CLIMATE ACTION GUIDELINES

Facilities Management

August 2020

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Climate Action Portrait

Dawson's mission statement states the necessity to contribute to a peaceful and sustainable future and one of its core values is well-being for all, sustainably. Furthermore, the Colleges' 2016-2121 strategic plan goal number 7 states:

To be a leading post-secondary institution in promoting and practicing sustainability in all of its endeavors.

These bold statements clearly necessitate a sustainability plan with climate action strategies as part of Dawson's responsibility as an educational institution. With the UN Intergovernmental Panel on Climate Change (IPCC) report (2018) suggesting immediate action in 17 key areas, including climate action, Dawson has responded.

Sustainable Development Goals

Although a minor producer of greenhouse gases when compared to the City of Montreal's total emission impact, Dawson has considerable influence as one of the largest Colleges in the province. As such, our example of placing climate action as a significant operational and educational objective is immeasurable. The students we represent experience climate action within their College and will hopefully go on to make wise climate-related decisions in their workplaces, communities and in their homes.

This plan reviews benchmarking and action strategies to reduce emissions, preparing for anticipated consequences of operationalizing these strategies and broadening our educational opportunities in curricular and extracurricular areas related to climate action.

Carbon Responsible (Carbon Neutral)

The Board of Directors voted that Dawson College be "carbon neutral forever" at their meeting of October 24, 2018. Dawson aims primarily to keep reducing its emissions of greenhouse gases, and compensate for those we cannot eliminate.

Dawson College Board of Governors resolution:

> Minutes of the 409 Meeting of the Board of Governors of Dawson College – October 24, 2018
> It was moved by Alex McComber, seconded by Jean Nagy.
>
> "WHEREAS THE OCTOBER 2018 UN INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE REPORT, WHICH STATES THE PLANET ONLY HAS UNTIL 2030 TO STEM CATASTROPHIC CLIMATE CHANGE, AND THE RESPONSIBILITY OF INSTITUTES OF HIGHER EDUCATION TO MODEL POSITIVE CHANGE IN SOCIETY, THAT DAWSON COLLEGE DECLARES ITSELF CARBON NEUTRAL FOREVER, AND CONTINUES TO REDUCE ITS CARBON FOORPRINT IN WHATEVER MEANS POSSIBLE AND MANAGEABLE."
>
> The motion was adopted unanimously.

Such a bold commitment can be used to push further into exploring the limits of our emission reduction with both our suppliers and our population.

Climate Action Goals

- Educate staff and students, through community consultation and workshops.
- Reduce greenhouse gas emissions, sector by sector, and continue offsetting emissions at scope 3 level - Offset the greenhouse gas emissions related to College-related business travel.
- Reduce the consumption of fossil fuels used by the institution, community members and suppliers.
- Purchase energy efficient equipment.
- Find, use and encourage local sources of energy, if possible.
- Seek best-practice refrigeration gases and air-cooling equipment.
- Encourage modes of transport that are less energy intensive for Dawson-related travel, for staff and student commuting and by our suppliers.
- Encourage composting through awareness campaigns and maintain composting stations throughout College and rooftop gardens.
- Construct and design new buildings and design landscape with energy efficiency and low carbon footprint in mind.
- Integrate climate change mitigation in all new endeavors.

- Explore our collective opportunities to adapt to climate change.
- Work with other educational institutions to share best practices.
- Input on municipal, provincial or national climate policy, where warranted.

Measuring

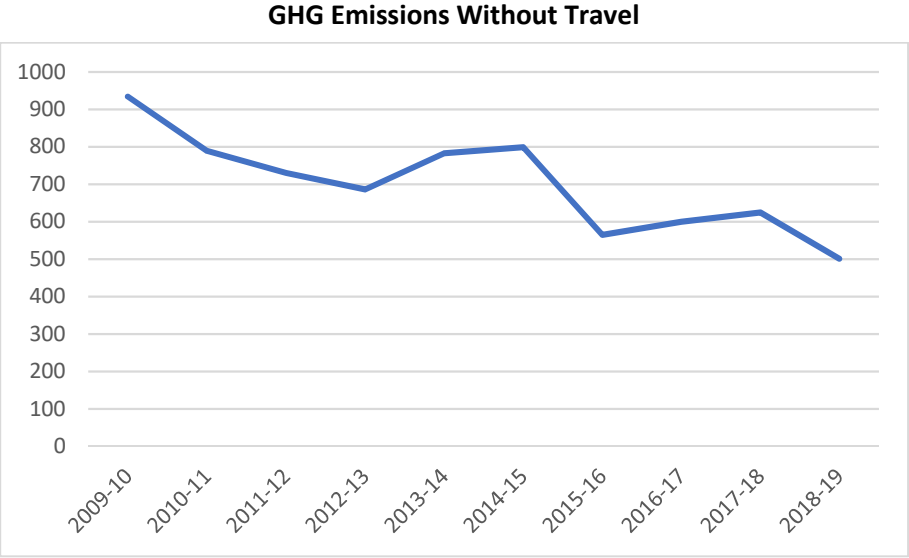
Dawson has been tracking its greenhouse gas emissions in various forms since 2008. We have progressed significantly in reducing our emissions. Providing financial support and resources to measure, audit and offset our emissions has been essential for us to achieve our goals.

Measuring greenhouse gas emissions can be challenging as data can vary, be fragmented or inaccurate. Dawson is concerned with rigorous reporting and has consequently chosen to involve a third party to verify our calculations. Ecometrica Inc. is an international company that specializes in auditing and measuring greenhouse gas emissions. They have been auditing our emissions since 2012.

Through the Ecometrica platform, methods of collecting and tabulating are documented in order to keep records consistent, help with data extraction and also to improve multi-year tracking for different departments.

As we develop our metrics and deepen our commitment to carbon responsibility, the emission sources we consider will become more complex to evaluate and require increased collaboration with external partners: the drive to become further carbon responsible should lead us to working with our suppliers to help them improve their procedures as well. As this gets done, we can expect to develop procedures to track emissions with them.

Dawson will be working with other institutes of higher education to explore realistic targets and identify methods most appropriate for colleges.



Categories

Scope 1 emissions (direct emissions from Dawson operations) include mainly fuel for our heating and cooling systems as well as refrigerants. Dawson owns few machines (generators and a few landscaping devices) and no actual vehicles. Dawson relies on contractors for all of its deliveries, moving, food and non-garden landscaping needs. Security services use no vehicles.

Scope 2 emissions (emissions related to producing our electricity offsite) are minor in all of Quebec as hydro-generated power predominates. Hydro-generating electricity creates relatively few greenhouse gases, which represent a significant advantage for Dawson as far as being responsible for its own emissions.

Scope 3 emissions are indirectly related to the operation of the institution. This includes emissions related to our waste such as compost and waste going to landfill. Student and staff commuting to Dawson are considered in this category, as is travel for college-related purposes.

Scope 3 includes emissions produced by our suppliers of goods and services. Since Dawson contracts landscape maintenance, deliveries, food, security and much of our building and renovation work, a significant portion of emissions fall under the responsibility of our suppliers.

The complexity of our emission assessment has grown as we assume more responsibility for indirect emissions. Since 2017-2018, we have undertaken to measure travel-related emissions.

Dawson College GHG Emissions (metric tons)

	Scope 1		Scope 2	Scope 3			
Fiscal Year	**Natural Gas**	**Other Scope 1**	**Electricity**	**Waste**	**Total (Without Travel)**	**% Reduced From 2009-2010 Baseline**	**Travel**
2009-2010	642	2	47	243	934	0%	
2010-2011	503	2	38	246	789	16%	
2011-2012	444	2	37	246	730	22%	
2012-2013	335	2	36	313	686	27%	
2013-2014	476	2	25	280	783	16%	
2014-2015	488	2	19	290	799	14%	
2015-2016	280	2	19	264	565	40%	
2016-2017	324	10	15	250	600	36%	
2017-2018	325	14	16	264	625*	33%	2,068
2018-2019	332	3	17	149	501*	47%	2,123
Realistic 2020-21 Targets	300	10	11	132	453	51%	1,861
Stated Target					374	60%	

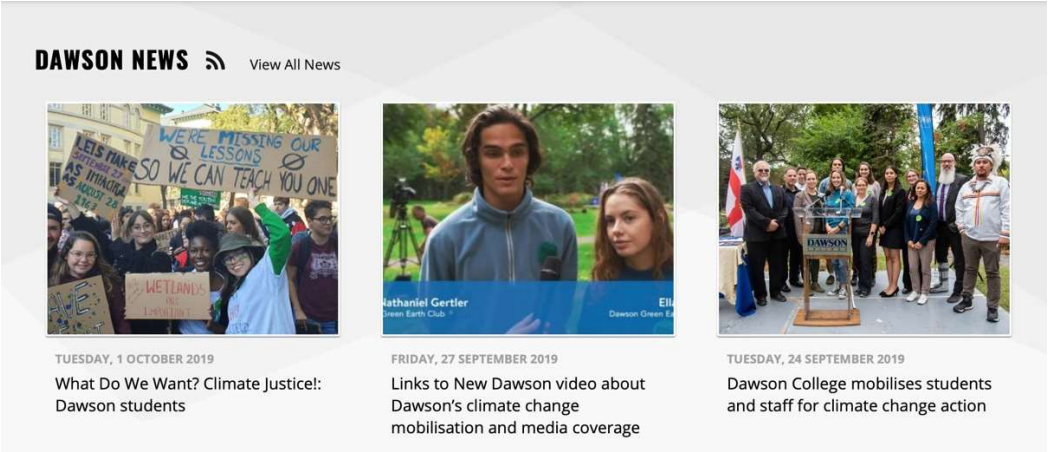
*We started measuring travel in 2017-2018, it is therefore not accurate to include it in our totals comparison.

Policy, Administration, Decision-Making

The October 2018 “carbon-neutral forever” motion by the Dawson College Board of Governors warrants that decisions by college directors and managers need to take greenhouse gas producing behaviors and operations into account.

Leadership Role

Dawson should actively review and share best practices and climate research. Specifically, small-scale energy generation ought to be considered. Facilitating how employees and students can reduce home GHG emissions and offsetting and identifying efficient communication methods to diffuse information will also be leadership challenges.



Education

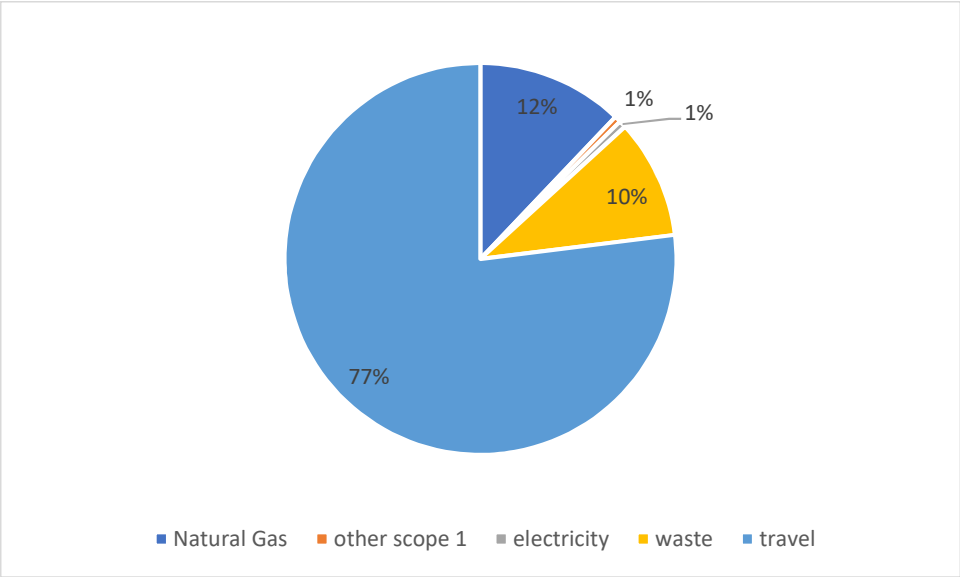
As of January 2020, only 47% of Dawson educational departments have sustainability-related courses, with about 15% of all offered classes at the college being sustainability courses or sustainability-related courses. Further links to sustainability and to climate action could also be developed with teachers in order that climate change become a part of the curriculum for most programs. With time, this engagement should be formalized. Community input and opportunities for teachers to develop climate action curricula will be held yearly.

Reduction

The 2018 IPCC report unequivocally stated that in order to reduce the worst long-term impacts of climate change, it is important to reduce our emissions drastically by 2030. In the following sections, a sectorial approach is used in order to assess current emissions as well as potential reduction possibilities for each sector.

Emissions for some of these sectors can still be improved. Within other sectors, the easy gains have already been achieved and reductions will come at significant costs or with complex and lengthy education programs. It is important to consider all of these sectors independently and to identify the most cost efficient changes with the greatest impact.

Dawson GHG Emissions by Sector
2017-2018



Energy Systems

Dawson College receives most of its energy from Hydro-Quebec, a state-owned electrical utility which produces about 99% of its energy from its network of hydro-electric dams. With this in mind, Dawson has undertaken to transfer some systems towards electricity. Dawson also started a vast energy efficiency renovation project in 2009. Performance contracts were signed with Johnson Controls Inc. and energy consumption was reduced by 26% since 2007-2008.

Major equipment was changed. Four new boilers were added in 2010 and the old ones retired and two chillers were replaced in 2010 and 2018 respectively.

A centralised control system, METASYS, was installed featuring thousands of temperature, CO^2 and humidity meters which relay the information to automatic controls meant to anticipate daily changes in occupation and ensure a consistence of temperature through the building. These controls ensure energy savings as adjustments are programmed to be automated.

Motion sensors were installed in all classrooms in 2015 and all 7,239 lighting fixtures were changed to LEDs in 2018/2019.

Our natural gas expenditures have gone from over $200,000/year (before 2008) to about $90,000/year (since 2015).

Electricity consumption has gone from about 17,000,000 Kw/h per year (1999 and before) to beneath 14,000,000 Kw/h per year (since 2014).

Further decreases might be difficult and expensive to gain but will be reviewed with our energy service provider and our energy efficiency partners.

For the moment, the best value is in educating staff on how their energy-related habits at Dawson can be improved. A climate action awareness campaign that is presented to new cohorts of students and for staff should be part of an action plan. This plan could highlight improvements that Dawson has made and be open to staff suggestions for behavioral changes.

Dawson should keep open to the idea of becoming energy producers for our own needs. Having a local source of clean energy (i.e. geothermal, solar or wind) would help reduce our emissions but also showcase alternative energy producing methods for students who may be studying energy systems or become house or building owners. The age of our building and its heritage status make this particularly difficult to address. Yet, if we manage to set up a viable project, we would be well placed to help others who are in similar situations (many Quebec colleges are housed in older buildings or heritage status buildings). How to reduce the carbon footprint of these buildings while maintaining their heritage value is an important consideration.

Equipment

Dawson has very little motorized equipment. We own only a few gasoline powered landscaping tools. Some of these might be replaced, as they need replacement, by electrical machines. The diesel generators that generate electricity when there is a power failure are the only machines that regularly use fossil fuels. No work has been done to reduce emissions related to this equipment.

Dawson should aim to reduce the emissions related to the equipment used by our external suppliers on campus. This could involve, particularly, companies that do work on our grounds. We can also review collaborating with suppliers and companies that use machinery on our campus to help them reduce emissions.

Refrigerants

The refrigerants (mainly Freon) used in the cooling system and for the refrigerators and freezers are powerful greenhouse gases and their use and disposal is covered by law. Dawson must absolutely respect these laws and ensure that its contractors do as well. Dawson must also ensure that the equipment that is used minimizes leaks so these powerful gases stay in the closed systems for which they were meant. Facilities staff should be aware of any cleaner technology that can be integrated into Dawson's climate action strategy.

Waste

An extensive review of Dawson's waste management was accomplished in 2018 resulting in:

1. a waste management draft plan document in 2019; and
2. reduction strategy implementation in 2019/2020.

Composting will enable the College to reduce the 200+ tons of GHG emissions (ref. 2018) resulting from organic material presently going to landfill as garbage.

Waste-sorting analyses have shown that about 60% of what the college sends to landfill is organic material that could be composted. In 2020, a provincial law will come into effect that makes it illegal to bury organic material.

The first phase in implementing the College-wide composting system was to change the infrastructure accordingly. In 2019/2020, composting stations were installed throughout the College. Phase 2 will involve offices, eating areas, laboratories and campus grounds. A waste-sorting awareness campaign was initiated with the goal of encouraging people to sort their waste correctly. This campaign will be repeated in order to reach new students.

The table below details waste production projections for the years ahead. We estimate that this material could represent a GHG emission reduction of 60 tons of CO^2 equivalent in the next four years.

Projected Objectives for Waste Tonnage

All Figures in Metric Tons	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Landfill	160 (174)	140 (49)	110	95	80
Compost	5	20 (20)	40	50	60
Recycling	50 (58)	55 (60)	60	60	60
Diversion Rate	26% (29%)	35% (35%)	48%	54%	60%
Total	215 (245)	215 (229)	210	205	200

Transport

47% of Quebec's greenhouse gas emissions are linked to transport. One would venture to think that this proportion would be less for Dawson, since transport to our urban location is so easy on public transit and relatively difficult by private automobile. The opposite is true. Transport is by far our biggest emissions sector, representing three times the emissions of the other sectors combined.

There are three sources to explore in transport-related emissions: business travel, commuting, and transport related to goods and services.

Dawson business travel: Dawson sends people to meetings and conferences and other types of events locally and throughout the world. This staff travel needs to be the first target for measurement, as it is directly related to Dawson business. Once this is accurately measured, means by which to reduce these emissions and perhaps compensate for them will be explored. A process to inventory college travel has begun with the help of the Information Technology Systems (ITS) Department and the Finance Department. Tabulation all of trips taken will be through the receipts and expense reports that are submitted by staff. Inputs through the accounting system and expense reports will be systematized so

not only the emissions from travel to and from the destination is accounted for, but also the travel while the trip is on-going and the hotel stays are considered as well.

Students also are sent off campus for sporting events, locally on field trips or abroad as part of their educational experience. Since 2017-2018, emissions from bus rentals and airplane travel were tabulated.

The possibility of getting staff to voluntarily compensate for their business travel are being considered. Eventually, mechanism to compensate for an airplane trip at the point of purchase of the trip will be considered.

The second part of transport emissions is related to commuting travel. A survey carried out in November of 2017 showed that the great majority of our community take public transit to Dawson (59% of employees and 89% of students). The fact that up to 10,000 people might be travelling to Dawson every day makes the impact quite large. In fact, this is our biggest single source of GHG emissions. We have determined emissions related to commuter travel at 1, 984 tons of GHG emissions per year for 2017-2018, or, 74% of our total emissions.

Dawson Business	Tons of CO^2 Equivalent
International – students	27
Local – students	57
Local –staff – car rentals	1
Total Business Travel	**84**
Commuting:	
Staff car	222
Staff transit	129
Student car	395
Student transit	1236
Total Commuting	**1984**
Total Emissions from Transport	**2068**

Our travel emissions indicate that 46% of the emissions related to this category (or 23% of Dawson's total emissions) emanate from the 5% of people who use cars for commuting to Dawson. A review of emission reduction strategies related to commuting is needed.

Awareness campaigns and educational programs that promote better commuting habits (i.e. promote public transit or active transport) will be developed with staff. Active transport (particularly by bicycle as it can be a reasonable alternative to the 48% of people who live within 10 kilometers of Dawson) will be further encouraged through awareness campaigns. To this end, Dawson has begun a certification program with Vélo-Quebec (named certification Vélo-Sympathique) by which advice will be given on strategies to increase the number of cyclists at Dawson.

A program like the one at Université Laval which enables users to compensate their own emissions as related to their commute to Dawson is being considered. This system, like any such system, would have to be easily accessed, publicized well, and contain necessary educational components. The Université Laval project is particularly interesting as the University offers matching funds and the money collected is used to promote projects that will further reduce the University' s carbon footprint. One example is the funding of a bicycle repair station and bicycle parking structure.

Electric cars, although few in number presently at Dawson, should be encouraged through the installation of an electric car recharging station. Research on the electrification of transport should be carefully considered as there are conflicting reports on its overall impact on emissions if electric vehicles replace fossil fuel burning cars rather than help significantly decrease transportation emissions in general.

The last transport component is goods and services associated with the operation of Dawson. This is difficult to calculate as modes of travel vary enormously from one contractor or provider of goods to the next. Travel emissions from contractors who wish to collaborate should be reviewed and documented in order to begin to ascertain emission reduction possibilities. Another approach might be to prioritize and give preference to delivery companies which are compensating for their greenhouse gas emissions or prioritizing technologies with less impactful practices.

Food

The growing, processing and distribution of food represents an enormous input to global greenhouse gas emissions. Since our food service provider is an incorporated food service contractor, we do not need to consider the emissions related to this sector in our totals. Furthermore, due to local competition, our food service provides a relatively small part of what the Dawson community eats. Food and dining indicators are already benchmarked with the college food service provider for such items as total food from local markets, percentage of sales for meat products, availability of vegetarian and vegan options daily, sustainable fisheries, fair trade options, and waste reduction initiatives.

Measuring these emissions is complicated, especially as much of the food that is served may not be easy to trace in terms of its origins. However, many of the indicators have reduction goals that do reduce GHG emissions.

The Dawson gardens and the weekly seasonal Dawson harvest market sells rooftop products that provide a rich display of local food and an example of urban agriculture. The impact of these endeavors would be difficult to quantify as many suppositions would have to be drawn about the food they are replacing. However, they do have a powerful educational impact as the gardens are frequently used and visited by classes and external partners. The actual visualization of zero transportation emissions from growth, harvest and sale point is a powerful educational tool that should be continued.

Purchasing and Contracts

Measuring greenhouse gas emissions from suppliers (and compensating for them) involves another level of commitment since the suppliers are also responsible for their emissions. We have worked with our food services supplier to include measures to make our cafeteria more sustainable. As an example, our cafeteria has embraced composting, is auditing the percentage of local food purchased and ensuring daily vegan and vegetarian choices are available.

Landscape management methods represent another emission reduction target.

Including clauses about greenhouse gas emissions in contracts ought to be considered. In the meantime, our contractors and suppliers need to be made aware of our pledge to be carbon responsible and encouraged to join us.

A sustainable purchasing guideline document has been created to further detail Dawson's purchasing policy to help college purchasing staff apply sustainability criteria within existing laws and contract protocol.

Offsets

Since 2014 Dawson has been offsetting its GHG emissions. Our recent offset provider is Taking Root, a Montreal-based not-for-profit NGO that plants trees with the help of local community workers around San Juan de Limay in Nicaragua. Farmers are paid a salary to plant and maintain trees that reforest marginal land they own in order to sequester CO^2. The project has many links with Dawson: it was started and is headed by Khalil Baker, a Dawson graduate who first went to Nicaragua with a student project. The project is further interesting as it supports Dawson classes and provides access to data about the reforestation.

The fact that it is far away, though, does bring our implication with the project into question. Some sustainability certification criteria promote the use of local offsets, and Nicaragua will not qualify. Yearly reviews of offset locations, growing year, biodiversity concerns, social justice issues and cost per ton of CO^2 (e) will be implemented. Our capacity to offset on our campus, at least with current technology, is very limited. We have considered the amount of CO^2absorbed by our trees on campus and will replace any tree cut with native species that will capture CO^2efficiently.

Vulnerability and Adaptation

Dawson's chief vulnerabilities as regards climate change are the same as the City of Montreal: flooding, potential epidemics, heat waves, ice storms, threats to our electrical system and water systems. A study by the Ouranous consortium explains the main vulnerabilities for Southern Quebec.

Other climate variables, such as ice storms, increased freeze thaw cycles or even prolonged heat waves, might put great stresses on our built systems as well as on our operating systems (water, electricity, heating and cooling). Current risk management, health & safety and building maintenance guidelines will have to address the increased stress on people and building operations caused by climate change.

Dawson is a “Living Campus” that promotes high-impact learning through action projects in an urban setting. The college has promoted microhabitats on campus and become an island of biodiversity in a city. This mission should continue in order to foster knowledge of native species and to make our population aware of changing ecosystems. “Greening” of the campus, both indoors and outdoors, with living walls, tree planting, ecological gardens, rooftop urban agriculture projects and microhabitats can reduce the college carbon footprint, be psychologically restorative for staff and students and lead to deep learning for the entire community. A Living Campus helps define Dawson’s value of Well-Being for All.

	Winter 2019	Fall 2019	Winter 2020	Fall 2020	Winter 2021
Plan			Review and develop	Approve and implement	
Energy	Continued improvements	Continued improvements	Publicity and education about individual actions. Seek energy production possibilities	Publicity and education about individual actions. Seek energy production possibilities	Publicity and education about individual actions. Seek energy production possibilities
Transport	Planning of campaign and measurement	Transport Survey	Improvements to public transit + active transport Launch offset program	Education and publicity about programs and improvements	Education and publicity about programs and improvements
Waste	Ongoing implementation of compost + publicity and education campaign	Ongoing implementation of compost + publicity and education campaign	Ongoing implementation of compost + publicity and education campaign. Review recycling procedures.	Ongoing implementation of compost + publicity and education campaign	Ongoing implementation of compost + publicity and education campaign
Purchasing	Consider possibilities		Work with purchasing department to review changes	Approval of new purchasing annex Work with one supplier as pilot	Adjustments to purchasing policy annex
New Buildings				Community input with regards to new building	On-going consultation

Facilities Management
Climate Action Guidelines 2020

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