



The Canadian Coalition  
for Green Health Care  
Coalition canadienne pour  
un système de santé écologique



Health  
Canada

Santé  
Canada

# 2022 Green Hospital Scorecard Awards Presentation



The Green Hospital Scorecard program is possible  
with support from Health Canada.



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# Agenda

## Introduction

- ☐ Green Hospital Scorecard Timeline
- ☐ Green Hospital Scorecard overview

## Award Ceremony

- ☐ Green Hospital of the Year
- ☐ Energy Efficiency
- ☐ Water Excellence
- ☐ Waste Management
- ☐ Pollution Prevention
- ☐ Leadership

## Top Performer Presentations

## Questions and discussion

- ☐ Q&A can be used for questions along the way

# Green Hospital Scorecard Timeline

March 2023

November 2023

December 2023

January 2024

2022 GHS call for data  
Data from the 2021  
calendar year

2022 GHS Scorecards distributed

GHS 2021 Awards

2022 GHS report



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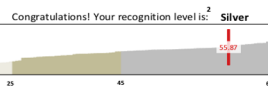


## Sample Hospital

Peer Group (PG): Community  
BEDS: 70  
AREA: 22,000 m<sup>2</sup>

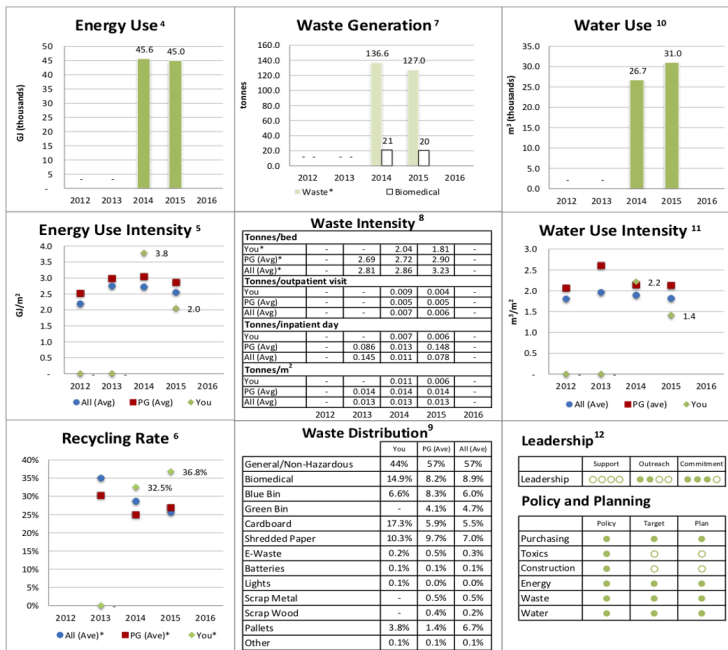


Energy Use (reported units) <sup>1</sup>	Reported	Conversion
Electricity	4,000,000 kWh	14,400 GJ
Natural Gas	800,000 m <sup>3</sup>	30,608 GJ
Purchased Heat	-	- GJ
Purchased Cooling	-	- GJ
Fuel Oil	-	- GJ
Propane	-	- GJ
Total Energy		45,008 GJ
Total GHG Emissions (tonnes of CO <sub>2</sub> e)		1,896
Acres of Mature Trees to Absorb CO <sub>2</sub> e		732



Your Hospital Performance Change from Last Year<sup>3</sup>

Leadership	Policy	Energy	Waste	Recycle	Water	GHG
(-16.7%)	(-11.1%)	-45.8%	-11%	13.1%	-36.3%	-2.8%

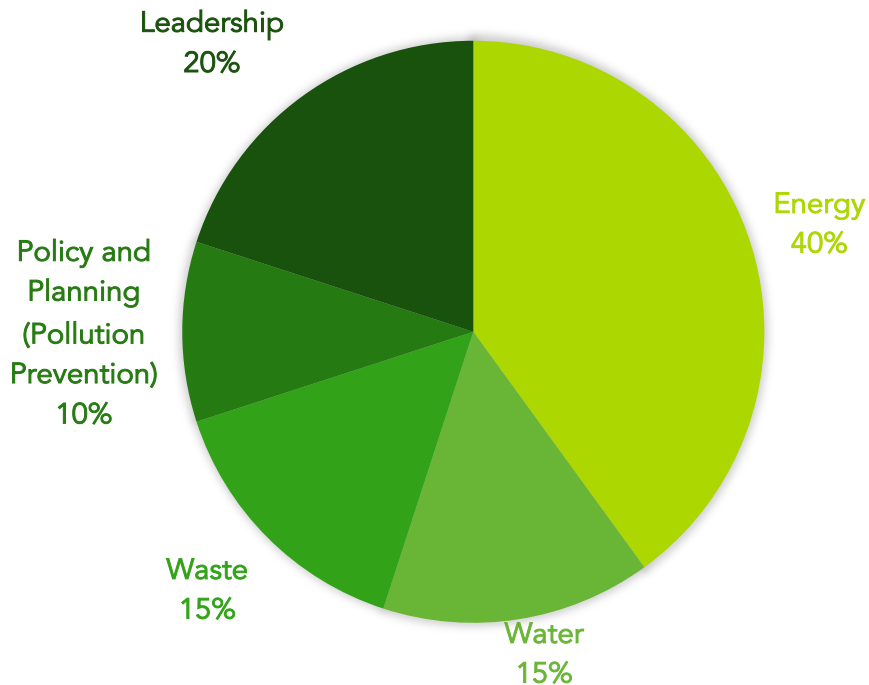


\*Waste and recycling rate definitions changed between 2012 and 2013 reporting years.  
See reverse for guidance on interpretation of results.

# 2022 Green Hospital Scorecard Overview

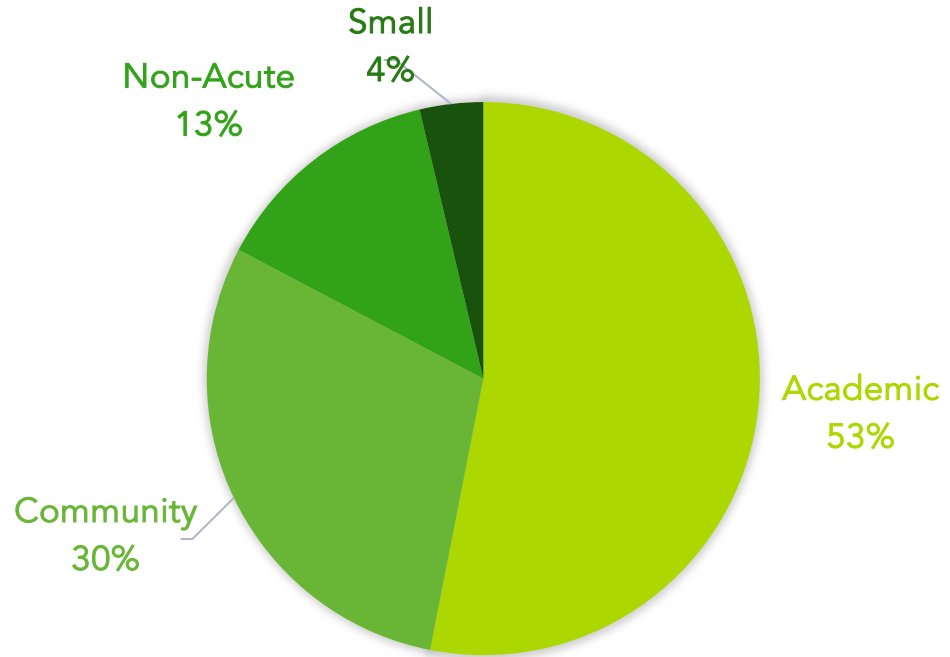
# Section Weight

- ▶ Ten sections on survey but only five sections are weighted towards final score
- ▶ Other sections do not contribute to final score but are very important for the GHS sector report

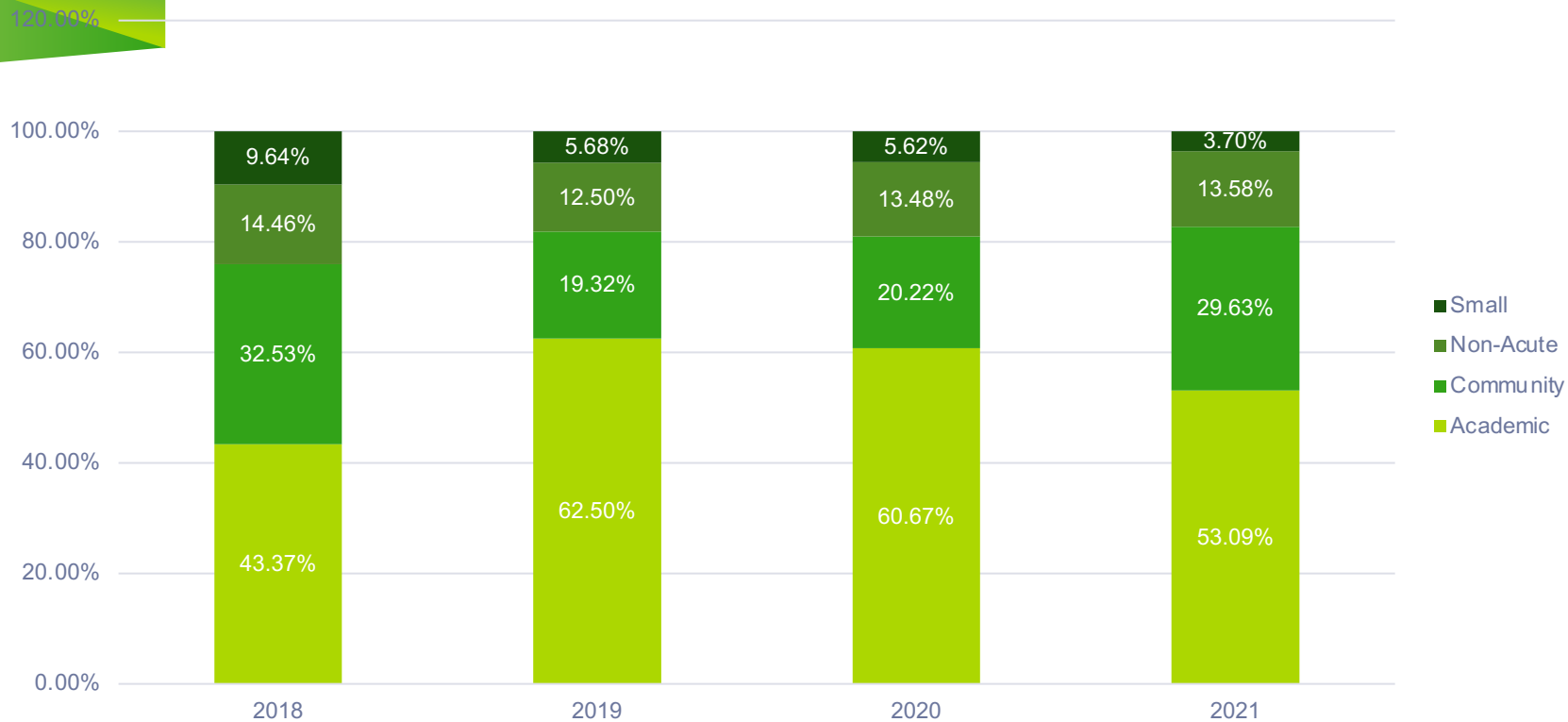


# 2022 GHS Participants by Peer Group

Academic	43
Community	24
Non-Acute	11
Small	3
Total	81

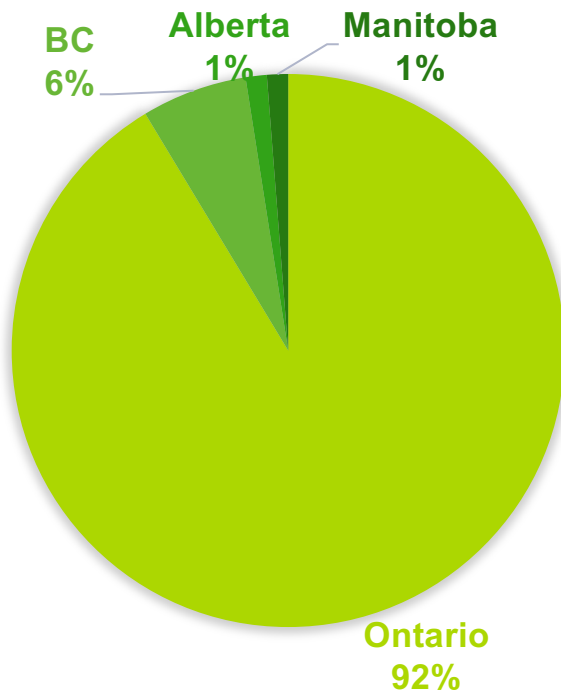


# Yearly Participant Comparison



# 2022 GHS Participants by Province

Ontario	74
BC	5
Alberta	1
Manitoba	1
Total	81





# 2022 Green Hospital Scorecard Awards

# Green Hospital of the Year Awards



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# GHOTY Winners



**Community Peer Group:** Sechelt Hospital, Vancouver Coastal Health, BC

**Academic Peer Group:** Humber River Hospital, Humber River Health, ON

**Non-Acute Peer Group:** Baycrest Hospital, ON

**Small Peer Group:** Four Counties Health Services, Middlesex Hospital Alliance, ON



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# GHOTY Honorable Mentions

**Community Peer Group:** Cambridge Memorial Hospital,  
ON

**Academic Peer Group:** West Lincoln Memorial Hospital,  
Hamilton Health Sciences, ON

**Non-Acute Peer Group:** St. Joseph's Care Group, ON

**Small Peer Group:** Strathroy Middlesex General Hospital,  
Middlesex Hospital Alliance, ON



# Energy Efficiency Awards



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# Energy Efficiency Winners



**Community Peer Group:** Kootenay Lake Hospital, Interior Health, BC

**Academic Peer Group:** Teck Acute Care Centre, Provincial Health Services Authority, BC

**Non-Acute Peer Group:** West Park Healthcare Centre, ON



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# Energy Efficiency Honorable Mentions

**Community Peer Group:** Sechelt Hospital, Vancouver Coastal Health, BC

**Academic Peer Group:** Parkwood Institute, Finch Family Mental Health Care Building, St. Joseph's Health Care, ON

**Non-Acute Peer Group:** Brock Fahrni Pavillion, Providence Health Care, BC



# Water Excellence Awards



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# Water Excellence Winners



**Community Peer Group:** Northumberland Hills Hospital, ON

**Academic Peer Group:** The Hospital for Sick Children, ON

**Non-Acute Peer Group:** Holland Bloorview Kids  
Rehabilitation Hospital, ON

**Small Peer Group:** Four Counties Health Services, Middlesex  
Hospital Alliance, ON



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# Water Excellence Honorable Mentions

**Community Peer Group:** Woodstock General Hospital, ON

**Academic Peer Group:** Mount Sinai Hospital, Sinai Health System, ON

**Non-Acute Peer Group:** Hôtel-Dieu Grace Healthcare, ON

**Small Peer Group:** Strathroy Middlesex General Hospital, Middlesex Hospital Alliance, ON



# Waste Management Awards



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# Waste Management Winners



**Community Peer Group:** Northumberland Hills Hospital, ON

**Academic Peer Group:** Monfort Hospital, ON

**Non-Acute Peer Group:** Holland Bloorview Kids  
Rehabilitation Hospital, ON



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# Waste Management Honorable Mentions

**Community Peer Group:** St. Peter's Hospital, Hamilton  
Health Sciences, ON

**Academic Peer Group:** The Hospital for Sick Children, ON

**Non-Acute Peer Group:** West Park Healthcare Centre, ON



# Pollution Prevention Awards



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# Pollution Prevention Winners



**Community Peer Group:** Markham Stouffville Hospital,  
Oak Valley Health, ON

**Academic Peer Group:** Unity Health Toronto, ON

**Non-Acute Peer Group:** West Park Healthcare Centre, ON



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# Pollution Prevention Honorable Mentions

**Community Peer Group:** Northumberland Hills Hospital, ON

**Academic Peer Group:** The Hospital for Sick Children, ON

**Non-Acute Peer Group:** Holland Bloorview Kids  
Rehabilitation Hospital, ON



# Leadership Awards



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# Leadership Winners



## Community Peer Group:

Northumberland Hills Hospital, ON  
Peterborough Regional Health Centre, ON

## Academic Peer Group:

University Health Network, ON  
Unity Health Toronto, ON  
The Hospital for Sick Children, ON

## Non-Acute Peer Group:

Holland Bloorview Kids Rehabilitation Hospital, ON  
Hennick Bridgepoint Hospital, Sinai Health System, ON  
West Park Healthcare Centre, ON

# Leadership Honorable Mentions

**Community Peer Group:** Markham Stouffville Hospital,  
Oak Valley Health, ON

**Academic Peer Group:** Teck Acute Care Centre, Provincial  
Health Services Authority, BC





# Hospital Presentations



# Woodstock General Hospital

## Sustainability





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# Presentation Agenda

- Medical Building Solar Project Overview
- EV Charging Project
- Parking Lot Expansion Project Overview
  - Environmental considerations
  - Wild flower meadows
  - Native indigenous plants
  - Rainwater Garden
- Waste Diversion
  - Waste Audit Data
  - Waste Diversion Strategies
  - PPE Recycling Program
  - PVC Recycling Program
  - Stryker Sustainability Program
  - Current Waste Diversion Results
  - Future Opportunities and Lessons Learned



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## 135kW Solar Power Project

### BENEFITS OF SOLAR ENERGY!

- Clean Source of Energy, That Does Not Contribute to Harmful Green House Emissions
- A Renewable Source of Energy, That Embodies the Limitless Source of Power Generated from the Sun
- Contributes to Oxford Counties 100% Renewable Energy Goal
- Lower Electricity Costs

When Generating Electricity, A Bi-directional Net Meter Procures Credits When It Feeds 600 Volts AC Directly Into Hydro One's Power Distribution System. Thus, Reducing The Demand For Power, Lowering The Utility Bill

### HOW DOES SOLAR ENERGY WORK?



The Silicon Photovoltaic Solar Cell Absorbs Solar Radiation



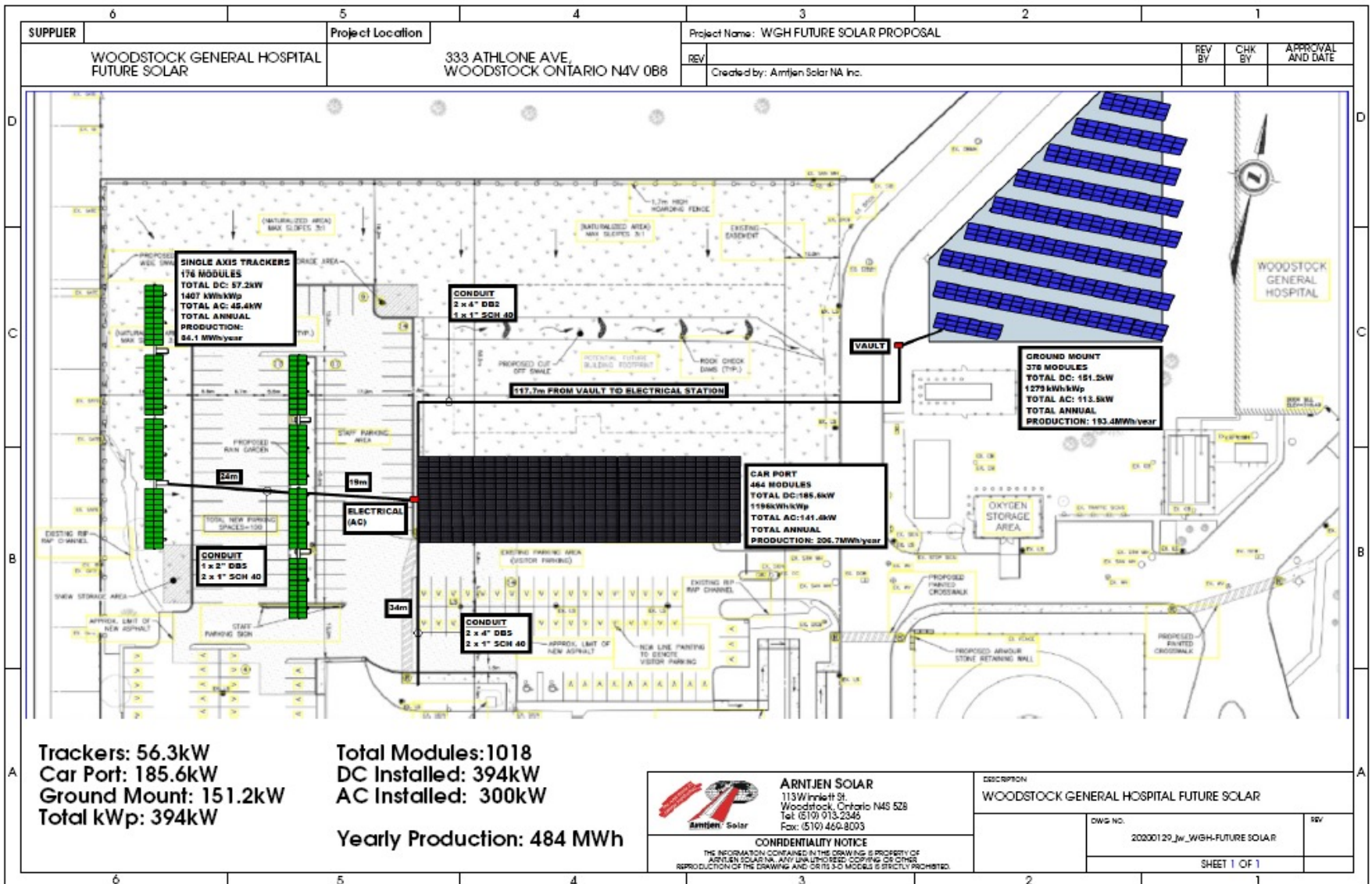
Electrons Begin To Move, Creating A Flow Of Electric Current



Wires Capture And Feed Direct Current (DC) To A Solar Inverter Which Converts It To Alternating Current (AC) To Be Used By Occupants In The Building



# Future Solar Plans





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## ELECTRIC VEHICLE CHARGING STATIONS



### Better For The Environment

- Uses approximately 3x less energy than an Internal Combustion Engine
- Reduces greenhouse gases by greater than 90%



### Lower Cost To Maintain

- Full EVs do not require oil changes
- Brake pads wear much slower

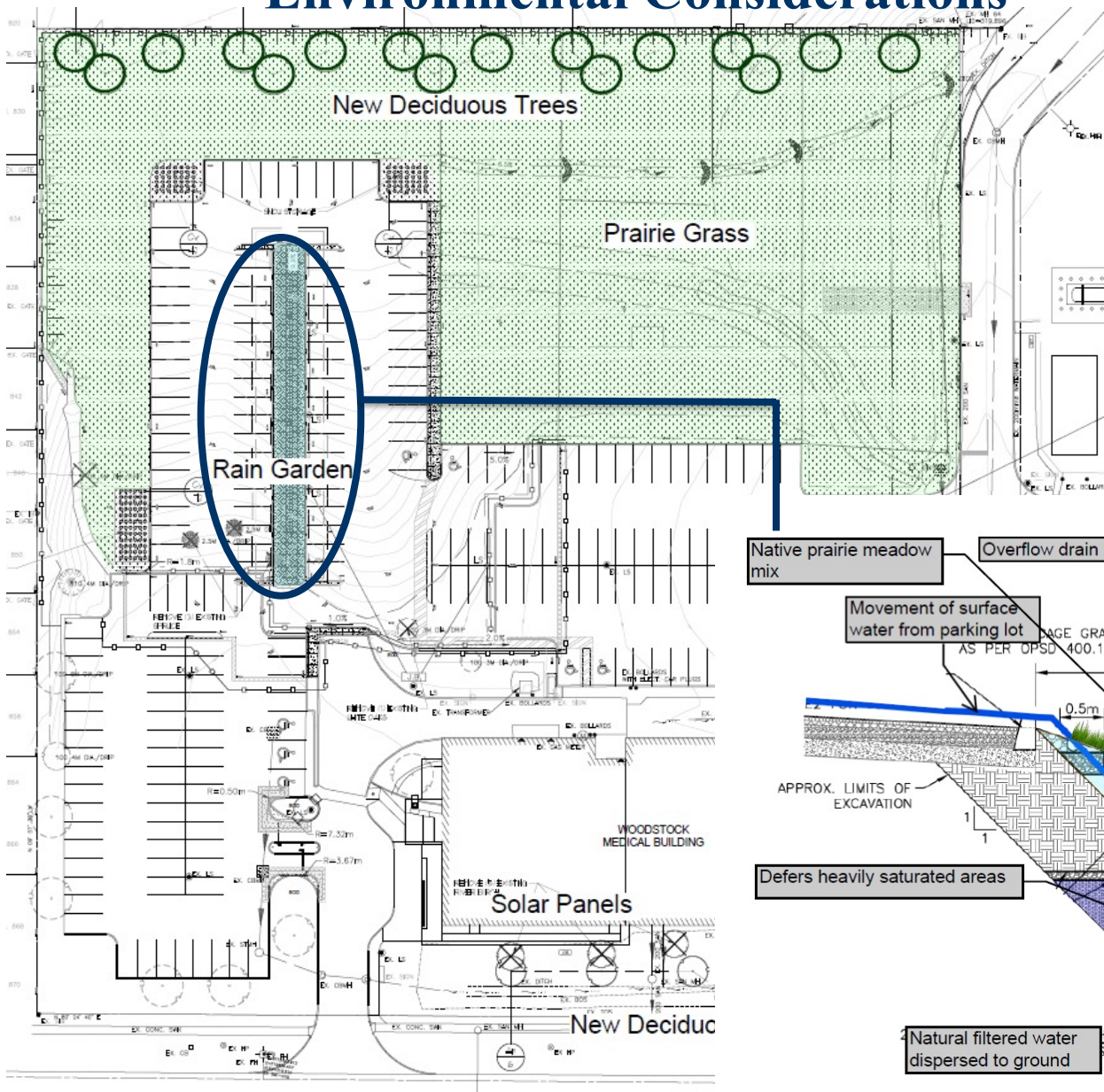


### Lower Cost To Operate

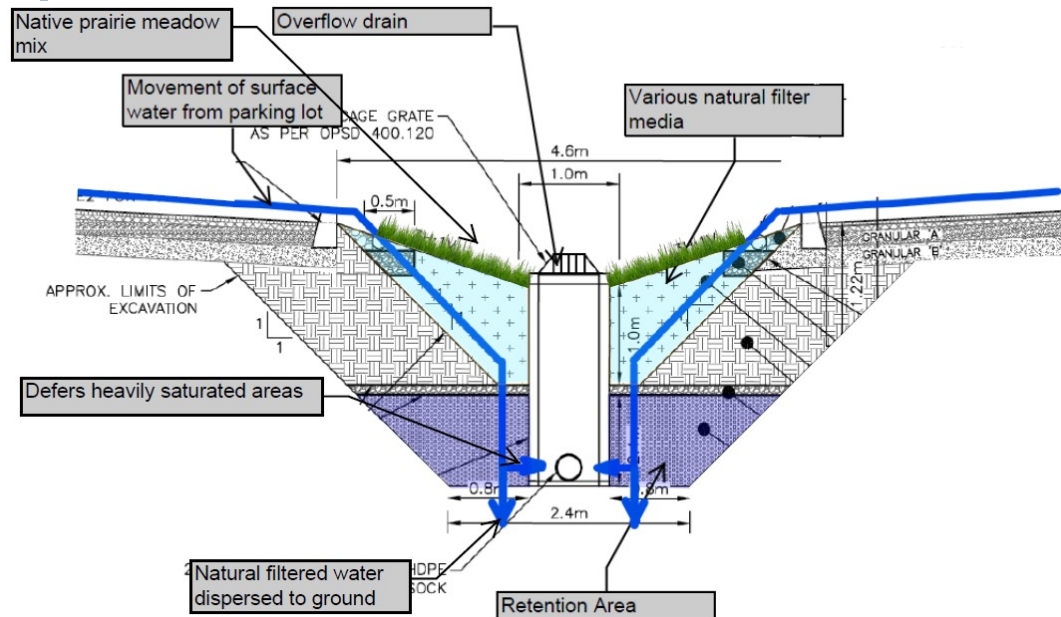
- A local case study shows a 70% decrease in operating (fuel/input energy costs)



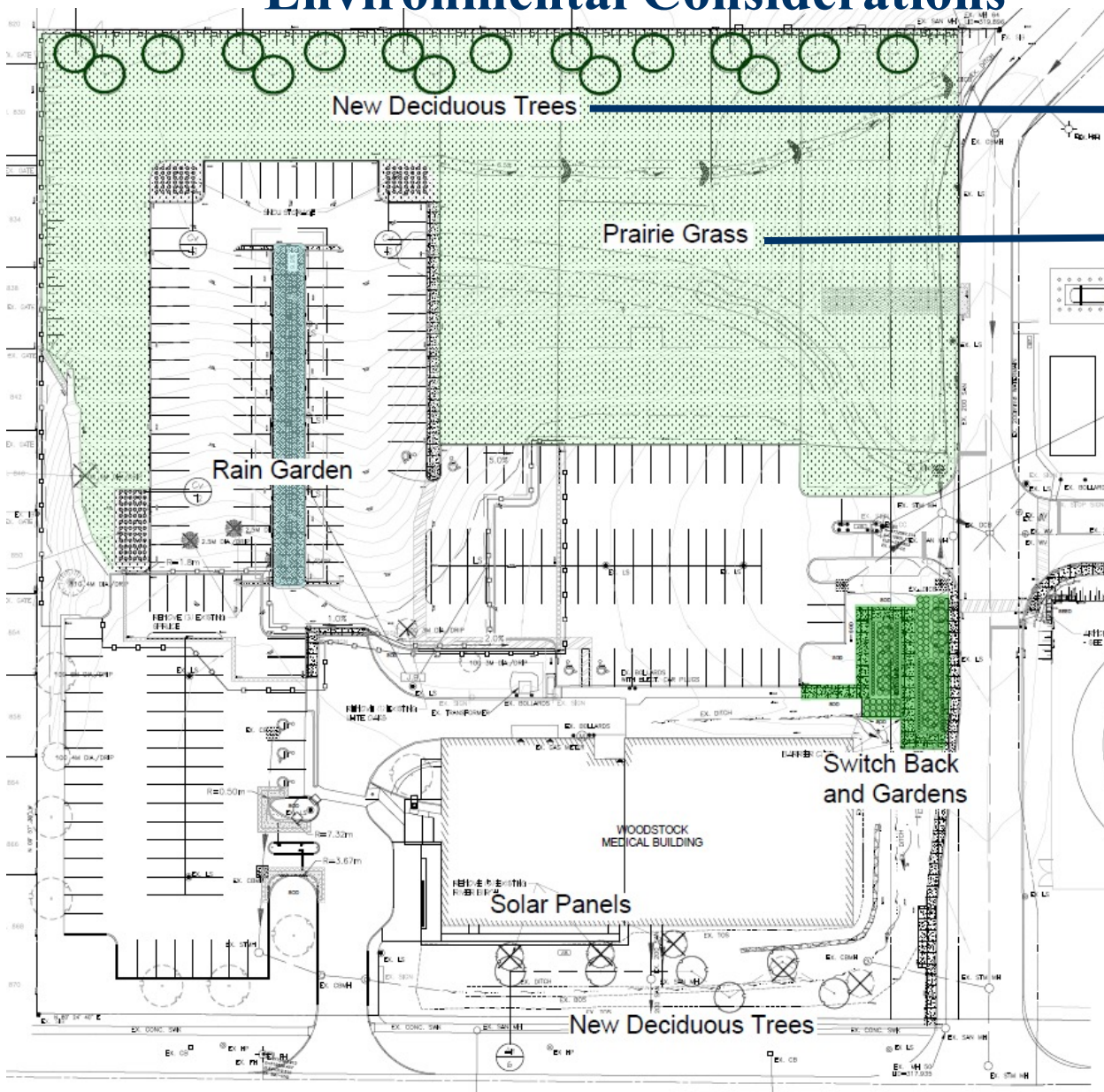
# Environmental Considerations



The Rain Garden facilitates the natural filtration of rain water into the ground



# Environmental Considerations



65 New Trees  
Planted



Prairie meadow  
Helps Support Bee  
Populations





# WH Waste Audit Data

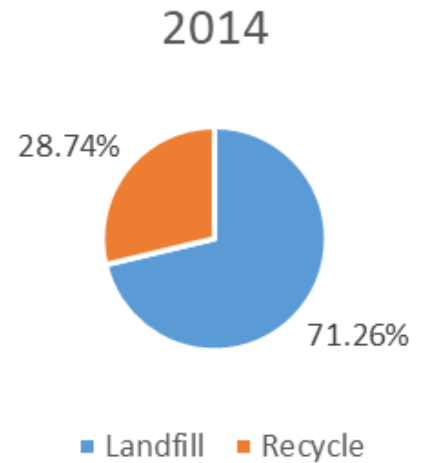
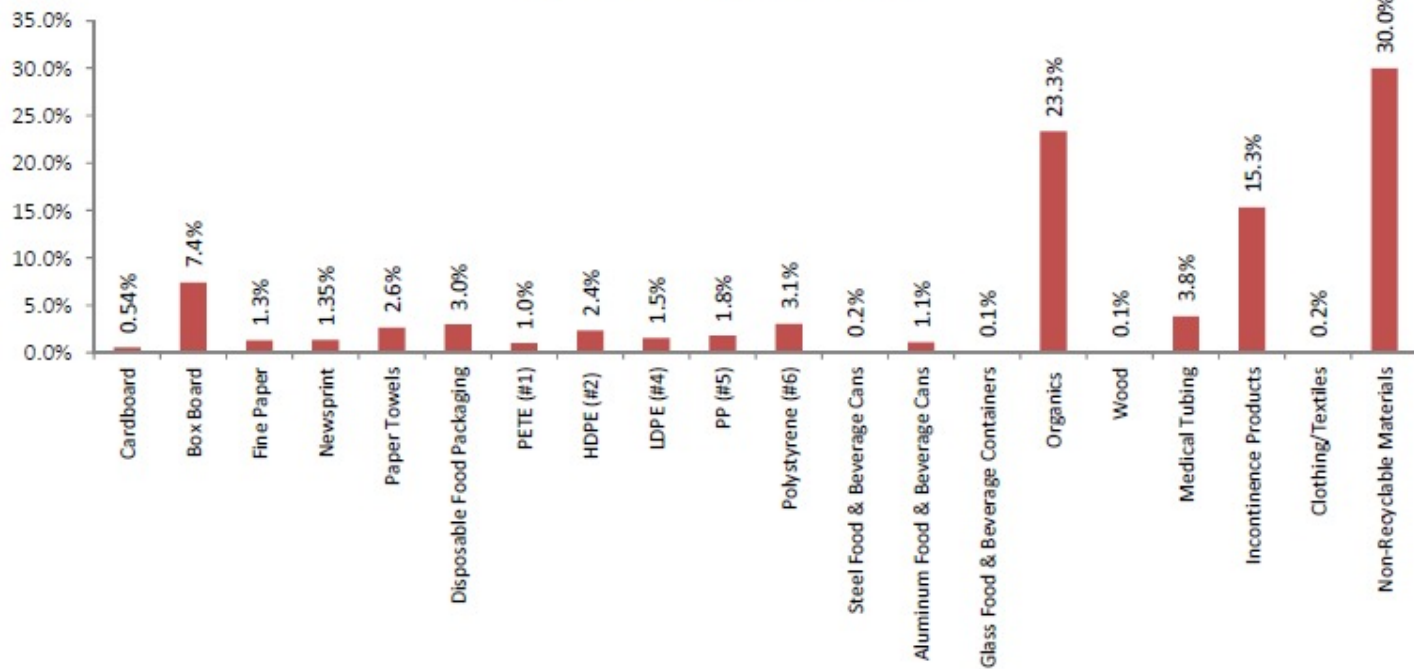


Fig. 4: Disposed Material Composition





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# Waste Diversion Strategies

- Organics Waste Program - diverts ~40 tonnes per year
- E-waste program – diverts ~4 tonnes per year
- Asset reuse as opposed to disposal





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# Source Reduction Programs

- OR Linen Wraps Program - eliminates 4.7 tonnes of plastic surgical wraps
- Linen gown program – provides staff with over 200,000 level 2 launderable gowns as opposed to disposable alternatives.
- Reusable totes used for receiving supplies, eliminating excess packaging at the source
- Reusable patient bedside cups – eliminates over 1 ton of Styrofoam



# PPE Recycling Program



## Face Masks

N95 MASKS  
N99 MASKS  
CN95 MASKS  
CN99 MASKS  
FN95 MASKS  
FN99 MASKS



## Head Coverings

SURGICAL HOOD  
BOUFFANT CAPS  
SURGICAL CAP



## Shoe Covers

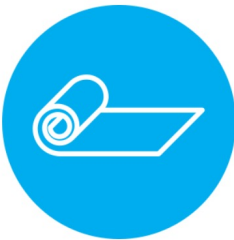
BOOT COVERS



## Clean Medical Gowns

ISOLATION GOWN  
SURGICAL GOWNS  
DISPOSABLE SURGICAL  
SCRUBS  
PATIENT GOWN  
PROTECTIVE COVERALL

**1580 kg  
in 2022**



## Clean Sterile Wrap

ALL STERILE WRAPPING FROM  
DENTAL, VETERINARY AND  
HEALTHCARE



## Plastic Bottles

SURGICAL HOOD  
BOUFFANT CAPS  
SURGICAL CAP



## PP/PE Nonwoven

ALL POLYPROPYLENE 5 (PP5)  
AND POLYETHYLENE (PE) NON  
WOVEN FABRICS FROM  
FABRICATION OF PPE



# PVC123 Program



## ALLOWED PRODUCTS:

### PVC PRODUCTS

FLEXIBLE, CLEAR, "SOFT FEELING" PLASTICS THAT BEND AND OFTEN DON'T LEAVE A WHITE MARK.



AMBU Bags



Suction tubing



Drained PVC IV bags with less than 5% fluids remaining



Oxygen supplies: Tubing, cannulas, masks etc.

## TO PREPARE FOR RECYCLE:

2. DRAIN AND RINSE  
(IF APPLICABLE)



3. REMOVE  
- PATIENT NAMES AND DRUG LABELS  
- EXCESS NON PVC

4. RECYCLE



950 kg recycled  
in 2022



# Recycling

## Remember to collect

### Laparoscopic devices

Scissors  
Trocars  
Suture passers / guides  
Graspers



### Energy devices

Sealers / dividers  
Ultrasonic scalpels



### Women's health

Tissue removal devices  
Hysteroscopic accessories



### Arthroscopic devices

Shavers

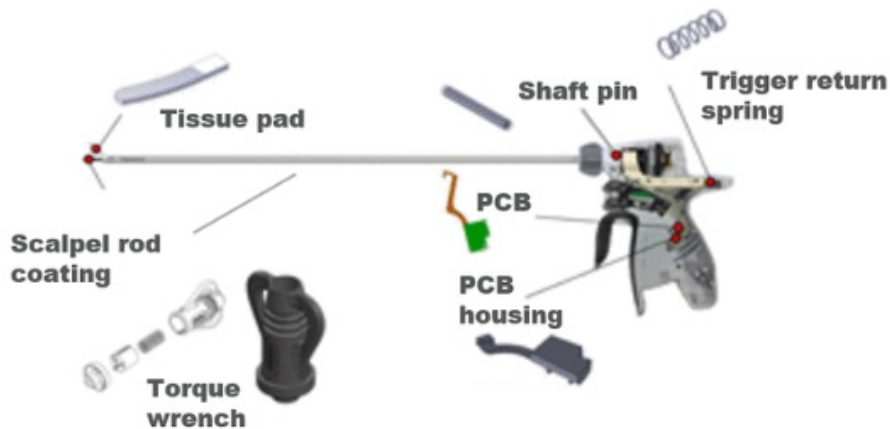


<b>Cerebral Somatic Oximetry Sensors</b> 	<b>Pulse Oximeters</b> 	<b>Bed Alarms</b> 	<b>Chair Alarms</b> 	<b>DVT Compression Sleeves</b> 
<b>Tourniquet Cuffs</b> 	<b>Hover Mats</b> 	<b>ECG Leads And Cables</b> 	<b>Blood Pressure Cuffs</b> 	<div> </div>

# Remanufacturing

stryker

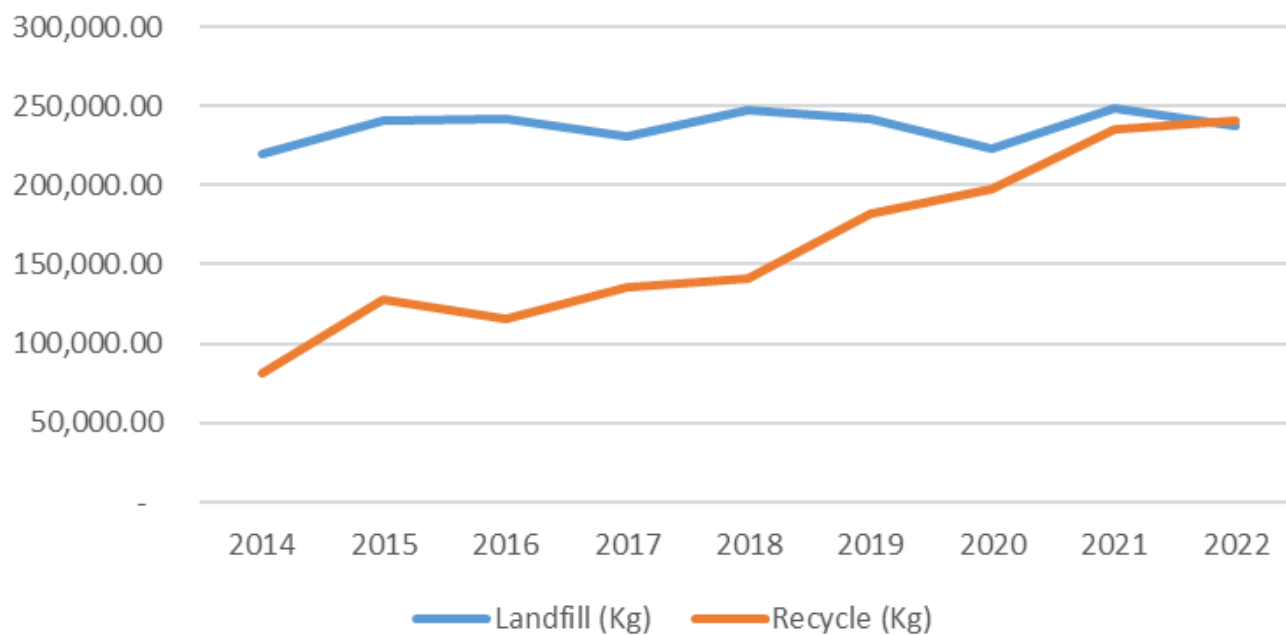
## Quality beyond reverse engineering



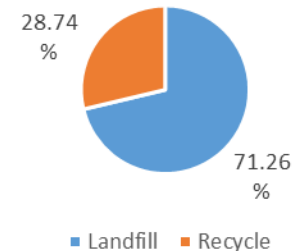
Stryker Engineers designed **eight replacement components** on a single ultrasonic device

# 2014 to 2022 Results

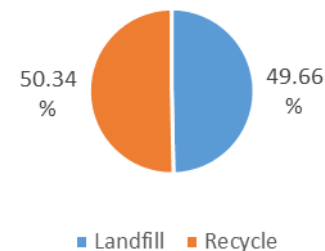
Landfill vs Recycle



2014



2022

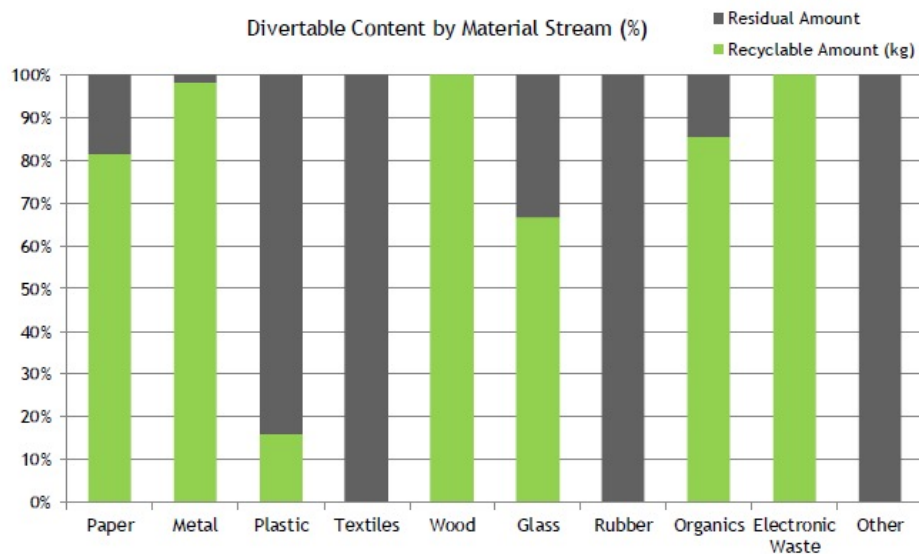




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# Future Opportunities and Lessons Learned

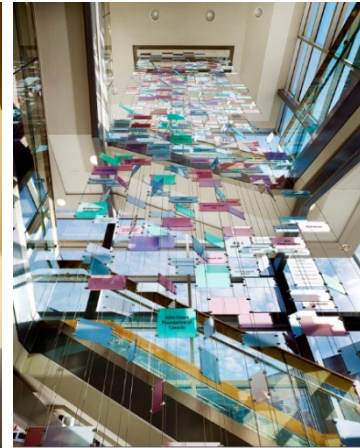
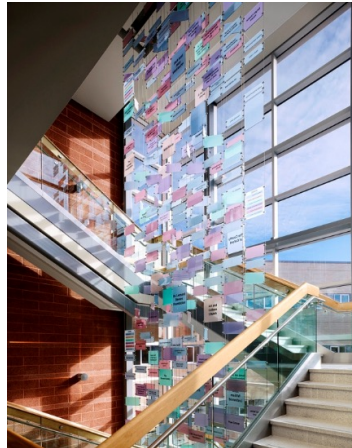
- Staff Education
- Earth Day – Public Awareness
- Audits to aid in continual improvement





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# Questions



# Sechelt Hospital, BC

## Design Strategies

- ▶ Sechelt Indian Band played an important role in the design process, emphasizing connections to nature and promoting overall health and healing.
- ▶ High-performance building envelope
- ▶ Geothermal system includes 125 boreholes, each 250 feet deep to provide zero-carbon energy for heating and cooling for the building distributed through radiant slabs.
- ▶ Electricity from 19-kilowatt photovoltaic array
- ▶ Green and white roofs reduces solar heat gain.

## LEED GOLD: 38 bed hospital



Sechelt Hospital was recently named Canada's greenest hospital by Corporate Knights magazine. | Christine Wood Photo

Source: <https://www.coastreporter.net/local-news/sechelt-hospital-named-top-green-hospital-in-Canada-3398399#:~:text=The%20local%20hospital%20took%20first%20of%20energy%20a%20year.>

# Sechelt Hospital, BC

## Design Strategies continued...

- ▶ Passive design strategies such as solar shading & operable windows, allow for natural ventilation.
- ▶ Lighting is equipped with occupancy sensors
- ▶ Exhaust air recovery ventilation
- ▶ Is on target to achieve a 40% energy savings when compared to other LEED Gold certified hospitals.
- ▶ Regenerative farm next door to start providing produce to Sechelt Hospital

# Humber River Hospital, ON

## Design Strategies

- ▶ 'Lean, green and digital vision'
- ▶ Building designed to use 40 % less energy than Model National Energy Code for Buildings.
- ▶ Energy savings: est. \$100,000,000 over 30 years
- ▶ Gas consumption provides the biggest energy reductions from i. HVAC scheduling, ii. high efficient heat recovery chillers, iii. high efficiency enthalpy wheels recovering heat from exhaust air

LEED GOLD: 656 acute inpatient beds



13,192 square meters of green roofing

Sources: <https://www.greenroofs.com/projects/humber-river-hospital/>  
<https://greeninghc.com/wp-content/uploads/2022/02/Greening-Health-Care-Humber-River-Hospital-White-Paper-final.pdf>

# Humber River Hospital, ON

## Design Strategies Continued...

- ▶ Overall electricity use is lower due to i. ventilation system scheduling and controls during unoccupied periods, ii low static pressure air handling systems' design, iii. advanced lighting controls, iv advanced building envelope design including smart glass with dynamic tint
- ▶ Green roofing, visible from a majority of the patient rooms and treatment areas of the hospital, contributes to heat island reduction

Sources: <https://www.greenroofs.com/projects/humber-river-hospital/>  
<https://greeninghc.com/wp-content/uploads/2022/02/Greening-Health-Care-Humber-River-Hospital-White-Paper-final.pdf>

# Baycrest Hospital

## Design Strategies

- ▶ Core values of efficiency, concern for the environment and financial responsibility
- ▶ Developed an Energy Conservation and Demand Management (ECDM) Plan
- ▶ Considering indoor environmental quality, operational efficiency and sustainability sourced resources
- ▶ Expect to achieve a 23% reduction in annual electricity consumption, a 25% reduction in annual natural gas consumption
- ▶ In 2021 saw a 24.57% reduction in Electricity and Natural Gas usage from baseline year (2018)
- ▶ Thanks to action such as Energy Awareness, Led Lighting retrofits, HVAC replacement and retrofit, Elevator modernization and more.

300 bed continuing care hospital with acute care



Sources: [https://www.baycrest.org/Baycrest\\_Centre/media/content/form\\_files/fiscal%20accountability/Energy-Conservation-and-Demand-Management-Plan.pdf](https://www.baycrest.org/Baycrest_Centre/media/content/form_files/fiscal%20accountability/Energy-Conservation-and-Demand-Management-Plan.pdf)  
<https://www.baycrest.org/Baycrest-Pages/About-Baycrest/Accountability-Performance/Environmental-Conservation-Planning>

# Four Counties Health Services

## Design Strategies

- ▶ 2020/2021 – Recycling program helped increase recycling collection by 16.8 metric tonnes
- ▶ 10% reduction in Natural Gas use from 2017-2021
- ▶ 2019-2022 projects reducing energy usage included: replacement of inverted roof covering, replaced steam boiler, winders, and air-handling units
- ▶ Continued monitoring and verification of energy conservation measures
- ▶ New and continuing energy management goals for 2019-2023 - Implement strategic Energy Management Practices such as Establish Purchasing specifications for Energy Efficient Equipment and Services

## 12-bed acute care hospital



Sources: <https://mhalliance.on.ca/wp-content/uploads/2020/07/MHA-Strategic-Energy-Management-Plan-2020-Final.pdf>  
[https://mhalliance.on.ca/wp-content/uploads/2022/02/FINAL\\_2020\\_21-Annual-Report.pdf](https://mhalliance.on.ca/wp-content/uploads/2022/02/FINAL_2020_21-Annual-Report.pdf)  
<https://www.southwesthealthline.ca/displayserver.vice.aspx?id=11106>

# For more information...

Contact: [autumn@greenhealthcare.ca](mailto:autumn@greenhealthcare.ca)

Visit our website: <https://greenhealthcare.ca/ghs/>

Stay up-to-date on everything GHS by subscribing to our newsletter The Green Digest: <https://greenhealthcare.ca/digest/>

An aerial photograph of a vast, dense forest covering rolling hills. The sky is filled with dramatic, white and grey clouds, with sunlight breaking through in places. A large, bright green rectangular box is centered over the middle of the image, containing the text "THANK YOU!". The box has a slight gradient and is surrounded by other green geometric shapes, including triangles and polygons, which are part of the slide's design.

THANK YOU!