Appendix A

SUMMARY REPORT

SWEDEN – DENMARK KNOWLEDGE EXCHANGE

SEPTEMBER 2016

Burlington

VÄXJÖ, SWEDEN

The delegation began its tour in Växjö, Sweden, approximately two hours north of Copenhagen. The population of the community is approximately 88,000.

A meeting was convened with city officials at their city hall, where presentations were made on economic development opportunities, sustainable building practices, energy policy and environmental goals and targets.

Although there is a difference in population, there are similarities to how we are growing. Växjö is planning for more dense sustainable development and functionally mixed city.

Discussions were had on next steps to build a strategic partnership. The delegation managed to fit in a bike tour of the city, with stops to view wood construction projects and the acclaimed climate neutral arena.

Wood Construction - Växjö

Växjö has goals to reduce carbon emissions from fossil fuels per inhabitant by 65% by 2020 (using 1993 as the base year; for the municipal operations to be fossil fuel free by 2020 and the community by 2030.

District Energy Plant (biomass)

The next day involved a presentation and tour of the wastewater treatment plant and biogas operation as well as one of the district energy plants that produce heat and power through the combustion of biomass (waste wood from forestry operations).

Balcony retrofit project - Växjö

A meeting was also held with a local company who manufactures glassed in balconies, which can be utilized for

retrofits of older buildings and utilizes space that would otherwise be unused during colder months. This company, Balco, is interested in expanding into the North American market.

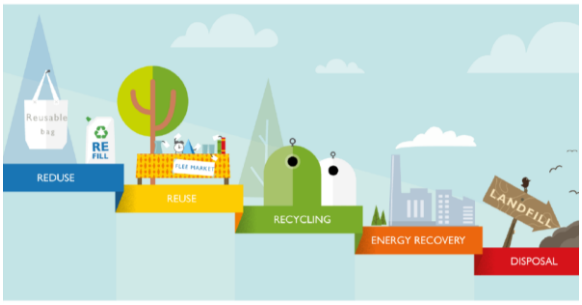
Wood construction – Växjö

MALMÖ - SYSAV

Wednesday was a full day of meetings in Malmö, beginning with the energy from waste plant (SYSAV).

Sysav is a waste management company owned by 14 municipalities and is responsible for managing, treating and recycling the municipal household waste in the most environmentally friendly way.

Sysav follows a hierarchy for waste management and works to raise awareness that the choices we make in our everyday lives affect the environment and the climate in one way or another. Ninety-eight percent of the sorted waste is recycled into materials and energy. The remaining two percent is landfilled. Almost 50 percent of the



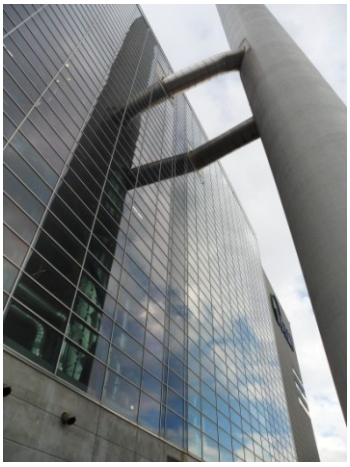
Waste Hierarchy

waste is recycled into new materials. The slurry from food waste is turned into biogas, used for transportation, as well as soil for re-use. Sysav is also working to reduce food waste in the region, working with 60 primary schools, an issue that is prevalent in North America.

Inside the plant

Sysav turns combustible waste into district heating and electricity, providing 60% of the district heating needed in Malmö and Burlov. Sysav receives and

treats sorted combustible waste from other countries, such as Italy and England.



Sysav was designed with windows for public transparency

MALMÖ – WEST HARBOUR

Following that, the group travelled to the West Harbour, a redevelopment of a former industrial port land area with a decommissioned ship building complex. The area is now a planned community with low to mid-rise residential buildings, with one landmark tower internationally known as the Turning Torso.

The Turning Torso

It is a complete community with low to mid-rise residential development (with the exception of the Turning Torso), schools, playgrounds and retail and office employment uses. The community was planned with limited car access with a focus on active transportation. Other sustainable building measures included green roofs, open stormwater management systems, lots of bike parking, and vacuum tube garbage receptacles.

Waste vacuum tubes

Mid-rise residential development

Open stormwater systems

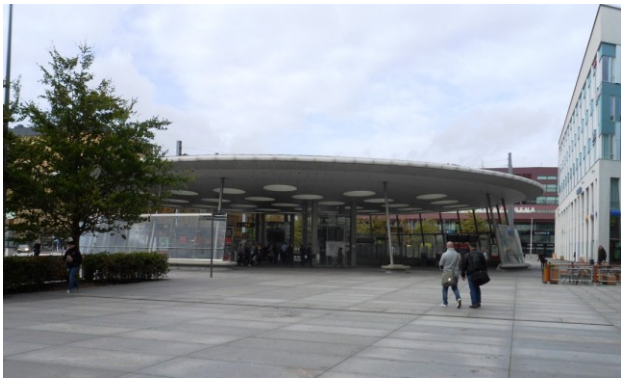
Playground structure, West Harbour

Bike parking

Bike Facilities - Signage

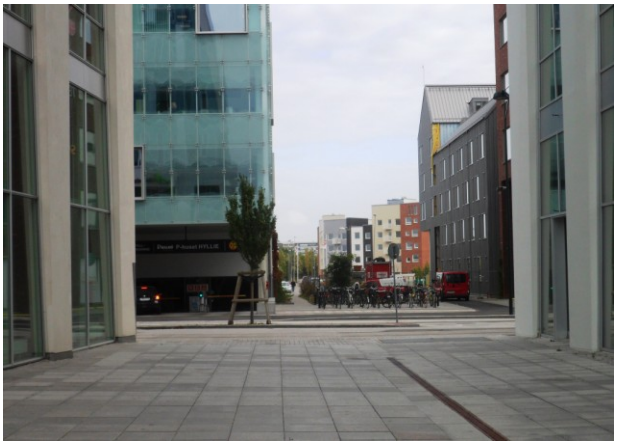
MALMÖ – HYLLIE

Wednesday afternoon was spent in Hyllie, another new planned community which is a transit hub for regional transportation. This area definitely provided inspiration for Burlington's own mobility hubs.



Hyllie Transit Station

Developers building in this area must meet carbon reduction goals. Similar to the West Harbour, there is a significant focus on accommodating active transportation in a safe manner, with covered bike parking and shower facilities.



HYLLIE SUSTAINABILITY

An added bonus was a presentation on the municipal sustainability initiatives in a building that is a showcase of environmental measures, with a model showing underground infrastructure for water, wastewater, district energy and geothermal, among others. Other actives focused on waste reduction and diversion. Exposed pipes showed water and wastewater moving through the system. The purpose of the space was to help educate the public to understand how many of the environmental systems work and the measures that have been taken to reduce the ecological footprint of the community. It also included an outdoor educational water park to teach visitors about the importance and power of water.

Public Toilet with green roof

The Power of Water

Model showing underground infrastructure

Water filling station

The group travelled back to central Malmo on the regional train during rush hour, a very efficient means for travelling in Malmo.

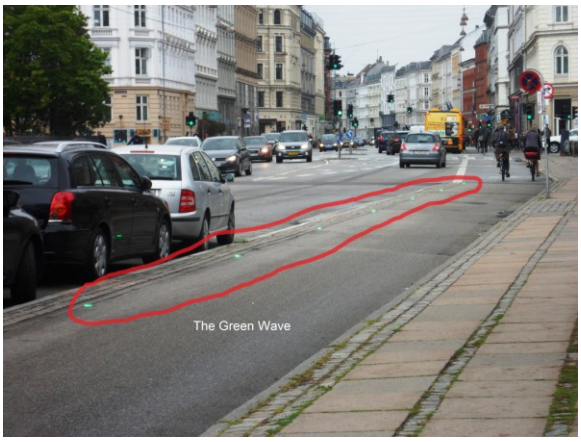
COPENHAGEN - CYCLING

The last day was a long day in Copenhagen where the group toured the city in the morning as locals do by bicycle. Over 60% of people living in Copenhagen use a bike to get around; 45% commute daily on bike to work or school.

The group visited the office of Copenhagenize Design, a company that specializes in urban design for cycling, with clients around the world, including Winnipeg and Canmore. Many agreed that this was one of the highlights of the tour.

Copenhagenize Design Presentation

Copenhagen has spent the last 40 years implementing cycling infrastructure to ensure that cycling is the easiest way to get around and competitive. The picture below illustrates the green wave – green lights in the bike lane which when lit up, signal to the cyclist that it is possible to bike through the green signal at the next intersection. If the green lights are not on, the cyclist knows that it is not possible to make a green light at the intersection.



The Green Wave

Cyclists at an intersection

It was an eye opening experience to cycle through Copenhagen and see the bicycle infrastructure that the city has built up over the years. But even an experienced city like Copenhagen has suffered from infrastructure projects taking too long and being significantly over budget (the kissing bridge).

Cargo Bikes

Elevated bike path

COPENHAGEN – HOUSE OF GREEN

The afternoon session was hosted by the House of Green, a Danish office dedicated to share sustainability initiatives and knowledge with visitors from around the world. It began with a presentation about Danish sustainability and climate change initiatives. Denmark's economy has grown more than 70% since the 80s but their energy consumption has remained the same. Carbon emissions have been reduced and total water consumption has been reduced by 40%. They are very proud of their accomplishments.

Copenhagen has a goal to be the first capital to be carbon neutral by 2025 and has a good start:

- 45% of trips are made by bike
- 98% of heat consumption is from district energy
- They have a target for 100% renewable energy and 100 wind turbines by 2025

Their Climate Plan (CPH 2025) provides a road map on how to get there and is built on strong political commitment and financial support; broad stakeholder involvement and new partnership models; coordination and common business plans; and ongoing communication.

COPENHAGEN – DISTRICT ENERGY

The delegates heard several presentations about the district energy business in Copenhagen and across

Denmark, including some lessons learned for implementing a system in Canada. Given that Burlington is just at the early stages, it was recommended that if we end up developing several smaller systems that we ensure that we use consistent technology and standards, so that the systems can be connected in the future.

HOFOR, Copenhagen's main utility, has diversified holdings in the energy field, resulting in an integrated community energy system with renewables, district heating and cooling, wind power and biogas. It also owns the water and wastewater systems and is municipally owned. Ninety-eight percent of Copenhagen's heating is provided through district energy.

A presentation was made by Ramboll, a Danish DE engineering group who have an office in Guelph, Ontario. Some words of advice were provided to the Burlington delegation, including: reduce the complexity of the project – keep it simple and reasonable to start to ensure it's feasible and economically solid. Don't get overwhelmed with a master plan.

The afternoon ended with a tour of their seawater cooling plant, which provides limited cooling to commercial buildings.

Equipment in Copenhagen Seawater Cooling Plant