	109,454	29,232	80,222	36,280	45%
2021	115,195	29,040	86,155	40,095	47%
2020	122,610	26,025	96,585	40,320	42%
2019	104,520	29,355	75,165	32,405	43%
2018	96,400	28,400	68,000	31,400	46%

2022 Annual Waste Management Reports

The 2022 Annual Waste Management Reports have been generated to satisfy ECA terms and conditions and regulatory requirements, and will be submitted to the MECP by March 31, 2023.

These reports include a significant amount of technical information and supporting documentation by way of laboratory analysis and environmental monitoring data in order to satisfy MECP/ECA requirements. For the reports that include a substantial amount of technical information, executive summaries have been included to provide a short synopsis highlighting key findings and recommendations.

The annual reports are linked below, followed by a summary section for each.

- [Oxford County Waste Management Facility, Salford 2022 Operations & Monitoring Report \(Executive Summary\)](#)
- [Oxford County Waste Management Facility, Salford 2022 Operations & Monitoring Report](#)
- [Annual Monitoring Report, Landfill Gas Collection and Flaring System January 2022 – December 2022, Oxford County Waste Management Facility \(Executive Summary\)](#)
- [Annual Monitoring Report, Landfill Gas Collection and Flaring System January 2022 – December 2022, Oxford County Waste Management Facility](#)
- [2022 Water Monitoring Report, Holbrook Landfill, County of Oxford \(Executive Summary\)](#)
- [2022 Water Monitoring Report, Holbrook Landfill, County of Oxford](#)
- [Oxford County 2022 Permanent Household Hazardous Waste Depot Annual Report](#)
- [Oxford County 2022 Leaf and Yard Waste System Annual Report](#)
- [Oxford County 2022 Year-End Blue Box Waste Management System Annual Report](#)
- [2022 Due Diligence Monitoring Program, Oxford County Closed Landfill Sites](#)

Staff are pleased to inform County Council that in 2022, the County's waste management facilities and programs operated within environmental regulatory compliance and that no adverse environmental impacts were observed.

Oxford County Waste Management Facility, Salford 2022 Operations and Monitoring Report

- Approximately 80,220 tonnes of waste was handled at the site with approximately 33,235 tonnes being diverted and recovered as material resources. Overall resource recovery material brought to the OCWMF in 2022 decreased by 10% and landfilled material decreased by 5%.
- The total trips by all vehicles using the facility averaged about 3,635 per month in 2022, an increase of 5% compared to 2021.
- The film plastic drop-off program generated 6.5 tonnes of material in 2022 compared to 5 tonnes collected in 2021.
- The bulky Expanded Polystyrene (Styrofoam) program generated 15 tonnes of recycled packaging material for reuse in product manufacturing, representing a 36% increase over 2021 tonnages.
- The remaining landfill site service life in 2022 is calculated to be approximately 28 to 33 years based on the current landfilling rate and waste diversion rate (approximately 45%).
- There were no influences of leachate in the groundwater at the site boundaries.
- Private well monitoring showed no landfill influence.

Annual Monitoring Report, Landfill Gas Collection and Flaring System (LGCFS) January 2022 – December 2022, Oxford County Waste Management Facility

- The LGCFS operated as intended in 2022 and successfully controlled emissions even though volumes and concentrations of methane gas continue to remain low.
- The flare ran at an average flow of 110 cubic feet of gas volume per minute (cfm), down from 120 cfm in 2021 and an average 50.3% methane by volume, up from 42% in 2021.
- This slight change in performance can be attributed to the system being offline during the month of December for repair work to fix settlement issues causing stress on equipment located in the flare compound.

2022 Water Monitoring Report, Holbrook Landfill, County of Oxford

- There was no clear indication of leachate influence in the deeper groundwater system at the property boundaries and no landfill influence at the private well monitoring locations.
- No methane was detected in 2022.
- Staff will continue to perform inspections at this facility to ensure the site is secure and to assess for any potential environmental concerns.

Oxford County 2022 Household Hazardous Waste (HHW) Depot Annual Report

- The depot serviced approximately 5,765 vehicles, a 9% decrease over 2021.
- Approximately 148 tonnes of HHW material was collected, similar to 2021 tonnages.
- The City of Woodstock's HHW Depot was open 153 days in 2022 and collected 68 tonnes of HHW (decrease of 30% from 2021).

Oxford County 2022 Leaf and Yard Waste System Annual Report

- Over 15,100 tonnes of material was received, representing a 20% decrease over 2021. This decrease in material volume can be attributed to program tonnage resuming pre-pandemic volumes.
- Approximately 17,509 tonnes of finished compost was sold to the end market in 2022 and generated over \$350,000 in County revenue. The tonnage represents carry over material received late in 2021, processed in 2022, and received material in 2022.
- A total of 347 composters and 165 green cones were sold to residents, a decrease of 34% over 2021.
- Home composters and green cones are sold throughout the County at a subsidized rate of \$10 and \$50 each, respectively.

Oxford County continues to undertake backyard composting program education and outreach to help reduce the number of organics currently black bagged/landfilled.

Oxford County 2022 Year-End Blue Box Waste Management System Annual Report

- The recycling collection tonnage per household (hh) for 2022 was 163 kg/hh for the entire County, representing a 7% decrease over 2021.
- 8,050 tonnes of residential curbside Blue Box material was collected (6% decrease from 2021). Following the removal of contaminated material (residual waste) during processing, approximately 7,160 tonnes of processed material was sent to end markets.
- The contamination rate of the 2022 County recycling program is estimated at 11% and the SWOX recycling program is estimated at 3.5% based on third-party audit data. The average contamination rate for single-stream recycling programs is 14% based on industry audit data, placing the County's and South-West Oxford's contamination rate slightly below and well below the industry average, respectively.
- The contamination rate for the two-stream recycling program in Woodstock was estimated at 11% based on third-party audit data, placing the contamination rate well above the industry average of 7%.

Contamination rates of Blue Box material streams identify the amount of unacceptable material and/or material contaminated from food waste or other materials. High contamination rates can affect the quality of other processed material resulting in reduced market rates or potential rejection by end markets, which in turn reduces revenue and overall landfill waste diversion. High contamination rates need to be addressed through targeted promotion and education campaigns and increased curbside screening efforts to improve program efficiencies.

2022 Due Diligence Monitoring Program, Oxford County Closed Landfill Sites

In accordance with the recommendations contained in the 2019 Closed Landfill Inventory Report, monitoring programs have been implemented through a phased-in approach. This report summarizes the monitoring programs established for landfill gas, surface water, ground water and private well monitoring at each of the closed landfill sites. This report is not a regulatory requirement and therefore submission to the MECP is not required.

Highlights of the 2022 Due Diligence Monitoring Program, Oxford County Closed Landfill Sites report are as follows:

- Environmental monitoring was undertaken at the Lakeside, Embro and Thamesford closed landfill sites in 2021 of which no adverse effects were identified.
- In 2022, environmental monitoring was established at the Blandford-Blenheim and Gunn's Hill closed landfill sites of which no adverse effects were observed at the Gunn's Hill landfill site.
- Although no adverse effects were noted from the environmental monitoring conducted at the Blandford-Blenheim landfill site, it was recommended that monitoring of the surface water and shallow groundwater to the east of the site be continued in 2023 to observe parameter concentration trends of potential historic landfill impacts.
- In 2023, similar monitoring programs will be undertaken at the Otterville and Tillsonburg closed landfill sites.
- Additionally, regular monitoring of these closed landfill sites will continue for the purposes of establishing baseline data and identifying any trends.

2022 Accomplishments

Second Scale and New Scalehouse

Construction of the second scale and new scalehouse was completed at the OCWMF in 2022 and commissioned in January 2023. The outcome of this project will improve customer experience at the OCWMF by reducing vehicle wait times and will provide redundancy to minimize downtime for planned and unplanned scale maintenance.

Organics Resource Recovery Technologies (ORRT) Feasibility Study

An ORRT feasibility study was undertaken to identify a preferred alternative for the potential implementation of a County-wide organic waste diversion program to meet Provincial regulatory requirements by 2025. The study was completed by a third party consultant (GHD) and the proposed study recommendations will be brought forward to County Council later in 2023.

Curbside Waste Collection Contract (2020-2025)

As noted in the Background section of this report, the County's curbside collection contract has faced several challenges as a result of staffing issues related to COVID-19 isolation requirements and subsequent economic labour shortages. In 2022, staff monitored and tracked performance

issues and any occurrences of missed / incomplete collections over the course of the year. Detailed contract performance metrics in 2022 are summarized in Table 3.

Staff regularly addressed contract performance issues with Emterra to ensure that any curbside collection customer service issues or incomplete collections were either resolved on the same collection pickup day/next calendar day (in most cases) or carried over to the next calendar day (due to COVID isolation requirements, collection equipment breakdowns, staff shortages, heavy material volumes, etc.).

Table 3: 2022 County Curbside Collection Contractor Annual Completion Rate

Performance Issues		Ingersoll	Tillsonburg	Blandford-Blenheim	Norwich	East Zorra-Tavistock	Zorra	Total
Successful Route Completion Rate *	Q1	88%	88%	92%	90%	92%	90%	90%
	Q2	95%	90%	96%	90%	100%	94%	94%
	Q3	100%	97%	97%	100%	100%	100%	99%
	Q4	98%	98%	100%	100%	98%	100%	99%
Average Annual Completion Rate		95%	93%	96%	95%	98%	96%	96%

* Successful route completion indicates where the planned route curbside collection was completed on the designated pick-up day (no missed collections)

Daily curbside collection pick-up points ranged from 6,000 to 8,000 in urban areas and 3,000 to 4,000 in rural areas. Over the year, staff noted a substantive performance improvement in curbside collection level of service over Q3 and Q4, observing a successful pick-up completion rate ranging from 97% to 100%. The performance improvements seen over the course of the year appears to be related to a more stabilized contractor workforce due to recruitment efforts and compensation incentives implemented by Emterra as well as a stabilizing COVID work environment. A reduction in staff turnover appears to have translated into more consistent collection times due to driver familiarity with collection routes and a reduction in daily route completion times.

Repairs to Flare and Equipment Compound

Structural foundation repairs were completed at the landfill gas flare and equipment compound as a result of ground settlement that was first observed in 2021. Differential settlement of concrete equipment pads was placing stress on piping and associated equipment and increasing the risk of system failure. A Structural Engineer was retained to design and oversee the installation of a foundation structural support system (helical piles) to prevent any further settlement.

Advancing to Zero Waste

The County's landfill diversion rate is currently 45% and takes into consideration all waste managed through County Waste Management services (residential and IC&I). It is important to note that this diversion rate differs from what is published by the Resource Productivity and Recovery Authority (RPRA), known as the residential diversion rate which only takes into consideration residential generated waste.

The residential diversion rate (from curbside, depots, brush, leaf and yard waste depots, OCWMF) is estimated to be 55% and will be confirmed when the 2022 Datacall is verified in November 2023. The residential diversion rate has plateaued in recent years ranging between 52-57%.

To achieve the goals and objectives in the County's *Zero Waste Plan* as well as address provincial and federal regulatory requirements, the County will need to increase waste diversion efforts through the offering of innovative programs and technologies. As with the pilot projects for film plastic, bulky Styrofoam and – now in 2023 – agricultural plastics, the County will continue to look for ways to divert more hard-to-recycle material from landfill.

Conclusions

The 2022 Annual Waste Management Reports demonstrate that Oxford County's waste management programs and facilities continue to perform well and are in compliance with regulatory requirements. In addition, County operations and programs performed well and successfully diverted material from landfill.

To improve the County diversion rate and to achieve the County's Zero Waste goals and objectives, increased organic diversion is required. To support the County efforts to divert organic material from landfill, staff will be reporting to Council later in 2023 regarding the results of the County's Organic Resource Recovery Technology (ORRT) feasibility study, which assessed the viability of a potential Countywide organic waste diversion program.

SIGNATURES

Report Author:

Original signed by

Pamela Antonio, BES, MPA
Supervisor of Waste Management

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