THE CITY OF WINDSOR
ONTARIO, CANADA

Sustainable Procurement Guide

windsor environmental master plan

Contents

About this Guide

The City of Windsor is committed to enhancing environmental performance and facilitating social and economic prosperity through many of our plans, including the **Environmental Master Plan**, the **Climate Change Adaptation Plan**, and the **Community Energy Plan**.

Sustainable procurement is a key piece in supporting these objectives. Every day, employees of the City of Windsor are involved in purchasing decisions. Sustainable procurement is a way to express our environmental commitment.

In 2015, an **Environmental Purchasing** Policy was approved by City Council (MD210/2015). This policy was created to identify opportunities to address the challenges associated with climate change mitigation and adaptation. A sustainable procurement policy can also support the United Nations Sustainable Development Goals promoting Sustainable Cities and Communities. Every purchase can be a demonstration of leadership and a commitment to building a better economic system.

➢ Sustainable Procurement Defined

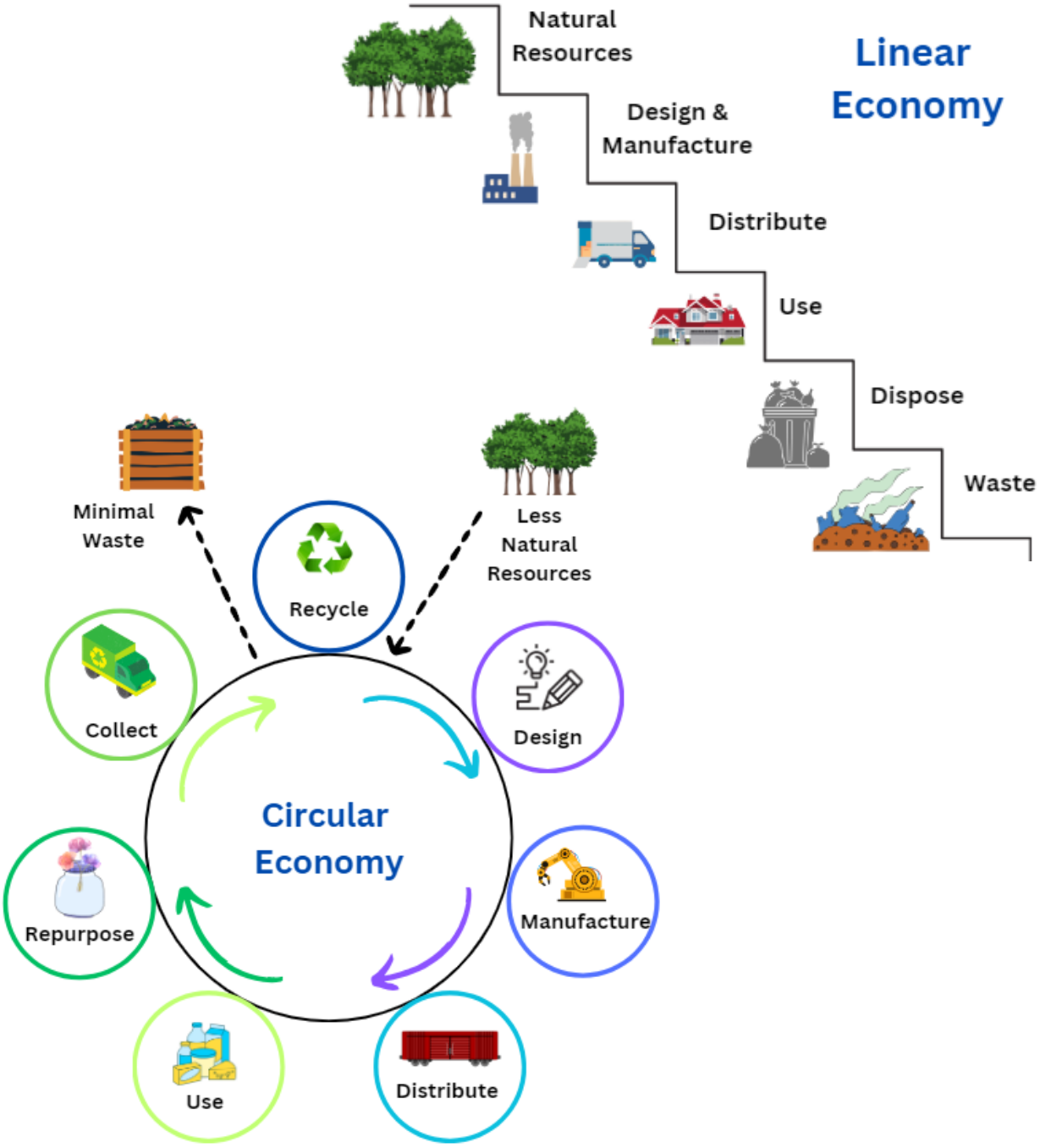
Sustainable procurement involves considering the costs and consequences of a product during all life cycle stages, from development and manufacturing through to use and ultimate disposal. With careful decision making, purchasing decisions can avoid unnecessary waste, harmful chemicals, and societal harm.

When we practice sustainable procurement, we evaluate potential purchases not only by standard criteria, such as price and performance, but by environmental and social criteria like embedded carbon and ethical sourcing.

Sustainable Procurement Factors		
Environmental Low carbon, low ecosystem impacts	**Social** Fair labour practices	**Economic** Lifecycle costs examined

The Goal: A Circular Economy

A circular economy is a model of production and consumption, which aims to minimize waste through sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible. Our current linear economy goes through products very quickly and creates a large amount of unused waste.



➢ Sustainable Procurement Benefits

Environmental Benefits

○ Natural Resource Conservation

Natural resources include but are not limited to oil, water, electricity, minerals, metals and lumber. Renewable alternatives like plant materials should be considered over non-renewables such as petroleum products.

○ Greenhouse Gas Emissions (GHG) Reduction

Reducing emissions is one of the goals of the Environmental Master Plan, the Community Energy Plan and Corporate Climate Action Plan. GHG emissions are present throughout the manufacturing, transportation, use and disposal stages of a products lifecycle.

Greenhouse Gas (GHG) Emissions lifecycle assessment

Completing an assessment that identifies the greenhouse gas emissions from all stages of a products life can be extremely useful for making purchasing decisions.

Scope 1 emissions are direct emissions that are owned or controlled by a company. For example: using gasoline to power your fleet. Scope 2 and 3 emissions are indirectly produced by the activities of the company, such as when electricity is used to run equipment or the end-of-life disposal of a product.

Scope 1

Scope2

Scope 3

Federal Government GHG Emissions Disclosure Standard for Purchases over $25 million

Canada is committed to achieving net zero greenhouse gas (GHG) emissions by 2050 to position Canada for success in a green economy and to mitigate climate change impacts.

As one of the largest purchasers in Canada, the federal government can leverage its procurement process to influence the demand for environmentally preferable goods and services, including those which reduce GHG emissions.

As a result, beginning on April 1, 2023, the GHG Disclosure Standard requires that process for procurements over $25 million CAD, including all applicable taxes, fees and options, induces suppliers to measure and disclose their greenhouse gas emissions and adopt a science-based target to reduce greenhouse gas emissions. To comply with the GHG Disclosure Standard, Contracting Authorities must ensure that the procurement process, for requirements valued over $25 million CAD including applicable taxes, fees and options, contingency and set-aside amount, includes solicitation or contract clauses which require or request that suppliers participate in a GHG emissions disclosure and target-setting initiative.

Government of Canada website, "Supply Manual, Section 3.65 Green Procurement Strategy" , 2023-04-20, Supply Manual | CanadaBuys

○ Minimize Waste

The City of Windsor, along with the Essex-Windsor Solid Waste Authority, continue to encourage waste reduction and increase waste diversion.

Waste reduction refers to limiting the waste we generate by:

- Limiting our overall purchases, especially disposable and single use items.
- Refusing to purchase and use styrofoam, plastics and other materials that are not recyclable in Windsor.
- Purchasing items with little to no packaging that requires disposal.
- Requesting the same of our suppliers and renters.

Ban on Single Use Plastics

The Canadian government is taking action to reduce the country's contribution to climate change and promoting more sustainable purchasing practices through the implementation of the single-use plastics ban.

In 2020, the Government of Canada announced their plan to ban six single-use plastics, including checkout bags, cutlery, ring carriers, stir sticks, and straws.

Waste diversion refers to directing your expired purchases and packaging out of the actual garbage and into the appropriate recycling, re-use or composting program.

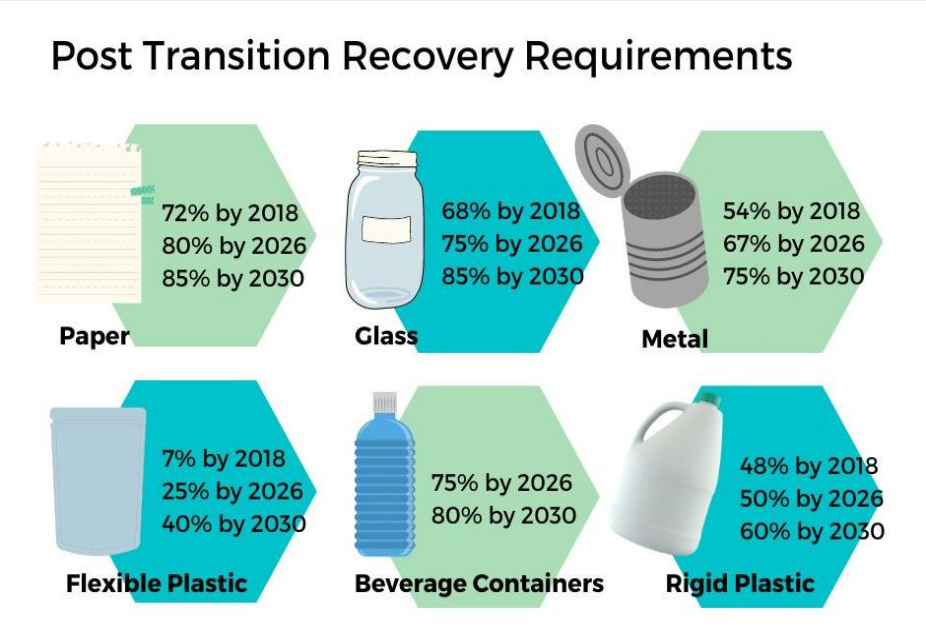
○ Support Recycling Programs

When we buy products with recycled content we help build and sustain markets for the materials collected in residential and business recycling programs. Recycling old materials into new products can save natural resources, energy and water, as well as reduce air pollution and the need for landfills or incinerators. By "buying recycled" we ensure a market for the materials we so diligently put into the Blue Box and other recycling programs.

Producer Responsibility

Ontario's existing Shared Industry Funding waste diversion program is transitioning toward a Producer Responsibility model. This means that in addition to designing, creating, and marketing products and packaging, producers will also be responsible for managing and paying for the full life-cycle costs of their products which includes disposal. This change sounds positive, and it can be, but there are some facts that buyers should bear in mind.

You may notice changes in the familiar packaging types of various products, specifically an increase in flexible packaging flooding the market. This is because the diversion targets for flexible packaging are far below those of other packaging types. In essence, the producer must capture a lot less of this material to achieve recycling targets.
For flexible plastic containers, like the stand-up pouch that has been slowly replacing many other packaging types, the producer must achieve a recycling recovery target of 25% by 2026, and 40% by 2030. These targets are much lower than those of rigid packing types. Producers are switching over to pouches in increasing numbers, and the majority of these will end up in the landfill.



For more information, read [Strategy for a Waste-Free Ontario: Building the Circular Economy | ontario.ca]

○ Minimize Toxicity

There are many product lines on the market that are certified to contain fewer toxic ingredients compared to the competition. Toxic products and hazardous waste are usually labelled as corrosive, explosive, poisonous or flammable. Purchasing hazardous waste should be avoided when possible.

There are also toxic chemicals found in various products such as household cleaners that may not be labelled. For example, "scent" or "fragrance" on a label can indicate the presence of up to 4,000 separate ingredients, most of which are synthetic compounds made from petroleum products. Many compounds in fragrance are human toxins and suspected or proven carcinogens (Canada Lung Association, 2011).

○ Protect Indoor and Outdoor Air Quality

Chemical pollutants can be found in our daily work environment both indoors and out. The primary sources of chemical indoor air pollution are janitorial products, office equipment, internal furnishings, paints and coatings. We can greatly reduce their persistence in our indoor environment by making more sustainable purchasing decisions.

Social Benefits

○ Fair Wages and Minimum Workplace Standards

Requiring minimum workplace standards for supplies and subcontractors can ensure that wages are fair and sweatshop conditions are avoided.

Economic Benefits

○ High Quality Materials can be Repaired or Upgraded

Purchasing items made from high quality materials ensures that the product will last. Ideally, the item can be repaired or retrofitted instead of discarded. Higher quality items have a lower lifetime cost.

○ Increased Demand for Environmentally Sound Products

People are becoming aware that their purchasing decisions can have a positive impact on the environment. As more buyers seek out sustainable products, industry standards will change to meet consumer demand.

○ Long-term Financial Benefits

Sustainable purchasing decisions applied throughout the corporation will help lower long term costs. These costs could include materials and utility costs, waste disposal costs, operating, maintenance and replacement costs. Sustainable purchasing will also increase operational and economic efficiencies.

➢ A Comprehensive Environmental Checklist

The following checklist, drawn in large part from Environment Canada's "Green Procurement Checklist", suggests a number of questions to consider when contemplating the purchase of a product or service.

1. Confirm the Need to Buy

- Is the product/service necessary? Can a repair be made instead?
- Have other options for meeting the need been explored? For example, is there a comparable product available internally?
- Can the product be shared, borrowed or rented?
- Is the quantity requested appropriate and sure to be used?
- Are all the features/elements necessary?
- Will the product be used to the end of its useful life? If not, can it be easily reallocated or donated?

2. Consider the Source

- Is the product locally manufactured?
- Can the product be purchased in bulk to reduce packaging?
- Can the number of shipments be reduced?
- How will the product be packaged and delivered?
- Is the product shipping from a far location?
- Is the vendor knowledgeable about sustainability or have a posted environmental action plan on their website?
- Is the vendor recognized by any third-party certifications for environmental stewardship (ex: Green Seal, Ecologo)?
- Is the vendor a non-profit? Do they have a mandate to deliver social value? (Often outlined through Community Benefit Agreements – CBAs)

3. Consider Environmental Attributes – Is the Product:

- Certified by the ECOLOGO program, Green Seal, Forest Stewardship Council (FSC) or other third-party certification?
- Is the embedded carbon disclosed? Is it carbon neutral/zero emissions?
- Made from recycled content?
- Energy efficient (for example, office equipment with a power-saving "sleep" mode)? Does its energy use compare favourably to other products in the same category? Does it have an energy star rating?
- Less polluting during its use than competing products (for example, non-toxic, scent free cleaners)?
- Free from hazardous ingredients that would require special disposal (for example, mercury)?
- Free from resources that come from environmentally sensitive regions (for example, contains no lumber from tropical rainforests)?
- Durable, with a long service life?
- Easy to maintain in good operating condition?
- Economical to repair?
- Easy to upgrade?
- Reusable, or have reusable parts (for example, rechargeable batteries)?
- Packaged with the intent to minimize waste (for example, bulk packaging)?
- Packaged in recycled or recyclable materials?

4. Consider Disposal – Can the Product and Its Packaging Be:

- Reused or refurbished for further use (for example, furniture)?
- Resold or reallocated?
- Returned to the supplier for reuse, recycling, or recovery?

Quick Tips

➢ Assessing Life Cycle Impacts

Life cycle assessment (LCA) seeks to answer the question: What is the environmental burden of a product or service, from its design through to production and then final disposal? A LCA seeks to determine the impact of a product or service over its entire life, from "cradle to grave" as it is sometimes described.

Certification programs such as UL's ECOLOGO Program carry out life cycle assessments to evaluate existing products.

In a quantitative LCA the air, water and solid waste pollution generated when raw materials are extracted are all considered. The assessment includes the energy used in the extraction of raw materials and the pollution that results from manufacturing the product. It also accounts for environmental harm that might occur during the distribution and use of the product. Lastly, a LCA examines the solid and liquid wastes that are loaded on to the environment following final use of the product.

For larger purchases, it may be beneficial to hire a LCA company to do proper assessment.

Below is a table with some questions to consider when attempting to gain big picture insights into a product's total environmental impacts.

Qualitative Life Cycle Assessment	Lower Impact	Higher Impact
1. Natural Resources • What materials are used?	☐ Renewable	☐ Non-renewable
2. Manufacturing • What fuel source is used to power production? • Are there potential toxins in the production process? • Are workers treated fairly? • Is the product locally made?	☐ Clean energy ☐ Low potential health impacts ☐ Safe Working Conditions ☐ Local production	☐ Non-renewable energy ☐ High potential health impacts ☐ Unsafe working conditions ☐ Produced distantly
3. Transportation and Packaging • How complicated is the supply chain? • How much packaging is used? • Is the packaging recyclable?	☐ Short supply chain ☐ Little packaging ☐ Recyclable	☐ Long supply chain ☐ Lots of packaging ☐ Not locally recyclable
4. Use • Is the product durable? • Can it be repaired or repurposed? • Is it low-energy/efficient	☐ Durable ☐ Repairable/Can be repurposed ☐ Low-energy use	☐ Not durable ☐ Cannot be repaired or repurposed ☐ High energy use
5. Disposal • Is it recyclable? • Does it have any potential toxins?	☐ Recyclable ☐ Low potential health impacts	☐ Landfill ☐ High potential health impacts

➢ End of Use

It is very important to consider the ultimate disposal of the products you are purchasing. All inquiries about whether the product can be recycled in Windsor can be directed to the Essex Windsor Solid Waste Authority at www.ewswa.org or download the Recycling Coach App.

➢ Environmental Labelling

Shifting through all the products that claim to be "green" or environmentally safe" or "recycled" can be a daunting task. Products may be “greenwashing” if they claim to have a positive environmental impact when they, in fact, do not. It is important to research labels before relying on them to make purchasing decisions. Programs that examine multiple environmental issues throughout the entire lifecycle of the product are much more credible than those that make a claim about a single environmental attribute.

Thankfully, there are a number of organizations putting considerable time and effort into evaluating products and services based on environmental impacts. All the programs listed below developed their standards in an open, consensus-based process that considers multiple environmental issues.

Ecologo  	The ECOLOGO Program is a comprehensive, environmental labelling program originally initiated by Environment Canada. This program is now being administered by Underwriters Laboratories (UL). UL Environment’s ECOLOGO Certification is based on multi-attribute, life-cycle standards. All products certified to an ECOLOGO standard must meet or exceed each of the listed criteria before receiving the mark. For more information about the ECOLOGO program, visit the environment section of the UL website: http://industries.ul.com/environment.
Greenguard  	GREENGUARD Certification is also administered by UL Environment. This certification helps buyers identify interior products and materials that have low chemical emissions, improving the quality of the air in which the products are used. As the program transitions to UL, look for either of the logos on the left to represent the GREENGUARD certification. For more information about the GREENGUARD program. GREENGUARD® Certified | Sustainable Furnishings Council

Electronic Product Environmental Assessment Tool	EPEAT is a system to help purchasers evaluate, compare energy efficient electronics. EPEAT also provides a clear and consistent set of performance criteria for the design of products, and provides an opportunity for manufacturers to secure market recognition for efforts to reduce the environmental impact of its products. Visit www.epeat.net
Green Seal	Green Seal is an independent, non-profit organisation in the U.S., dedicated to protecting the environment by promoting the manufacture and sale of environmentally responsible consumer products. It sets environmental standards and awards a "Green Seal of Approval" to products that cause less harm to the environment than other similar products. For more information, visit Green Seal's web site at www.greenseal.org.
Forest Steward Council Canada	The Forest Stewardship Council works with Environmental, Economic, Social and Aboriginal organizations and individuals to set strict environmental and social standards for forests. By setting such Standards FSC creates an incentive for forest owners and managers to voluntarily meet the best social and environmental practices. By tracking Fibre from certified forests, through the FSC Chain of Custody system, FSC-certified wood, paper and other forest products can be sold with the FSC label by certified companies in the marketplace. Visit ca.fsc.org
Energy Star	The ENERGY STAR symbol is the internationally recognized and trusted mark of high efficiency. ENERGY STAR labels products such as computer CPUs, monitors, printers, copiers, fax machines and controlling devices that exceed energy efficiency standards. Other products with this label include lighting fixtures, appliances, and windows. For m more information visit www.energystar.gov
EnerGuide	EnerGuide is an official Government of Canada mark associated with the labelling and rating of the energy consumption or energy efficiency of household appliances, heating and ventilation equipment, air conditioners, houses, and vehicles. Many Canadians recognize the EnerGuide labels that allow them to compare the energy efficiencies of different household appliances and heating and cooling equipment. There is now a similar label on all new cars, vans and light duty trucks for sale in Canada. For more information about the EnerGuide family of programs go to the Office of Energy Efficiency web site at The EnerGuide label (canada.ca)

Fairtrade Canada	Fairtrade Canada is a national non-profit certification and public education organization that aims to improve the livelihood of farmers and workers in the developing world. The label is usually applied to products like coffee, cocoa, and bananas. Visit: https://fairtrade.ca/
Rainforest Alliance	Rainforest Alliance certification aims to improve economic, social, and environmental conditions of the planet while helping farmers and their forest communities. Visit their website: https://www.rainforest-alliance.org/insights/what-does-rainforest-alliance-certified-mean/
Canada Organic	A Government of Canada Certification that ensures products have more than 95% organic content and meet the Canada Organic Regime. To learn more about organic standards and labelling visit Choose Canada Organic: Promoting and protecting the organic sector
Cradle to Cradle	This certification is a multi-attribute eco-label that assesses a product's safety to humans and the environment and design for future life cycles. The program provides guidelines to help businesses implement the Cradle to Cradle framework, which focuses on using safe materials that can be disassembled and recycled as technical nutrients or composted as biological nutrients. Visit Cradle to Cradle ® | MBDC
CarbonFree® Certified	The CarbonFree® Product Certification label is aimed at increasing awareness of product emissions and recognizing companies that are compensating for their carbon footprint. The label was created in response to the growing market for eco-friendly products and consumer demand for transparent, credible, and readily accessible information at the point of purchase. By determining a product's carbon footprint, reducing that footprint where possible, and offsetting the remaining carbon emissions associated with the product, Carbonfund.org has created a meaningful, credible, and environmentally beneficial way for businesses to provide carbon-neutral products to their customers. Learn more at: https://carbonfund.org/carbonfree-product-certification/
Green-e	A third-party certification for purchasers of renewable energy. The program aims to provide accurate product information and assurance of quality. Visit their website: Green-e | Powering a renewable future

SGS Indoor Air Quality	Certifies interior products for low Volatile Organic Compounds (VOC) emissions. Typically used for building materials and furniture. Learn more at: Indoor Air Quality Certification | SCS Global Services
Level	A furniture certification program used to identify responsibly manufactured products. The LEVEL mark demonstrates that the product, the manufacturing facility, and the company achieve the necessary requirements for certification. Visit the BIFMA website: The LEVEL® Third-Party Certification Program for the ANSI/BIFMA e3 Furniture Sustainability Standard

➢ Other Strategies for Sustainable Procurement

Look into Cooperative Purchasing – Organizations of all size can collaborate to purchase goods and services collectively. This can save on costs, increase efficiency, and allow for greater access to goods and services. Municipalities can use their collective bargaining power to promote sustainability throughout the supply chain by setting a standard across the board. Look at what other cities are doing and try to work together.

Set Environmental Criteria in Bids – Assess the environmental impact of the products or services from the start. Judge suppliers on their sustainability practices and evaluate the potential long term environmental and social impacts of the purchase. Setting a weight to environmental criteria in bid considerations allows you to evaluate suppliers more deeply and will result in a better return over the lifetime of the product or service.

Track and Report your Sustainable Procurement Efforts – To improve your procurement decisions, keep track of your efforts. Count the number of sustainable purchases made, attempt to quantify greenhouse gas reductions, and continue to monitor the environmental impacts of your purchases. Consider reporting to stakeholders, department heads, councillors, suppliers, and the public.

Inform Vendors of Municipal Sustainability Objectives – Make it clear to vendors why sustainable practices should be adopted. Highlighting municipal policies can pressure the market to increase supplier accountability and stimulate the development of a more sustainable supply chain.

Acknowledge the Barriers to Sustainable Procurement – One of the main barriers to increasing sustainable procurement efforts is the lack of knowledge and awareness around the behind-the-scenes environmental and social impacts of purchasing decisions. This is further complicated when information is not properly transferred to new staff.

➢ Guidelines for Purchasing Specific Types of Products

General Building Maintenance

Building Maintenance is an area of municipal operations that has seen enormous changes since the advent of "smart buildings" and the increased focus on energy conservation and workplace safety. Gone are the days of buying paint, carpet or fixtures based on price alone. Purchasers now consider a wide variety of factors such as impact on the users of a facility, and the longer-term implications on operating budgets.

By and large, products containing commonly recognized "environmentally hazardous" elements (such as asbestos, PCB's or lead) are no longer offered for sale in Canada.

This section deals with the most typical "day to day" building maintenance purchases. They do not deal with heating, ventilation, or air-conditioning systems that are typically engineered under larger scale contracts and require specifications.

Paint

An Overview

Paints are among the most widely purchased products in building maintenance. Paints are sometimes called "surface coatings" in reference material on specifications, as this is the class of product to which they belong. Surface coatings include paints, stains, and varnishes.

Paint is produced in a highly regulated industry governed by several associations. Paint products are produced to specific industry standards that also incorporate environmental criterion. There are many types of seals of approval or guidelines on which to rely when purchasing such product.

These products range in environmental impact, but all have the potential to adversely affect the environment through improper use, waste, and end disposal.

- Latex and acrylic paints (water based) are generally considered less damaging to the environment than oil-based paints. All automotive paints used by the City of Windsor are water based.
- Oil based paints have traditionally been called "enamels", "stains" and "varnishes". Their application has generally been promoted because of durability in "tough wear" and adverse exposure conditions.
- Oil based paints in the past used lead as an additive. This is no longer the case.

- As paint dries, it releases any number of chemicals into the air including benzene, formaldehyde, toluene, xylene, and others. These chemicals can cause fatigue, headache, and flu-like symptoms. In extreme cases, the solvents and chemicals, which are known in the industry as VOCs (volatile organic compounds), are confirmed carcinogens or neurotoxins.

Potential Environmental Impacts

- Volatile organic compounds (VOC) and fumes.
- Unused product disposal, if not performed properly, could lead to environmental problems. Please bring unwanted paint to the Municipal Hazardous or Special Waste Depot at 3560 North Service Road East.

Things to Consider in Your Specifications

This is an opportunity to add clauses in paint specifications to address:

- Highest recycled content.
- Recyclable products with ECOLOGO, Green Seal or GREENGUARD certifications.
- Low or no fumes (off-gassing) and preferably no volatile organic compounds (VOCs).
- Desired absence of mercury or mercury compounds.
- Desired absence of lead, cadmium, chrome VI or their oxides.
- Longevity of application.

Disposal

- Hazardous waste should never be thrown in the garbage or flushed down the sink, toilet, or storm sewer.
- Leftover paint can be dropped off at the Household Chemical Waste building at 3540 North Service Road.

Insulation

An Overview

There are many thermal insulation materials on the market. They may be purchased as two types: plastic foam insulation or fibrous material. More thermal insulation is used now than in the past, as the trend has been to curb the use of energy and non-renewable resources.

In addition to the energy conserved by using insulation materials, increasing the use of recycled materials will reduce the amount of materials entering the waste stream and reduce total resource consumption. In the case of use of fibrous material and cellulose filler, recycled mixed paper has become a potential ingredient.

Potential Environmental Impacts

Potential environmental impacts include:

- Health hazards from dust and fumes during and after insulation.
- Energy and resource consumption in manufacturing the product.
- Incorporation of ozone depleting substances in the manufacture of the product.

Things to Consider in Your Specifications

This is an opportunity to add clauses in insulation specifications to address:

- Highest recycled content.
- Reusable or recyclable products with ECOLOGO or GREENGUARD certifications.
- Low or no fumes (off- gassing) and preferably no volatile organic compounds (VOCs).
- Note the R-value of the insulation. R-value is a measure of insulation's heat transfer. Consider how much you will need for the desired thermal performance and any space limitations.

Recycling and Reusing

Cellulose insulation is typically made up of about 80% recycled newsprint and 20% non-toxic, fire-retardant materials. The production process for making cellulose insulation is also less energy-intensive than for most other kinds of insulation. Cellulose insulation can be reused and repurposed on-site, assuming it has not been damaged. It is critical, however, to trust this process to experienced professionals.

Fibreglass insulation can often be reused if the material has not been compromised by moisture, which invites bacteria and mold, and reduces the ability to insulate.

Disposal

- Insulation cannot be recycled due to the fire-retardant materials it contains.
- Insulation can be dropped off at the Household Chemical Waste building at 3540 North Service Road.

Sealants and Caulking Compounds

An Overview

Sealants and caulking compounds are used to fill and seal joints in buildings and other structures. They are applied to accommodate relative movement and significantly reduce unintentional air exchange. They assist in lowering heating and cooling losses and conserving energy.

The very reasons that these compounds have been developed to be soft and pliable results in their environmental impacts. The compounds dry very slowly, thereby remaining pliable. While longevity of application is sought, their slow drying results in long duration of off-gassing due to VOC.

Potential Environmental Impacts

- Many sealants and caulking compounds contain volatile organic compounds (VOC) which off-gas (release fumes) after application. Increased levels of VOC in buildings have been attributed to the use of sealants and may contribute to reduced interior air quality.
- Unused product disposal, if not performed properly, could lead to environmental problems. Please bring unwanted sealants and caulking to the Municipal Hazardous or Special Waste Depot at 3560 North Service Road East.

Things to Consider in Your Specifications

This is an opportunity to add clauses in sealant and caulking specifications to address:

- Highest recycled content.

- Preference for products with ECOLOGO, Green Seal or GREENGUARD certifications.
- Low or no fumes (off- gassing) and preferably no volatile organic compounds (VOCs).
- Longevity of application.

Adhesives

An Overview

Adhesives come in many forms and mixtures and are used for bonding in fabrication, maintenance, and repair applications. Like sealant and caulking, many adhesives contain volatile organic compounds (VOC's) that, when released, may contribute to reduced interior air quality.

Adhesives may be specified as one component required to complete a building maintenance job (e.g., re-flooring) or as a part of a pre-assembled item (e.g., cabinetry). In both these examples VOC and fumes could be adverse or left-over adhesive could become difficult to dispose of.

Potential Environmental Impacts

- Volatile organic compounds (VOC) and fumes.
- Unused product disposal, if not performed properly, could lead to environmental problems.

Things to Consider in Your Specifications

This is an opportunity to add clauses in adhesive specifications to address:

- Preference for products with ECOLOGO, Green Seal or GREENGUARD certifications.
- Low or no fumes (off- gassing) and preferably no volatile organic compounds (VOCs)
- Longevity of application.

Disposal

- Please bring unwanted adhesives to the Municipal Hazardous or Special Waste Depot at 3560 North Service Road East.

Carpeting

An Overview

The vast amount of carpet manufactured and installed in North America is made of synthetic materials — nylon, polyester, and polypropylene (PP) face fibres with most backings being a sandwich of polypropylene fabric and latex, or vinyl. Most commercial carpet is made by bonding a face fibre to a backing fibre, using one of a variety of strong bonding agents. Nylon accounts for nearly two-thirds of the face fibre market, with PP being the next most used fibre.

Recycled content and recyclable carpet options each have their own merits and considerations, depending on specific need, location, and use. Nylon, polyester, and plastics are made from petroleum, a non-renewable resource. Since the face fibre backing can contribute up to 60% of the carpet material, purchasing a nylon face fibre with 100% recycled content backing is worth consideration.

Closed-loop systems, where used carpet fibre and backing are made into new carpet and backing (and which can be recycled into new carpet after its useful life) are important to consider. Leasing is another option for commercial applications; the manufacturer bears responsibility for replacing worn sections of carpet and recycling the used carpet.

Note that new developments have been made using recycled PET materials:

- 100 per cent of the yarn is extruded and spun from recycled polyethylene terephthalate (PET), principally derived from recycled soft drink bottles.
- Virgin fossil fuel raw materials are not needed to produce this carpet, saving several million barrels of crude oil per year.
- The carpet is finished with materials that do not contain formaldehyde.
- The carpet is dyed in high-pressure jet dye becks, eliminating the need for biphenyl ingredients as dye carriers. This method of dyeing uses approximately 66 per cent of the water needed for conventional dyeing.
- PET recycling does not generate nitrous oxide nor emit nitrous oxide into the air, so it does not contribute to ozone depletion or global warming.
- PET carpet production uses more than 40 million pounds of PET bottles per year that would otherwise have become landfill.

Potential Environmental Impacts

- Indoor air quality concerns from fumes given off by new or recycled synthetic materials may favour "natural materials" such as wool, cocoa matting, hemp, and similar materials.
- Conventional synthetic carpets are made from non-renewable resources.

Things to Consider in Your Specifications

This is an opportunity to add clauses in carpeting specifications to address:

- Any extraordinary requirements for natural products or materials.
- Highest recycled content.
- Recyclable products with GREENGUARD certification.
- Products that minimize volatile organic compound emissions.
- Carpet that is not SB latex-backed (latex without 4-PC content).
- Products that contain natural or vegetable dyes and additives.
- Colours that match natural soiling to hide dirt and stains.
- A minimum 10-year warranty.
- A minimum of 28 ounces per square yard for loop pile carpet and 34 ounces per square yard for cut pile carpet.

Disposal

- Carpet can be disposed of by dropping of at the Public Drop off Depot at 3560 North Service Road East.

Ceiling Tile

An Overview

Ceiling tiles generally fall under the product category of acoustical products. By requiring products to have at least a minimum percentage recycled content, the amount of material entering the waste stream and total resource consumption will be reduced.

Ceiling tiles are generally designed to be light, to be acoustically deadening, and to be durable and low maintenance. At one time ceiling tiles had high asbestos content. Ceiling tiles are continuing to improve with the advent of new recycling technologies. However older properties requiring maintenance may still contain some of this product. Some products now on the market have a minimum of 70 per cent recycled content (mineral fibre). They are durable and tear resistant, so they can be reused.

Potential Environmental Impacts

- Health hazards from dust and fumes during and after insulation.

Things to Consider in Your Specifications

This is an opportunity to add clauses in ceiling tile specifications to address:

- Desirability of tiles made from cellulose fibres, mineral and slag wool by-products and/or recycled fibreglass.
- Tiles that do not contain asbestos fibres.
- A high percentage of recycled content.
- Preference for products with GREENGUARD certification.
- Durable construction, low maintenance

Disposal

Tiles can be disposed of by dropping of at the Public Drop off Depot at 3560 North Service Road East.

Roofing

An Overview

Roofs tend to have low albedo but high emissivity, which means that they readily absorb solar radiation, heating both the roof and the building. This can result in elevated cooling costs, higher energy use, poor thermal comfort, and early roof deterioration.

Unlike traditional roofs, cool roofs are built with materials that give them high albedo and high emissivity in order to minimize the absorption of solar radiation, and to maximize the release of outgoing radiation. By doing this, cool roof applications help to minimize the urban heat island effect and keep the building cooler during the summer months.

Other concerns such as stormwater management can be addressed through the construction of garden roofs. Garden roofs are contained vegetation areas situated on built structures. They consist of many components including vegetation, a growing medium, filter, drainage system, root barrier, waterproof membrane, insulation, and structural support.

The City of Windsor has currently constructed both garden and cool roofs on our buildings. In general, when roofing materials are ready for replacement, efforts have been made to replace dark membranes with more reflective and cool alternatives.

Potential Environmental Impacts

- Depending on material specified, air quality may be impacted adversely during time of installation.
- Depending on material specified, off-gassing and VOCs may have a negative impact over longer term.
- Depending on material specified, there may be use of non-renewable resources.
- Disposal issues at end of product life span.

Things to Consider in Your Specifications

This is an opportunity to add clauses in roofing specifications to address:

- Highest recycled content.
- Preference for products with GREENGUARD certification.
- Preference for reflective or light-coloured material.
- Preference for low maintenance vegetation where feasible.
- Low or no fumes (off- gassing) and preferably no volatile organic compounds (VOCs)
- Longevity of application.

Disposal

- Roofing materials can be disposed of by dropping of at the Public Drop off Depot at 3560 North Service Road East.

Walls (Gypsum-dry wall)

An Overview

Gypsum-drywall is one of the most used building materials of the last 50 years. Many older facilities may still have plaster walls, but a combination of plaster and drywall is more the norm. Newer facilities likely have drywall construction as the norm.

Gypsum-drywall (called drywall or rock wall or gyproc) is made from gypsum-based filler sandwiched between membranes. While designed to be a particularly fast and convenient way of installing walls to a stage ready for a prime coat of paint, disposal of the walls has an environmental impact. In a landfill, drywall breaks down, emitting the readily recognizable rotten egg smell associated with sulphur. The gases formed create problems at landfills. Check with local suppliers to see if gypsum drywall is recyclable.

Building maintenance purchases regarding drywall will most likely not be influenced by specifications for a better drywall as the industry has well-accepted standards and the use of the ECOLOGO is prevalent.

Potential Environmental Impacts

- End-of-use disposal of drywall is a potential problem at landfills. Under wet conditions, sulfate from the gypsum can dissolve into groundwater ("leachate"). Foul-smelling gas - hydrogen sulfide – is created by the microorganisms that thrive in the paper in drywall.

Things to Consider In Your Specifications

This is an opportunity to add clauses in Gypsum-drywall specifications to address:

- A high percentage of recycled content - gypsum has many uses in building construction, soil amendment, cement, and manufacturing.
- Preference for products with ECOLOGO or GREENGUARD certifications.
- Signs of durable construction, low maintenance.

Disposal

- Structures built before 1978 may have asbestos (a carcinogen) in their joint compound. Have the material tested before attempting to remove it.
- Drywall materials can be disposed of at the Public Drop off Depot at 3560 North Service Road East.
- Consider using small quantities as fertilizer by removing the paper backing and grinding it to a powder. Gypsum is one of the main ingredients in fertilizer and can be beneficial to soil.
- Several municipalities including Oakville and Waterloo have gypsum recycling drop-off centres.

Janitorial Products

Janitorial products include cleaners, disposable papers and tissues that are used daily in most workplace settings. Environmental procurement can have a large impact here because of the larger volumes of product in this material category.

Many conventional cleaning products emit emissions of volatile organic compounds (VOCs). Choosing to purchase environmentally friendly cleaning products can make the workplace less toxic and reduce the potential for affecting employees with scent sensitivity.

Products range from general purpose cleaning agents to commercial and industrial strength cleaners to disposable papers and tissues. All of these products are commonplace and are also packaged for use in residential settings.

General Purpose Cleaning Agents

An Overview

The primary function of general-purpose cleaners is to remove soils from hard surfaces. Statistics indicate over 54,000 tonnes of general-purpose cleaners are consumed annually in Canada.

The major ingredients in general purpose cleaning products are surfactants, builder, solvents, and scouring abrasives. Surfactants lower the surface tension of the water, allowing the cleaning solution to penetrate and suspend soils.

Cleaning products on the market have been labelled "environmentally friendly" because they are phosphate free or are considered biodegradable. However, this determination has been difficult to assess in the past due to the lack of definitive standards for biodegradability and other environmental factors.

Potential Environmental Impacts

- May be a burden on the environment in terms of wastewater loading and treatment, emissions of volatile organic compounds (VOCs) and resource consumption.
- If surfactants are not easily biodegraded, they may persist and harm ecosystems.

Things to Consider in Your Specifications

This is an opportunity to add clauses in general purpose cleaners to address:

- Preference for natural products or materials like reusable towelling.
- Scent free products.
- Preference for highest recycled content (for example in paper products).
- Preference for concentrated materials or materials with recycled, or minimal packaging.
- Preference for products with ECOLOGO, Green Seal or GREENGUARD certifications.
- Preference for products that are biodegradable, not toxic, or chlorinated, and standardized as much as possible to reduce the number of chemicals in use.

- Preference for products that minimize volatile organic compound (VOC) emissions.
- Preference for products with minimal packaging in refillable or recyclable containers.
- Preference for larger sizes to use in refilling smaller, reusable containers.

Disposal

- Read product labels before disposing to check for any specific disposal instructions.
- Dispose of fibrous materials in the trash to avoid clogging toilets and drains and contaminating water supply.

Industrial and Commercial Cleaners

An Overview

Industrial and commercial cleaners are used primarily for facility and machinery cleaning. The selection of a cleaner is influenced primarily by the nature of the surface to be cleaned, the nature of the soiling, and the degree of cleanliness required. The key active ingredients in industrial and commercial cleaners are: surfactants (to lower water tension and allow cleaning solution to work), builders (to control water hardness and improve surfactant performance), alkalis and organic solvents.

Potential Environmental Impacts

- If the surfactants are not easily biodegraded, they may persist and harm ecosystems.
- Similarly, the products of degradation may also pose an elevated risk to the environment.
- Cleaners may have adverse impacts on aquatic systems and water quality if present at excessive concentrations.

Things to Consider in Your Specifications

This is an opportunity to add clauses in industrial and commercial cleaner specifications to address:

- Scent free products.
- Preference for products which are non-hazardous and low in phosphate.
- Preference for water-based cleaners over those of organic solvents with VOCs.
- Where biodegradability is requested, the product's ability to degrade at the disposal site must be evaluated based on specific criteria such as: time required to degrade, recognized test method used, degradation by-products, and overall toxicity of substances generated during the degradation process.
- Products of degradation and the product in question must not contain ingredients that are known to be damaging to the environment and/or the sewage collection or treatment facility.
- Preference for products that require only a small amount to clean well, over others that require a larger amount, provided that all performance criteria are met (e.g., concentrates).
- Cleaning products should be purchased in containers which are reusable (refillable), returnable or recyclable (where recycling programs accept the containers).

- Contracts for janitorial and cleaning services should specify the use of ECOLOGO, Green Seal or GREENGUARD approved products where applicable.

Disposal

- Read product labels before disposing to check for any specific disposal instructions or household hazardous waste requirements.

Disposable Papers and Tissues

An Overview

Statistics indicate that more than 500,000 tonnes of paper, including disposable paper, toilet tissue, kitchen towels, facial issues, table napkins and hand towels, are manufactured in Canada each year.

Alternatives in the choice of pulp finish, pulp and paper technology and emission control are available to manufactures. The ECOLOGO Program has developed five separate guidelines that address: toilet tissue, paper towels, facial tissue, table napkins and hand towels.

Potential Environmental Impacts

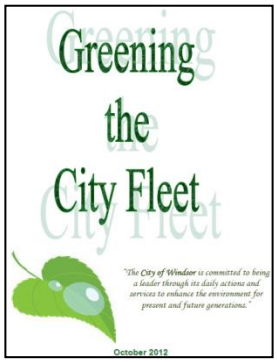
- Manufacture of product may release substances that contaminate the environment and enter the solid waste stream.
- Unsustainable forestry practices.

Things to Consider in Your Specifications

- A requirement for minimum recycled content.
- Bleach free products, for example brown paper towels instead of white.
- Environmentally friendly packaging.
- Preference for products with ECOLOGO, Green Seal or FSC certifications.
- Preference for Carbon Neutral products.
- Consider the use of reusable rags.
- Consider the products that use no or limited plastic packaging.

Vehicle Maintenance

"Vehicles and Maintenance" encompasses a category of environmental purchasing that addresses not only the procurement of environmentally friendly products, but also of improving performance of equipment so that it has the least impact on the environment.



The City of Windsor is committed to managing our fleet of vehicles more sustainably. In 2012, Council approved the Greening the City Fleet Plan which aims to better manage fuel consumption, find efficiencies within the fleet and consider purchasing more environmentally friendly vehicles. A "green fleet" is a fleet that tries to minimize fuel consumption and exhaust emissions by encouraging fuel efficiency and reduced use.

Environmental purchasing encompasses the search for more fuel efficient, less polluting **vehicles**. Similarly, environmental purchasing encompasses use of **high-quality components** during vehicle maintenance. This helps to ensure longer and cleaner service, lower maintenance costs, and less polluting waste. Examples include use of platinum tipped spark plugs, longer life coolant, (semi) synthetic transmission fluid, asbestos free brake pads, deep cycle batteries and higher quality gaskets. Use of synthetic engine oils and enhanced oil filters can double oil change intervals while prolonging engine life, decreasing fuel consumption, and providing longer catalytic converter life. Recycling of antifreeze, not common a decade ago is now becoming common practice in fleet maintenance. Moreover, all plastic containers and filters are picked up for recycling and all metal vehicle parts are recycled.

Environmental purchasing opens up the possibility for **alternative fuel** vehicles including electric cars, trucks and electric resurfacing machines. However, opportunities still exist for alternative fuel vehicles that currently do not have an electric option including propane, propane-gasoline, compressed natural gas (CNG), CNG-diesel, pure ethanol, E-85 ethanol, and bi-fuel combinations, sulphur free diesel. In the future, hydrogen, biodiesel, cellulose ethanol, oxygenated diesel and synthetic or waste derived diesel fuels may join these. All hold promises for less pollution, longer engine life, and maintenance economy.

Stop and think . . . about sustainable actions outside of purchasing new products.

Try to carpool or use public transit and active transportation methods such as walking and cycling instead of driving when possible.

Electric Vehicles

With technological upgrades to vehicles, and the establishment of widespread charging infrastructure, municipal fleet electrification is expanding. Positive business cases demonstrate that EVs can be less costly to own and maintain and contribute greatly to the City's GHG reduction targets. Additionally, they also provide economic, social and environmental benefits.

An Overview

These vehicles use electricity, typically stored in a battery, to power an electric motor. EV technology is used in hybrid electric vehicles, plug-in hybrid electric vehicles, and battery electric vehicles. The Government of Canada has set a mandatory target for all new light-duty cars and passenger trucks to be zero-emission by 2035, accelerating Canada's previous goal of 100% sales by 2040.

Potential Environmental Impacts

- Fully electric vehicles do not require fuel and do not produce greenhouse gas emissions during operation.
- Plug-in hybrids require significantly less fuel than gasoline vehicles.
- Both emit far less pollutants and contribute to improved air quality.
- Lower maintenance due to an efficient electric motor.
- Lithium-ion batteries contain heavy metals including cobalt, manganese, and nickel and must be disposed of carefully. These metals have the potential to be recycled indefinitely.

Things to Consider in Your Specifications

- When adding to the fleet, consider fully electric vehicles. While many still have a higher price tag than gasoline-fueled vehicles, the full lifecycle cost is much lower, as is the environmental impact.

Disposal

- Once at the end of the EV's batteries' lifecycle, get in touch with a local manufacturer's garage. They can provide a replacement and dispose of the battery.
- Old EV batteries have the potential to be used as energy-storage units for renewable energy.
- EV developers like Stellantis aim to recycle end-of-life vehicle batteries to recover rare minerals such as cobalt, nickel, and lithium through hydrometallurgy technology.

Case Study – City of Windsor's Community EV Charging Stations

Increased investment in electric vehicle infrastructure is a necessary and a critical component of the City of Windsor's efforts to electrify. Electrification provides numerous and diverse environmental and economic benefits. Increasing the number of EV charging stations is a goal laid out in the Community Energy Plan.

In 2021, at nine strategic and unique locations, 11 level-2 dual-connector electric vehicle charging stations were installed throughout the municipality. Currently, these stations offer free connection and are very closely monitored by the city to gather statistics and help provide potential future direction on this proposed model.

Specifications from the Windsor EV Charing Station Program:

- The units installed monitor energy use, control access, log total and unique user counts, and provide a pay-per-use function.
- The Proponent was required to provide a 1-year warrantee for the repair and replacement of units with manufacturer defects, full installation and commissioning services, training for system operation and ongoing support for the life of the units (10 years).
- The EV charging stations are mobile data connected instead of Wi-Fi connected for security reasons.
- As specified in provincial and federal grants, the charging stations had to be made in Canada, or the manufacturer's headquarters had to be in Canada.

Case Study - City of London Electric Zambonis

In 2021 London ON, introduced the first electric Zamboni that will usher in the transition to replacing its entire fleet of 14 ice resurfacers with electrical units from 2021 - 2023. The electric Zambonis are expected to have lower operating and maintenance costs, a longer service life, and reduce emissions roughly 19 tonnes annually, as well as improve health and wellness, and protect ecosystems and the community from climate change. As part of the transition, London will also begin exploring future conservation opportunities like rooftop solar-power generation to support the energy needs of the Zambonis.

This business case compared the total cost of ownership and total CO_2 emissions between natural gas and electrical units. Results revealed that the initial cost of the electric ice resurfacers was 32% higher than the conventional models, but an estimated $53,810 would be saved in operational costs for all 14 EV units over the 2021–2023 period.

Switching the entire ice resurfacer fleet to electric would also contribute to reducing 212 tonnes of GHG emissions annually, which accounts for approximately 25% of the City's corporate GHG reduction target.

Oils

An Overview

Used oil is Canada's single largest source of potentially hazardous material if not managed properly. Used oil can be collected, cleaned, and re-refined into new oil products.

Used engine oil is recycled by one of two ways:

- Re-refined for blending with additives.
- Re-used as a supplementary heating fuel.

Re-refined oils typically meet or exceed manufacturers' specifications for virgin crude oil, and they are generally less expensive to purchase.

Potential Environmental Impacts

- Decreased level of air pollution.
- Unused product disposal, if not performed properly, could lead to environmental problems.

Things to Consider in Your Specifications

This is an opportunity to add clauses in automotive oil specifications to address:

- Preference for products bearing the ECOLOGO.
- Assurance of product meeting SAE, API, or equipment manufacturer's specifications so that vehicle /equipment warranty is not affected.
- Service maintenance garages use re-refined and recycle used oil.
- Assurance from collection companies of final use for used materials and verification of the same.
- Assurance that collection companies are properly licensed.

Disposal

- Please bring unwanted oils to the Municipal Hazardous or Special Waste Depot at 3560 North Service Road East.

Tires

An Overview

Tires purchased for fleets of vehicles have the potential for affecting the environment from two standpoints. Product performance of the tires affects the environment in terms of use of rubber and petroleum resources and disposal, but the immediate secondary impact on fuel economy may have far greater consequences over the longer time frame. Typically, there is less pollution if the correct tire is chosen.

Tires are categorized into two types:

- Radial
- Bias Ply.

In addition, tires are broken into two groups:

- Smaller diameter tires used for passenger and service vehicles.
- Larger diameter tires used for transport vehicles and "off-road" heavy construction.

Both tire types have a wide range of environmental impacts. They have the potential to adversely affect the environment both through improper use, and end disposal.

- Radial tires are named such by virtue of their construction. The tire carcass is constructed in such a way that the belts, to which the actual rubber and tread are attached, are radial to the cross section of the tire. The belts have typically been made of steel. Because of their design and construction radial tires deform less than bias ply tires when rolling. This in turn causes them to heat less, wear out less quickly, and provide higher gas mileage. Typically, radial tires of good quality have a wear life of between 80,000 and 100,000 KM. Radial tires are more appropriate for use on paved surfaces and for wheels less than 19 inches.
- Bias Ply tires are named such by virtue of their construction. The tire carcass is constructed in such a way that the belts are wound on a bias to the cross section of the tire. Belts traditionally have been made of rayon or nylon but can also be made of steel. Because of their design and construction bias ply tires deform more than radial tires when rolling. In turn they heat more, wear out more quickly and provide lower gas mileage. They do however provide a much greater strength sidewall and are most appropriate for off-road use or where travel is frequently "over curb". Bias ply tires are typically better suited for high impact uses.

Regarding tire size:

- Smaller tires are easier to put into a recycling loop. They can be made into athletic track, artificial turf, flooring, and colour landscaping mulch among other things.
- Larger size transport tires and off-road tires can be reconfigured into "blasting mats" used in heavy construction. Transport regulations limit the number of times that a transport tire can be re-used. Typically, a cold vulcanization process is employed. Retreads that involve gluing material onto the carcass may be preformed 3 to 6 times depending on if the tires are used for steering or not.

Potential Environmental Impacts

- Higher use of non-renewable resource if incorrect type of tire is used.

Things to Consider in Your Specifications

This is an opportunity to add clauses in tire specifications to address:

- Highest recycled content.
- Vehicle manufacturer's recommendations such as size and type.
- Longer life and wear performance.
- Please bring unwanted oils to the Municipal Hazardous or Special Waste Depot at 3560 North Service Road East.

Disposal

- Unused product disposal, if not performed properly, could lead to environmental problems. Please bring unwanted tires to the Municipal Hazardous or Special Waste Depot at 3560 North Service Road East. For residential, commercial, industrial, and institutional users, 8 tires per year can be dropped off free of charge for recycling.

All tires from City of Windsor vehicles are recycled through the Ontario Tire Stewardship program.

Furniture and Office Systems

Office furniture and panel systems are made with any one or a variety of materials including gypsum board, metal, wood and wood-based products, plastic and fabric. As a result of the different materials that may be used in manufacture, various environmental issues must be considered.

The City of Windsor tries to re-use office furniture. Check with Facilities to see if they have anything you need before you buy it.

Office Furniture and Workstation Panel Systems

An Overview

The design and manufacturing of office furniture and panel systems can affect resource utilization, pollution, and worker health and safety. Waste generated because of manufacturing and disposal of these products can be minimized through reuse, remanufacture and recycling.

Office furniture can be useful for a long time if properly maintained. Workstation panel walls can be re-configured into new partitions or recycled. They may contain from 20 per cent to 50 per cent recycled materials. Vinyl board panels can be disassembled intact and ground up to produce gypsum board. Vinyl face and the drywall paper are either screened or burnt off to expose the gypsum for recycling.

Potential Environmental Impacts

- Materials used in office furniture and workstation panel systems may emit VOCs when installed, immediately impacting indoor air quality.
- Building agents such as resins used in composite wood products can also affect indoor air quality, but the use of veneers and laminates can help to minimize these effects, as can low VOC content or water based liquid surface coatings.
- Materials used in the manufacture, treatment, installation, and final cleaning of fabrics can contain VOC, which in turn become secondary sources of VOC emissions.

Things to Consider in Your Specifications

This is an opportunity to add clauses in furniture and panel system specifications to address:

- Re-use of existing furniture where possible and refurbishment if desired. Refurbishing eliminates the need to purchase new furniture and reduces the manufacturing processes (including the use of new materials) that have adverse effects on the environment. Check with Facilities to see if they have anything you need before you buy it.
- By promoting the re-use of existing furniture, used/surplus furniture does not go to the landfill.
- When new furniture is required, choose a company that demonstrates environmental responsibility in its manufacturing processes (i.e., on-site recycling centres for fabric, etc.).
- Request for re-usable or returnable packaging and shipping materials.

- When alternatives exist, avoidance of volatile organic compounds and PVC materials.
- Reusable demountable panel systems.
- Recycled content (the higher the better).
- Drywall that does not contain fibreglass reinforcement.
- Preference for products with ECOLOGO, Green Seal, FSC or GREENGUARD certifications.

Disposal

- Notify Facilities of excess office furniture for reuse opportunities. For home office furniture, contact local charities to determine if they are in need. .

Demountable (full wall) Partitions

An Overview

Demountable partitions are fully or partially prefabricated gypsum board-based units whose primary functions are to restrict vision, sound, and passage. These walls are 100 percent reusable. The most environmentally sound products feature:

- Materials that are 100 per cent reusable.
- An electrostatic powder coating system that collects and recycles over 95 per cent of paint overspray and contains no solvents, eliminating emission of dangerous air-borne particles.
- Excess fabric that is recycled as automobile insulation.
- Scrap gypsum that is recycled and reused.
- Panels shipped unboxed eliminating additional waste.

Potential Environmental Impacts

- End- of- use markets or deconstruction still to be proven.

Things to Consider In Your Specifications

This is an opportunity to add clauses in demountable partition tile specifications to address desirability of:

- Recycled steel framing.
- A fibre core made of recycled paper products.
- Paint applied by an electrostatic powder coating process.
- Longevity.
- Preference for products with GREENGUARD certification.

Disposal

- Notify Facilities of excess office furniture for reuse opportunities.

Office Equipment and Related Services

Office equipment consists of all the "hard" materials that make an office function. The items in this category focus on printing and printing services, and production of photocopies and facsimiles.

Photocopiers and Fax Machines

An Overview

Photocopiers and facsimile (fax) machines are widely used in both traditional office and home workplaces.

The variety of models on the market that perform "multifunction" tasks -- from acting as a photocopier, an answering machine, a fax machine, a computer printer or a computer scanner -- has made it possible for units to appear in the smallest of "home offices."

With improvements to the environmental friendliness of this category of product there should be reduction in waste-to-disposal, a reduction of chemical emissions and conservation of energy.

Potential Environmental Impacts

- Consume both significant quantities of energy and paper.
- Release emissions in the form of noise and chemical substances such as ozone.

Things to Consider In Your Specifications

This is an opportunity to add clauses in photocopier specifications to address:

- Preference for units that carry the ECOLOGO, Energy Star, EnerGuide or GREENGUARD certifications.
- Preference for multifunction units that reduce the need for additional machines to perform office tasks.
- Preference for photocopiers that make two sided copies.
- Consider the ink cartridge life cycle as well, including, how many copies the ink cartridge can make and if the ink cartridge is recyclable.

Disposal

- Please recycle unwanted photocopiers and fax machines for free at the Municipal Hazardous or Special Waste Depot at 3560 North Service Road East.

Printing Cartridges

An Overview

Printing cartridges are widely used in photocopy and facsimile equipment, as well as in laser printers. Statistics indicate that in Canada over one million cartridges are disposed of annually.

Cartridges are often thrown away once the toner inside the cartridge is used up or the "toner waste sump" is filled. This typically occurs after several thousand copies have been made, depending on the make and model of the printing cartridge.

Single use cartridges contain many components that are in perfect condition at the end of the expected life of the cartridge. The practice of re-manufacturing printing cartridges involves disassembling the unit, inspecting and cleaning components replacing or refurbishing the unit's organic photoreceptor cell and replacing the supply of toner.

Potential Environmental Impacts

- Most printer cartridges are not reused and end up in landfills.

Things to Consider in Your Specifications

This is an opportunity to add clauses in photocopier specifications to address:

- Preference for reusable cartridges. Consider disposal.
- Preference for units that carry the ECOLOGO.
- Preference for remanufactured print cartridges.

Disposal

- Most companies will take back used printer cartridges – ask the company you use if they do. Cartridges used at home can be returned to any Staples store for recycling.

Printing Inks

An Overview

Printing inks, used to produce an image on a "substrate" (usually a paper), are generally made of 3 components: pigments, "the vehicle" (the carrier and binding agent) and additives.

Pigment is the solid coloring that we see. The "vehicle" is the largest component of ink and acts as a carrier medium for the pigment as well as a binder to fix the pigment to the "substrate". Additives modify the performance of ink and include materials such as dryers, waxes, lubricants, reducing oils and solvents, binding varnish antioxidants and resins.

Potential Environmental Impacts

- The manufacture, use, and disposal of printing inks which contain heavy metals, petroleum distillates and volatile organic compounds (VOCs).

Things to Consider in Your Specifications

This is an opportunity to add clauses in ink specifications to address.

- Preference for units that carry the ECOLOGO.
- Preference for inks with lower levels of heavy metals and petroleum distillates.

Think Before Ink

Refrain from printing as much as possible and only print when necessary in order to save on material and energy resources. Instead, consider options such as:

- Shared drives which can be read or updated. Microsoft Teams has excellent features for collaboration with groups.
- Email attachments for collaboration and comment.
- Print only one hard copy and share between employees as needed.
- Print without the use of colour or print only the required pages from a longer document.

Office Supplies

Office supplies consists of all the "soft" materials that make an office function. The items in this category focus on the feedstock for office equipment.

Batteries

An Overview

In Canada, performance standards for batteries are published by the International Electrotechnical Commission.

Traditionally, batteries contained a high degree of mercury, a highly toxic metal. Mercury's toxicity to the environment increases when converted by microorganisms under anaerobic conditions to organomercury compounds. It is known to concentrate in organisms and magnify in food chains.

If batteries are not recycled, mercury found in batteries can end up incinerated or landfills. If incinerated, the mercury can end up back in the air; if sent to a landfill, it could potentially end up in groundwater or drinking water.

Potential Environmental Impacts

- Batteries may pose a threat to the environment during their production and disposal because of certain toxic substances. The major substance of concern has traditionally been mercury.
- Unused product disposal, if not performed properly, could lead to environmental problems.

Things to Consider in Your Specifications

This is an opportunity to add clauses in battery specifications to address:

- Preference for rechargeable batteries.
- Preference for distribution and end-of use disposal by the same contractor.

Disposal

- Please bring unwanted batteries to the Municipal Hazardous or Special Waste Depot at 3560 North Service Road East.
- Search the call2recycle drop-off locator for alkaline/single-use, rechargeable and eMobility batteries.

Not All Batteries are Recycled the Same

In 2020, Ontario made battery producers, importers, and brand owners responsible for the end-of-life management of their products. Call2Recycle® represents obligated producers and manages drop-off locations across Ontario and collects small household batteries. The Canadian Battery Association (CBA) accepts lead vehicle batteries.

If lithium-Ion batteries enter the lead battery recycling stream, there is potential for them to explode during the recycling process. These batteries require a different recycling method.

Envelopes

An Overview

Over 10 billion envelopes are produced in Canada each year.

The manufacturing process for envelopes involves production of the paper used as the main raw material, the printing processes and the chemical components of inks, adhesives and other materials used in the process. The manufacturing process has an impact on the recyclability of envelopes.

Potential Environmental Impacts

- Unnecessary end of use disposal of varying grades of paper and envelopes with mixed content (ex. Plastic windows).
- Unsustainable forestry practices.

Things to Consider in Your Specifications

This is an opportunity to add clauses in envelope specifications to address:

- Preference for products that carry the ECOLOGO or FSC certifications.
- Preference for products with stipulated levels of recycled content.
- Preference for unbleached paper.

Disposal

- Reuse envelopes whenever possible.

Printing and Writing Papers (and uncoated mechanical printing paper)

An Overview

Many City of Windsor facilities have chosen to purchase paper that is made from 100% recycled content.

For paper, the ECOLOGO Program has set out a guideline developed using a multi-parameter approach.

The guideline does NOT specify a minimum content of recycled material. That parameter has been incorporated into the calculation of resource consumption and waste production. (Performance in this area improves as the amount of recycled material increases.)

This method identifies the most important environmental stressors from all stages of the product life. The environmental requirements identifying pulp and paper aim to lower environmental impacts through:

- Reduction in air emissions.
- Reduction in water emissions.
- Reduction of waste.
- Efficient use of fibre and recycled fibre.
- Reduction of energy use.

Potential Environmental Impacts

- Production of all types of paper in pulp and paper mills consumes significant quantities of energy and resources.
- Waterborne and airborne emissions to the environment.
- Process generates significant waste.
- Unsustainable forestry practices.

Things to Consider in Your Specifications

This is an opportunity to add clauses in paper specifications to address:

- Preference for products that carry the ECOLOGO, Green Seal or FSC certifications.
- Preference for products with stipulated levels of recycled content.

Disposal

- Reuse printed pages for scrap paper by using both sides.

Lighting and Lighting Systems

With the use of energy efficient lighting products, such as LED lights, electric lighting costs can be reduced by as much as 90%. Newer lamps and ballasts are more energy efficient, generate less heat than older models and last longer. Savings are also incurred in lower labour costs for maintenance as well as lower air conditioning costs for removal of lamp and ballast-generated heat.

Lights

An Overview

Newer developments include these and other features:

- Electronic ballasts contain no PCBs, but disposal of old PCB ballasts is a concern.
- Instant start ballasts consume less energy than rapid start ballasts. Soft start technology gives the tubes a longer lifespan.
- Electronic ballasts consume substantially less energy when operating at very high frequencies. They hum less and do not flicker.
- Used in combination with T8 lamps, electronic ballasts consume 36 per cent less energy than conventional ballasts with T12 lamps.
- T8 lamps use 20 per cent less energy to provide the same amount of light as conventional fluorescents. They also offer better colour rendering.
- Parabolic louvers control glare while maintaining a level of light efficiency that exceeds IES and ASHRAE standards.
- Light-emitting diodes (LED) have a lifespan and electrical efficiency that is several times better than incandescent lamps, and significantly better than most fluorescent lamps. The heat-emission of LED lighting is considerably less than that of previous technologies.

Potential Environmental Impacts

- Higher energy costs with inefficient lighting fixtures or inefficient lighting design.
- Unused product disposal, if not performed properly, could lead to environmental problems. For example, compact fluorescents should be recycled due to mercury vapours contained inside.

Things to Consider in Your Specifications

This is an opportunity to add clauses in lighting specifications to address desirability of:

- Provincial and federal incentives and rebates should be explored before any LED retrofit program. Part of the cost may be reimbursed based on the energy savings.
- Use energy efficient lighting systems wherever possible, i.e., low wattage, reflective fluorescent or LED's.
- Ballasts not containing PCBs.
- Office design to optimize natural light as well as efficient placement of lighting systems.
- Automated dimming system that would respond to natural light (with photocell sensors)

- Task lighting to minimize need for overhead lighting. Use of T-8 lamps, compact fluorescents or LEDs are preferred.
- Preference for products with Energy Star, EnerGuide, or DesignLights Consortium (DLC) registered – possibility of receiving incentives/rebates.

Disposal

- Please bring unwanted fluorescent lights to the Municipal Hazardous or Special Waste Depot at 3560 North Service Road East.
- When disposing old fixtures, request a recycling certificate. The certificate provides proof that the fixture has been recycled and was not reinstalled somewhere else.

Construction, Renovation, Demolition

Construction and Demolition Waste

An Overview

Moving, renovating, and demolishing facilities can generate significant waste. Construction and demolition waste accounts for up to 25% of the waste stream. Reorganizations in offices and facilities both add to the challenge and open new opportunities to apply sound environmental practices. These practices can lead to improved energy efficiency and workplace and public facility standards.

Potential Environmental Impacts

- Poor waste management practices throughout any construction, renovation or demolition project will add to disposal volumes and their impacts on the environment.

Things to Consider in Your Specifications

Contractors should be required to submit a Waste Management Plan with their quotations. The plan should include:

- Procedures for educating workers and subcontractors to ensure adherence to the Waste Management Plan.
- Methods for reducing waste such as ordering material only as required, using up excess material on site where possible, prefabricating sections off site, or use of modular construction.
- The percentage of recycled content in construction materials.
- Methods and techniques for collecting, separating, and recycling waste materials and packaging, including a list of materials to be recycled and percentage expected to be recycled or sent to landfills.
- Provisions for dealing with hazardous waste, including procedures for handling, clean-up, and disposal.
- A list of carriers and disposal destinations for each material to be disposed of or recycled. The list should be provided initially or at least before the final payment is made. This will ensure that all materials are being recycled and waste is legally disposed of.
- Alternative options for recovering higher percentages of materials and related costs.

- The cost associated with the recovery of the material and the anticipated revenues from the sale of such material.

Embodied Carbon

An Overview

Embodied carbon is the sum of all greenhouse gases from resource extraction and transportation, building construction, renovation, demolition, and disposal. Operational carbon describes emissions that are released from keeping a building operational (i.e., burning of natural gas for heating, diesel for generators, etc.). These emissions are tracked in the Corporate Greenhouse Gas inventory.

Potential Environmental Impacts

- Currently, requirements for net-zero embodied carbon are lacking. This gap in knowledge may leave significant environmental costs outside of the project's scope.

Steps for Reducing Embodied Carbon

- Attempt to measure embodied carbon emissions across the buildings entire construction lifecycle by creating a Life Cycle Assessment.
- Establish a baseline and identify reduction targets.
- Adopt best practices and choose contractors who disclose supply chain data.
- Consider striving for a Leadership in Energy and Environment Design (LEED®) certification and create a building that will use significantly less energy.
- Look for contractors who use electric machinery.
- Find embodied carbon data in Environmental Product Declarations and substitute for materials that have a lower embodied carbon where possible.

Government of Canada's new green standards for major contracts

In a commitment to greening its operations and supporting Canada's transition to a cleaner economy, the Canadian Government has a new *Standard on Embodied Carbon in Construction* will require emissions reductions in all major government construction projects initially starting with concrete. The aim is to lower the projects total GHG emissions by at least 10% less than the regional average.

Suppliers that participate in Canada's Net-Zero Challenge or other approved internationally recognized standard or initiatives are preferred.

Case Study: The Non-Hazardous Demolition Waste Audit Report for 350 City Hall Square

The Old City Hall building stood from 1956 until 2018. During its demolition approximately 8149 metrics tonnes of solid waste, such as asphalt, brick, concrete, building materials, and scrap metal, were produced. Effective waste management was an integral aspect of the project. 62.6% of the solid waste, consisting primarily of crushed concrete, was reused. An additional, 34.5% of the solid materials were diverted from the landfill by recycling and processing. Only 2.9% of the non-hazardous solid waste was sent to the landfill. Ultimately, 97.1% of solid waste was diverted.

Some of the methodology applied included:

- Using clearly marked bins for the collection and stockpile of all materials selected for diversion.
- Taking care not to unnecessarily damage or cross contaminate materials.
- Using material tracking forms for each load.

Image and statistics from DST consulting engineers *Non-Hazardous Demolition Waste Audit Report Building Deconstruction and Abasement of Designated Substances Old City Hall Building 350 City Hall Square, Windsor Ontario,* 2020.

Parks, Recreation Amenities and Landscaping

Parks, landscaping, and recreation amenities are different than the other categories we have looked at so far. We must take into consideration their use by the public and by wildlife.

Pesticide, Herbicide and Fertilizer Use

An Overview

In 2009 the Province of Ontario imposed legislation on the use of commercial pesticides in an effort to decrease the amount of toxic chemicals entering our air and waterways. City of Windsor properties such as sidewalks and golf courses are exempt from this legislation. However, where possible, the city uses herbicidal vinegar on these areas, as well as on our parks and sports fields.

Significant amendments to the Pesticides Act and the Pesticides Regulation in 2020 included restrictions related to the use and sale of neonicotinoid-treated seeds, exterminator licensing, permitting and cosmetic pesticides.

In recent years, toxic blue-green algae blooms have occurred in Lake Erie. The blooms can cause the water to have a foul odour and pea-soup coloured foam. Phosphorus and nitrogen are the main plant nutrients that all plant types, including algae, need to grow. Phosphorus greatly influences the growth of algal blooms. For this reason, the City of Windsor uses fertilizer that is either very low in or does not contain Phosphorus.

Gardening with compost is a great way to add nutrients to the soil. Compost is the biological reduction of organic waste into an earth-like substance that makes great fertilizer, soil amendment, and most importantly, builds good soil structure. The Essex Windsor Solid Waste Authority produces Garden Gold Compost from the yard waste they collect. Garden Gold Compost is sold at the Public Drop Off Depot (3560 North Service Rd. E.) from April through November. Visit www.ewswa.org or call 1-800-563-3377 for more details.

Potential Environmental Impacts

- Unnecessary impact on the environment in the form of additional chemicals in the landscape and in surface runoff.
- Producing and using compost has a positive impact by turning millions of tonnes of our refuse into a food growing asset.

Things to Consider in Your Specifications

Currently, it is recommended that:

- Herbicidal vinegar be used where possible in place of any pesticides or herbicides.
- Fertilizer low in Phosphorus or Phosphorus free be used on parks and sports fields.
- Sustainable lawn management techniques such as dethatching, aeration, overseeding, hand weeding or mowing high be used where possible.
- Compost, preferably purchased at the Essex Windsor Solid Waste Authority, be used in place of fertilizer.

Playground Surfacing Material

An Overview

Replacing natural park surfaces such as grass or mulch with rubber is not recommended unless it is for compliance with accessibility requirements. Rubber does not provide benefits such as water absorption or evapotranspiration and will increase the urban heat island effect in parks, especially if it is dark in colour. The City of Windsor, in partnership with Health Canada, has completed multiple studies on the urban heat island in Windsor, specifically in our parks. These studies can be found at www.windsorenvironmentalmasterplan.ca. As part of one study, temperature measurements obtained using an infrared camera were taken of three different rubber surfaces in City of Windsor parks. On the same sunny, summer day, the temperature of the *Pouring in Place Rubber* surface at Captain John Wilson park was 69.0°C, the *SofTile* rubber in Meadowbrook Park was 60.5°C, and the *Rainbow Turf* used in Little River Acres Park was the coolest at 51.6°C.

If rubber must be used to comply with accessibility or other requirements, it is best to use recycled rubber, and rubber that is light in colour or has been proven to remain relatively cool on hot summer days.

Potential Environmental Impacts

- Increased urban heat island effect if used in place of natural material such as grass or mulch.

Things to Consider In Your Specifications

This is an opportunity to add clauses in particular application specifications to address desirability of:

- Preference for products that carry the ECOLOGO.
- Preference for products that are light in colour or proven to remain relatively cool on hot summer days.
- Preference for products with stipulated levels of recycled content.
- Refer to CSA Z614:20 (Children's playground equipment and surfacing) Annex K (Thermal Comfort) for additional guidance on reducing impacts of extreme heat under a changing climate.

Disposal

- Long term liability of difficult end-of–use disposal. Check with the Essex Windsor Solid Waste Authority to see if they recycle the product before you discard it.

Landscaping with Native Plants

An Overview

Native plants are species that have been growing in the region since before European settlement, have evolved with our climate and are well adapted to survive throughout the year, from intensely hot, dry summer months to cold winter months. There is a huge variety of native plant species to suit any type of environment. They range from shade tolerant to sun-loving and from drought resistant to species that thrive in wet conditions. Once established, they require less maintenance and watering than non-native ornamental plants. They are long-lived and readily re-seed themselves, coming back year after year.

Native wildflowers provide valuable natural habitat for a variety of wildlife and are an essential part of maintaining healthy biodiversity. They attract pollinator species like bees, hummingbirds, butterflies, moths, beetles, birds, and other insects. Canada is home to over 1,000 pollinators working constantly to move pollen from flower to flower allowing reproduction of the plant to take place and providing us with fruits and vegetables.

When purchasing native plants, shrubs, and trees for landscaping, it is important to ask if they have been treated with pesticides. Pesticide is harmful to the pollinator species that we are trying to encourage, so it is very important that these plants are not treated with pesticide. It is also important to ensure that any seeds or plants purchased are locally sourced to ensure that they are coming from the Windsor Essex region.

The City of Windsor currently grows our own native plants from seeds collected locally.

Potential Environmental Impacts

- The decline of pollinator species such as bees and butterflies is in part due to a decrease in their habitat. Native plants that are not treated with pesticide help provide a source of food for these important species in the form of nectar and leaves.

Things to Consider in Your Specifications

This is an opportunity to add clauses in particular application specifications to address desirability of:

- Preference for products that are native to the Windsor Essex region.
- Preference for native plants that have not been treated with pesticides.

Water Use

An Overview

Evapotranspiration includes water that evaporates from the soil and from transpiration from plants. If you know the evapotranspiration rate (Et) for a particular plant or landscape, you can fulfill the water requirements without overwatering and wasting water.

Consider irrigating in the morning when evaporation rates are low. Other water saving methods include adding 5-10 cm of mulch around plants and grouping plants with similar water needs together. Water thoroughly 1-2 times a week to encourage plants to grow deep roots.

Potential Environmental Impacts

- Maintaining green lawns wastes water, diminishes biodiversity, and can pollute the environment when herbicides/pesticides are used. Consider using native plants or allow the lawn to grow a little wild with “weeds.”

Ways to help manage stormwater:

- ### Install Rain Barrels

The City offers free downspout disconnection services and encourages residents to channel excess rainwater away from buildings, or into a rain barrel where the rainwater can then be used to water lawns and gardens. Consider rain barrel installation at municipal buildings and recreation centres to save and reuse water, while at the same time setting an inspiring example for residents to do likewise.

- ### Create a Rain Garden around a downspout

Rain gardens can help protect urban areas from flooding by allowing water to pool on a permeable surface. Roofs, roads, sidewalks, driveways, and parking lots cover much of the city. These impervious surfaces forces water towards storm drains. The system can be quickly overwhelmed during a large storm.
A sunken space with native plants, and water absorbing sand or soil mimics a natural ecosystem and can improve water quality and reduce erosion.

- ### Install a Green Roof

Green roofs can significantly reduce stormwater runoff. They also provide energy savings by reducing heating and cooling costs as the plant layer provides additional insulation. The vegetation also allows water to evaporate back into the atmosphere cooling the air.

Food

Our food system has become increasingly globalized over the past few decades. Whereas a century ago most food was consumed in a relatively short distance from where it was produced, our diets today consist of foods from all corners of the globe. The trend toward increasing distances between producers and consumers has prompted many to question the environmental and social sustainability of our food choices.

The Windsor Essex Economic Development Corporation has developed a "Grown Right Here" campaign to support local food in our region. Look for the label when making purchasing decisions and ask your supplier where the food you are purchasing comes from. Visit www.welookforlocal.ca for more information and for a map of local food producers and distributors in Windsor and Essex County.Food

An Overview

Agriculture and food systems are significant energy users and contributors to greenhouse gas emissions, which in turn are driving climate change. Local food initiatives decrease "food miles", defined as the distance that food travels from the location where it is grown to the location where it is consumed. Local food can be defined as food that comes from your own community, or that is produced regionally, provincially, or nationally.

Potential Environmental Impacts

- Keeping money spent on food grown or processed in the community supports local farmers and others in the food sector by creating jobs, income, and security.
- Ensures healthy foods are more available so people can meet their nutrition needs.
- When people buy local and eat foods in season, it helps to reduce greenhouse gases and improve air quality.
- Local farms help to increase biodiversity and encourage pollinators to the region.

Things to Consider In Your Specifications

This is an opportunity to add clauses in food purchasing specifications to address desirability of:

- Increased percentage of food that is grown locally.

- Increased local content in food purchases, measured in volume and categories of food.
- Selection of in-season produce.
- Support of local growers, producers, and small businesses.

Disposal

- Consider and plan to provide compost opportunities to dispose of organic materials.
- Investigate relationships to donate unused portions to decrease waste.

Food Packaging

An Overview

Many companies that purchase food packaging are moving away from polystyrene (foam) containers and cups that are made of plastic and not recyclable. As a result, there are a number of paper food packaging options available which are a much better choice for the environment. Plastic clamshells and cups are not as environmentally friendly as paper, but they are recyclable so they are a better option than foam. Plastic cutlery is not recyclable in Windsor. Purchasing cutlery made from biodegradable plastic or recycled plastic are better options.

A single-use plastic ban came into effect in December 2022 prohibiting the manufacture or import of checkout bags, cutlery, foodservice ware made from or containing problematic plastics, ring carriers, stir sticks, and straws (with some exceptions).

Potential Environmental Impacts

- Non-recyclable are a large draw on resources and will end up in landfill.
- Unsustainable forestry practices.

Things to Consider in Your Specifications

This is an opportunity to add clauses in food packaging specifications to address desirability of:

- Preference for paper products or where necessary, plastic products that are recyclable.
- Preference for products that carry the ECOLOGO or FSC certifications.
- Preference for compostable products
- Preference for products with stipulated levels of recycled content.
- Preference for unbleached paper.
- Preference for reusable containers.

Disposal

- Select only biodegradable or recyclable containers.
- Ensure recycling is appropriately sorted.

Compostable Product Certifications

Look for these certifications to ensure that “compostable” products will breakdown completely in a commercial compost facility:
ASTM D6400 Certified: This standard applies to products made from plastics that are designed to be composted in commercial composting facilities.

ASTM D6868 Certified: This standard covers laminated paper and sugarcane (bagasse) items that are designed to be composted in commercial composting facilities.

The City of Windsor will be introducing a curb-side collection program for organic waste in 2025. Until then, consider lowering your household waste by backyard composting.

Backyard Composting tips

Use a 50:50 ratio of brown (leaves/straw) and green (food or garden waste) materials. Don't forget to add water and stir occasionally. Do not add meat, dairy, oil, or fish

Visit the Essex Windsor Solid Waste Authority website at www.ewswa.org for more information

Sustainable Meals

- Bring a reusable cup and/or straw to your local cafe. You can often get a discount!
- Choose restaurants that use eco-friendly packaging for leftovers.
- Bring your own lunch in reusable containers.
- Replace single use items with reusable alternatives.

Single Use Items	Reusable Alternatives
Straws	Stainless steel or silicone straws, or go straw free
Coffee cups	Reusable cups and travel mugs
Coffee pods	Reusable, compostable or recyclable pods Look for organic, bird-friendly brews

Coffee filters	Cotton hemp fibre filter or reusable basket filter
Tea bags	Loose leaf tea with infusers
Plastic drink stirrers	Glass, bamboo or pasta stirrers
Plastic grocery or produce bags	Mesh, cloth, or reusable grocery and produce bags or bins
Plastic cutlery	Metal, bamboo, or compostable cutlery
Plastic sandwich bags	Reusable containers or silicone bags
Paper towel	Cloth rags
Plastic wrap	Beeswax food wrap

Sustainable Events

- Purchase biodegradable, compostable or recyclable cups and plates.
- Estimate ahead of time how many people will attend to minimize food waste.
- Consider choosing meat alternatives.
- Provide water refill stations rather than purchasing plastic bottles. Mark stations clearly.
- Encourage visitors to bring their own reusable bottle, give advance notice!
- Go straw-free.
- Do not use single-use packets of condiments (purchase large containers with a pump).
- Provide adequate recycling service at the event. Consider having volunteers sort waste. Make sure to have clear signs about these services.

Single Use Items	Alternatives
Balloons	Paper lanterns, recycled bunting, real flowers, etc.
Plastic dishware	Reusable plates, bamboo pulp plates, etc.
Disposable plastic cutlery	Reusable or compostable cutlery
Wrapping paper	Fabric gift bag, plain brown paper, old newspaper etc.
Plastic cups	Refill stations for reusable water bottles
Six pack rings for cans	Recyclable bottles or cans without the rings and single cans or cases made of cardboard
Stickers and signage	Reusable or paper signage that can be recycled
Paper invitations	Electronic invitations

Case Study: Can-Am Police-Fire Games Zero-waste event

In 2022 the Can-Am Police-Fire Games opening ceremony was designed to be a zero-waste event. The ceremony featured only biodegradable and recyclable materials, and staff were on site to receive and sort food packing containers to ensure that 100% of these materials were deposited into the appropriate receptacles and that no items were sent to the landfill.

Above: Volunteers sorting waste at the Zero Waste Depot during the Can-Am Police-Fire games.

Conclusion

The trend toward Sustainable Procurement is a global movement and has been in development for several decades. The science behind the consequences of our purchasing decisions, for many of the products and services commonly used, has been known for some time and efforts to practice ethical purchasing are in no way a recent invention.

Take for example the use of Styrofoam cups. City Council adopted a prohibition on the use of Styrofoam cups containing chlorofluorocarbons in 1988. It was made evident at that time, that chlorofluorocarbons were damaging the ozone layer, which protects that planet from excessive ultraviolet radiation.

It is often not the case that a lack of understanding is the reason environmentally focused decisions are not put into practice. People are aware that certain products and services are detrimental to environmental and social wellbeing, but they may place higher importance on cost, convenience and habit.

It is hoped that the significance placed on environmental and social procurement decisions can be increased with a better understanding of the principles of Sustainable Procurement, such as the Circular Economy, Scope 1, 2 & 3 Emissions, and the practice of Lifecycle Assessments.

It is through the seemingly mundane decisions we make everyday, such as whether to buy plastic or paper, that we influence the world around us, for better or for worse.

➢ The Sustainable Procurement Policy

1. POLICY

1.1 The City of Windsor recognizes the impact it has on the public market through the procurement of goods and services necessary for municipal operations. In 2006, City Council adopted the Environmental Master Plan (CR 12241/2006). The EMP calls for the development and implementation of sustainable procurement to further the City's goal to *Use Resources Efficiently*. The Sustainable Procurement Policy and Guidebook provides a framework for purchasing decision makers to encourage environmentally conscious decision making when purchasing goods and services.

2. PURPOSE

2.1 The purpose of this policy is to increase the development and awareness of environmentally preferred products and services, and align the City of Windsor's procurement practices with the Environmental Master Plan goal of resource efficiency by:

2.1.1 Recommending the inclusion of environmental criteria into the City's procurements where practicable;

2.1.2 Identifying and setting specifications for goods and services that achieve environmental benefits including but not limited to increased energy efficiency, reduced toxicity and pollution and minimized waste wherever possible;

2.1.3 Adhering to the principles of public procurement by continuing to support a process that is open, fair, transparent and competitive;

2.1.4 Striving to reduce the overall consumption of goods and services where possible;

2.1.5 Advancing a corporate culture at the City that recognizes and places a priority on becoming a more Environmentally Sustainable Community.

3. SCOPE

3.1 This policy applies to the purchase of goods, services and construction by all Departments.

3.1.1 Nothing in this Policy will require the procurement of goods, services and construction services, materials that do not perform to the operating specifications or requirements of the issuing Department or are not available at a commercially competitive cost.

3.2 This policy must be used in conjunction with the City of Windsor's Purchasing Bylaw.

4. RESPONSIBILITY

4.1 This policy will be used by the Purchasing Department, Environmental Sustainability and Climate Change staff, as well as all employees with procurement decision-making responsibilities.

4.1.1 All City Department staff responsible for procurement

a. Individuals with authority to approve procurement contracts, as well as those with purchasing responsibility, will apply the principles outlined in the Sustainable Procurement Policy and Guide to purchasing activities.

b. Share successes and challenges of Policy implementation with the Purchasing Department and Environmental Sustainability and Climate Change staff.

c. Identify and pursue opportunities to reduce consumption, increase efficiency and re-use of products in City operations.

4.1.2 Purchasing Department

a. Act as a resource and provide support to city departments in the implementation of the Sustainable Procurement Policy tasks listed above.

b. Develop and maintain resources including standard tender clauses and evaluation matrices.

c. Introduce the Sustainable Procurement Guide and the Policy during any Purchasing Bylaw training.

d. Guide the application of the Policy through promotion and awareness.

e. Discuss the progress, challenges and successes of the Policy with Environmental Sustainability and Climate Change staff.

4.1.3 Environmental Sustainability and Climate Change staff

a. Act as a resource and provide support to the Purchasing Department in the implementation of the Sustainable Procurement Policy tasks listed above.

b. Guide the application of the Policy through promotion and awareness.

c. Develop and maintain resources including the Sustainable Procurement Guide and any education and training tools.

d. Report successes and challenges during the implementation of the Policy in any Environmental Master Plan updates to Council.

5. GOVERNING RULES AND REGULATIONS

5.1 Implementation Framework

5.1.1 Using the Sustainable Procurement Guide as a resource, employees will bring ideas, information and recommendations forward and apply specifications to increase the sustainability performance of goods and services purchased by the Corporation.

5.1.2 As appropriate, employees will embed sustainability considerations into the City's procurement processes by:

a. Assessing whether or not the product, service or construction is necessary, prior to initiating the procurement process.

b. Assessing the Life Cycle Cost or the Payback Period of the product or service, wherever practical.

c. Formally requesting Environmental Criteria in Bid Considerations.

5.1.3 As appropriate, employees will specify goods, services and construction that:

a. Are Environmentally Preferred and have desirable environmental features such as those explained in the Sustainable Procurement Guide.

b. Meet third-party environmental standards and certifications. When third-party environmental standards and certifications are not available, Supplier declarations of environmental attributes, such as recycled materials content, will be considered.

5.1.4 When appropriate, incorporate sustainability standards into standard tender clauses and evaluation matrices to be utilized across Departments.

5.1.5 Where appropriate, consult the Essex Windsor Solid Waste Authority at www.ewswa.org or 1-800-563-3377 to learn more about which products can be recycled at the end of their use.

5.2 Definitions

Construction – Construction, reconstruction, demolition, repair or renovation of a building, structure or other civil engineering or architectural work and includes site preparation, excavation, drilling, seismic investigation, the supply of products and materials, the supply of equipment and machinery if they are included in and incidental to the construction, and the installation and repair of fixtures of a building, structure or other work, but does not include Consulting Services related to the Construction unless they are specifically included in the Purchase.

Contract – A document to evidence an agreement for the purchase of Deliverables, and includes both a Purchase Order and a Formal Agreement.

Environmentally Preferred – Means goods, services and construction that have less impact on the environment and human health over their life cycle when compared to competing goods, services and construction serving the same purpose.

Environmentally Sustainable Community – A community that provides a healthy environment for its citizens by minimizing the impact of its activities on the air, land and water systems while reducing the need to import natural resources.

Environmental Criteria in Bid Consideration – Formalized consideration of environmental criteria in the bid evaluation process or an acknowledgement of the preference for bids which identify relevant environmental considerations.

Goods – Any moveable property, including the costs of installing, maintaining or manufacturing such moveable property, including raw materials, products, equipment and other physical objects of every kind and description, whether in solid, liquid, gaseous or electronic form, unless they are purchased in connection with Construction.

Total Life Cycle Cost – An estimate or calculation that considers all direct and indirect costs of a deliverable over its useful life, from acquisition to disposal including Contract Prices, implementation costs, upgrades, carrying costs, maintenance contracts, support contracts, licence fees and disposal costs.

Payback Period – The period of time required to recoup the funds expended in an investment, or to reach the break-even point.

Purchase – The acquisition of deliverables by any means, including rental and leasing, and the functions that pertain to the acquisition of Deliverables, and "Purchasing" shall have a corresponding meaning.

Procurement – The process of locating and agreeing to terms and purchasing goods, services, or other works from an external source, often with the use of a tendering or competitive bidding process.

Services –Intangible products not having a physical presence.

Recycled Materials – Reprocessed materials made from discarded waste.

Supplier – A person, corporation or other entity that responds or intends to respond to a Solicitation or provides Deliverables to the City including but not limited to contractors, consultants, suppliers, service organizations.

Sustainable Purchasing – The process by which organizations buying goods, services and construction take into account the economic value of the good or service while also considering the environmental and social impacts of the good or service.

Third Party Certification – An independent assessment declaring that specified requirements pertaining to goods or services have been met. Examples include ECOLOGO certified by Underwriters Laboratories (UL) or Green Seal certified by an independent non-profit organisation.

Reference Material

I. www.buygreen.com
A site dedicated to providing information on "green" products and services, and tips on how to set up a green procurement program.

II. www.iisd.org/business/tools/bt_green_pro.asp
Hosted by the International Institute for Sustainable Development (IISD), this site encourages business people to develop a vision of a sustainable company, translate that vision into a management action plan and turn sustainability into a competitive advantage. It also provides a Green Procurement Tool Kit, developed by Manitoba Green Procurement Inc.

III. www.ewswa.org
The Essex Windsor Solid Waste Authority is your local source for recycling electronics, household chemical waste, scrap metal, tires, appliances and more. Check with them to see if the product you are disposing of is recyclable in Windsor.

IV. www.ecologo.org
The ECOLOGO certification website. This site is an excellent source for information on certified environmental products and services.

V. www.greenseal.org
This site includes Green Seal program standards and certified product database.

VI. www.ca.fsc.org/
The Forest Stewardship Council Canada certification website.

VII. http://oee.nrcan.gc.ca/energuide/15896
The website for the Canadian energy efficiency and consumption labelling program, EnerGuide. This site includes information on EnerGuide programs.

VIII. www.energystar.gov
The website for the U.S. energy efficiency and consumption labelling program, ENERGY STAR. This site provides lists of ENERGY STAR qualified products.

IX. www.ec.gc.ca
The Green Lane hosted by Environment Canada contains significant resources available on a wide range of environmental issues and topics. Visitors can use the search function to investigate green procurement resources and links.

X. www.epa.gov
The U.S. Environmental Protection Agency website. This site offers significant resources available on wide range of environmental issues and topics.

XI. www.iclei.org

An association of local governments dedicated to the prevention and solution of local, regional, and global environmental problems through local action, hosts this site. It provides resources and links addressing local environmental action.

XII. www.doingbusiness.mgs.gov.on.ca
The Government of Ontario's Green Focus on Innovation and Technology (GreenFIT) strategy from the Ministry of Government Services. This strategy will enable companies to provide innovative and sustainable technologies and solutions that government can consider as alternatives to its traditional purchasing.

XIII. http://www.sustainablefoodpolicy.org/
The Sustainable Food Purchasing Policy Project helps educational, health care and other institutional and commercial food buyers develop policies that support social and environmental responsibility in agriculture and the food industry.

XIV. http://welookforlocal.ca/
The Windsor Essex Economic Development Corporation has developed a "Grown Right Here" campaign to support local food in our region. This website has more information and a map of local food producers and distributors in Windsor and Essex County.

XV. https://www.nrcan.gc.ca/energy-efficiency/transportation-alternative-fuels/zero-emission-vehicle-infrastructure-program/21876
Zero Emission Vehicle Infrastructure Program – Government of Canada effort aimed at increasing the availability of charging stations.

PDF Reference Documents:

Green-Procurement-Report-3.pdf (cleanairpartnership.org)
Procuring Sustainability: A Close Look at Green Practices in Municipal Procurement, from the Clean Air Partnership, 2023. A reference guide to the sustainable procurement work of other municipalities in Canada.

Municipal-Green-Fleets-Business-Case_Final.pdf (cleanairpartnership.org)
Clean Air Partnership Briefing Note, October 2021. EV procurement guide.