

FOR RECOMMENDATION

PUBLIC

OPEN SESSION

TO: UTSC Campus Council

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DATE: Wednesday, November 22, 2017

AGENDA ITEM: *Additional Item (Open Session)*

ITEM IDENTIFICATION: 3

Capital Project: Greenhouse Gas Campus Retrofits Program (GGRP)

JURISDICTIONAL INFORMATION:

Under the *Policy on Capital Planning and Capital Projects*, proposals for capital projects over \$5 million and up to \$20 million must be considered by the appropriate Boards and Committees of Governing Council on the joint recommendation of the Vice President and Provost and the Vice President, University Operations. The Planning and Budget Committee will consider projects at the St. George campus and the respective Campus Affairs Committees and Campus Councils will consider projects at University of Toronto Mississauga and University of Toronto Scarborough and recommend them to the Academic Board for consideration. Normally, such projects will be placed on the Board's consent agenda and be confirmed by the Executive Committee of the Governing Council. Execution of such projects is approved by the Business Board.

If a project will require financing as part of the funding, the project proposal must be considered by the Business Board.

GOVERNANCE PATH

A. Project Planning Brief

1. UTM Campus Council [for recommendation] (November 21, 2017)
2. **UTSC Campus Council [for recommendation] (November 22, 2017)**
3. Academic Board [for recommendation] (November 23, 2017)
4. Business Board [financing, for recommendation] (November 27, 2017)
5. Executive Committee [for endorsement and forwarding] (December 5, 2017)
6. Governing Council [for approval] (December 14, 2017)

B. Execution of the Project

1. Business Board [for approval] (November 27, 2017)

PREVIOUS ACTION TAKEN:

No previous action taken.

HIGHLIGHTS

The Greenhouse Gas Campus Retrofits Program (GGRP) is a capital grant program established by the Ministry of Advanced Education and Skills Development (MAESD) to assist postsecondary institutions to reduce their greenhouse gas (GHG) emissions and improve energy efficiency of their campuses. MAESD has worked with the Ministry of Environment and Climate Change (MOECC) to develop a detailed program that will allow the sector to contribute to Ontario's efforts to reduce GHG emissions and move towards a low-carbon economy. This program is a part of the provincial Climate Change Action Plan (CCAP) and earmarks up to \$300 million in funding for the 2017-18 fiscal year for the university sector contingent on Cap and Trade auction proceeds; by law the proceeds must be reinvested in GHG reduction programs. The pre-public announcement to universities in September 2017 regarding the GGRP has the objective of supporting universities in their efforts to meet the provincial CCAP GHG emissions reduction targets of 37 % by 2030, and 80 % by 2050, below 1990 levels. There are three funds available to universities under the GGRP: the Retrofits Grant Fund for Cap and Trade Non-Participants, the Interest-free Loan Fund and the Innovation Grant Fund.

On November 9, 2017 MAESD released a Call for Proposals for the competitive portion of GGRP, the Innovation Grant Fund. Universities are required to respond to the Call in two stages, with the first response (single-year proposal) due on December 5, 2017 and the second response (multi-year proposal) due on December 22, 2017.

The University of Toronto will respond to the Call and will also participate in the other two funds, and hence is seeking approval for an integrated capital project envelope and borrowing under the GGRP Loan Program. It is envisioned that over the next four years, the University will complete about \$100 million in GHG emission reduction projects.

The three GGRP funds are described below:

1. **Retrofits Grant Fund for Cap and Trade Non-Participants (provincial total \$22.8 million):** provides grant funding to cap and trade non-participants to pursue GHG reducing retrofit projects, as they do not receive free allowances through the provincial Cap and Trade program. Projects under this fund are expected to be substantially completed by March 31, 2019. UTSC and UTM have each been allocated funds from this fund.
2. **Interest-Free Loan Fund (provincial total \$200 million):** available to all institutions, with allocations based on each institution's direct stationary GHG emissions, with interest costs subsidized by the province. Projects approved under this fund must achieve a payback period on the loan within 10 years. The loan funds are available for four years, from 2017-18 to 2020-21. The total amount of the interest-free loan allocated to UofT will be signed as one loan agreement between the University and the Ontario Financing Authority. Principal loan repayment funds will be derived from the savings related to the capital projects noted above. UTSC, UTM and the St.

George campus have been allocated funds from this fund (in addition to the non-participants funds noted in above.)

Eligibility for the Loan Fund: the MAESD submission template outlines the following categories of retrofit projects eligible for the loan fund (and provides detailed examples within each category):

- Lighting (e.g. LED, controls and sensors)
- HVAC and controls (e.g. HE boilers, furnaces, motors, chillers, pumps; real-time monitoring)
- Building envelope (e.g. EE windows, doors, air sealing, green roof, new roof, passive building)
- Various (battery, solar, chilled water solar PV, electric vehicle charging stations)

3. **The Innovation Grant Fund (provincial total \$77.2 million):** provides universities with an opportunity to compete for grant funding to support larger projects that reduce GHG emissions. The intention of this fund is to support projects that demonstrate innovative plans and approaches to increase campus sustainability and reduce GHG emissions, while also supporting other institutional and Strategic Mandate Agreement (SMA) priorities. The fund will be administered through a Call for Proposals; single-year project decisions will be communicated to universities in January 2018 and multi-year project decisions in early 2018. Projects selected for single-year funding are expected to be substantially completed by March 31, 2019. This fund is available to UofT as one single institution.

- a. **Single-year Project Proposals:** A maximum of one single-year funded project submission per institution can be made to draw on this fund;
- b. **Multi-year Project Proposals:** The province will also consider multi-year projects through the Innovation Grant Fund. All multi-year project proposals will be subject to additional approvals, as there is currently no funding commitment for projects beyond 2017-18.

Eligibility for the Innovation Grant Fund: In order to be eligible for funding, institutions must demonstrate the following:

- That the projects fit into an existing, broader plan for achieving sustainability and a low-carbon campus;
- That the projects also aim to support opportunities for student experiential learning, be aligned with university Strategic Mandate Agreements made with MAESD, and offer community/societal benefits. For the Innovation Grant Fund, projects that identify co-benefits in addition to demonstrating GHG reduction potential will be given preference to those proposals that only reduce GHG emissions.
- That projects pursue recognized GHG emissions reductions, as directed by the Ministry of the Environment and Climate Change (MOECC)
- May include retrofit projects, net zero upgrades, new build projects

Fund stacking: Institutions may combine Interest-Free Loan and/or Retrofits Grant for Non-Participants funding with a proposed Innovation Grant Fund amount to support a larger project. However, the requirements of each fund type utilized must be met.

UNIVERSITY OF TORONTO GHG REDUCTION PLAN AND THE GGRP

The University has an excellent track record of reducing utility consumption and GHGs through the execution of hundreds of water and energy reducing projects over the past decade. Aligning with provincial eligibility criteria, we have selected projects with the highest value, measured as cost per CO₂ metric ton. While discrete projects are identified for our application to the Innovation Fund, projects have been chosen to integrate funding from the Innovation and Loan GGRP funds, and University operating funds, across all three campuses. Due to the accelerated nature of the GGRP program and the deadline for proposals, the proposed projects do not yet have full project planning reports. The following are summaries of the integrated single-year and multi-year projects for St. George, UTSC and UTM for which we will be seeking GGRP funding.

Projects noted below represent all three campuses and have been developed in such a way as to allow for further funding under the multi-year Innovation Grant application. In order to accelerate the critical projects, Innovation funds will be leveraged with GGRP Interest-free Loan funds and University operating funds. We will apply these funds to multiple tri-campus projects over the GGRP Interest-free Loan period.

- Improving the efficiency of research intensive buildings through the use of automated computerized building and fume hood controls
- Introduction of DDC building controls in a number of campus buildings currently equipped with legacy systems or having no automation system at all
- Deep energy retrofits of select inefficient academic and administrative buildings focusing on improving the insulation of the building envelope and roofing systems, energy efficient windows, HVAC systems and lighting
- Installation of primary and sub-metering on all buildings currently without this technology on the campus
- Installation of renewable systems which marry photovoltaic electrical producing arrays with solar thermal array systems producing electricity and hot water simultaneously
- We will continue to progress on our current project of converting all lamps on the campus to high efficiency LED technology.

SINGLE-YEAR PROJECTS

The following are details of project at UTSC that fold into our proposal.

UTSC

UTSC has been allocated funds by MAESD from the Retrofits Grant Fund for Cap and Trade Non-Participants and from the Interest-free Loan Fund. UTSC will be utilizing the Retrofit Grant Fund for Cap and Trade Non-Participants to focus on GHG reduction directly via reduction of heating demand in its highest heating demand density areas. In addition, transitioning from the current medium of steam to hot water in these areas will allow for future renewable energy options. UTSC will use the Loan Fund to execute a series of electricity related demand reduction projects including LED retrofits focusing on areas with long operating hours to ensure utility recovery payback.

The St. George campus and UTM will have similar single-year projects.

MULTI-YEAR PROJECTS

The following projects represent current thinking regarding outer years. Further funding is being sought under the multi-year Innovation Grant application to continue the innovative work begun during the single-year project timeline (to March 30, 2019).

UTSC planned to distribute energy to the North Campus along with solar arrays and other measures, which would be determined as business cases developed. The concepts will include linking building hot water systems (distributed energy) that allow for heat to be distributed and balanced across buildings during peak load production. In addition to the 1800 solar arrays currently on the campus, UTSC will continue to explore additional solar arrays, for both production of electricity and hot water, on existing buildings as well as new construction projects. These innovations will strive for research, evaluation, and business partnerships with Centennial College and our Department of Physical and Environmental Sciences at UTSC.

NEXT STEPS

Achieving successful completion within the timeframe allowed for the grant funded projects will require them to be executed in an efficient manner. Generally, this will mean that multiple initiatives in any given building or multiple projects of the same type will be bundled together as a “project” for the purposes of both design and construction. Of particular note, the project to upgrade the Central Utilities Plant boiler has already commenced, but is able to take advantage of the Retrofits Grant Fund as it is available for projects retroactive to April 1, 2017.

Project specifics will be brought back to UTSC Campus Council for information.

FINANCIAL IMPLICATIONS

Discussion of overall costs can be found in the *in camera* document for this project.

a) The Funding Sources for UTSC total project cost to March 31, 2019

Greenhouse Gas Campus Retrofit Interest-Free Loan Fund
Retrofits Grant Fund for Cap and Trade Non-Participants

RECOMMENDATION:

Be It Recommended,

THAT the project for the University of Toronto Scarborough Greenhouse Gas Campus Retrofit Program be approved in principle to be funded from the following sources:

1. Greenhouse Gas Campus Retrofits Grant Fund for Cap and Trade Non-Participants
2. Greenhouse Gas Campus Retrofits Interest-Free Loan Fund

DOCUMENTATION PROVIDED:

N/A

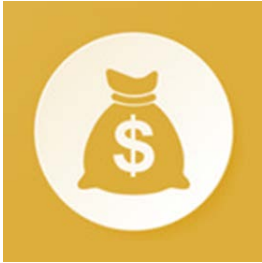
GREEN HOUSE GAS REDUCTION PROGRAM

Campus Council November 22, 2017

Greenhouse Gas Reduction – MAESD

- MAESD – Provincial Ministry of Advanced Education and Skills Development
- Providing funding to Universities to reduce Greenhouse Gas Emissions
- Aligns with the Provincial Climate Change Action Plan (37% by 2030 – 80 % by 2050 across all sectors)
- 3 Types of funding to UTSC – Fixed Grant, Interest Free Loan and possibly Innovation (Single year and Multi Year (funding to sector for Multi year not yet finalized))

Requiring approval of Business Board & Academic Board:



<i>Interest-free Loan Fund</i>		<i>\$44.0M</i>
St. George	MAESD allocation	\$37.0M
UTM	MAESD allocation	\$ 3.5M
UTSC	MAESD allocation	\$ 3.5M



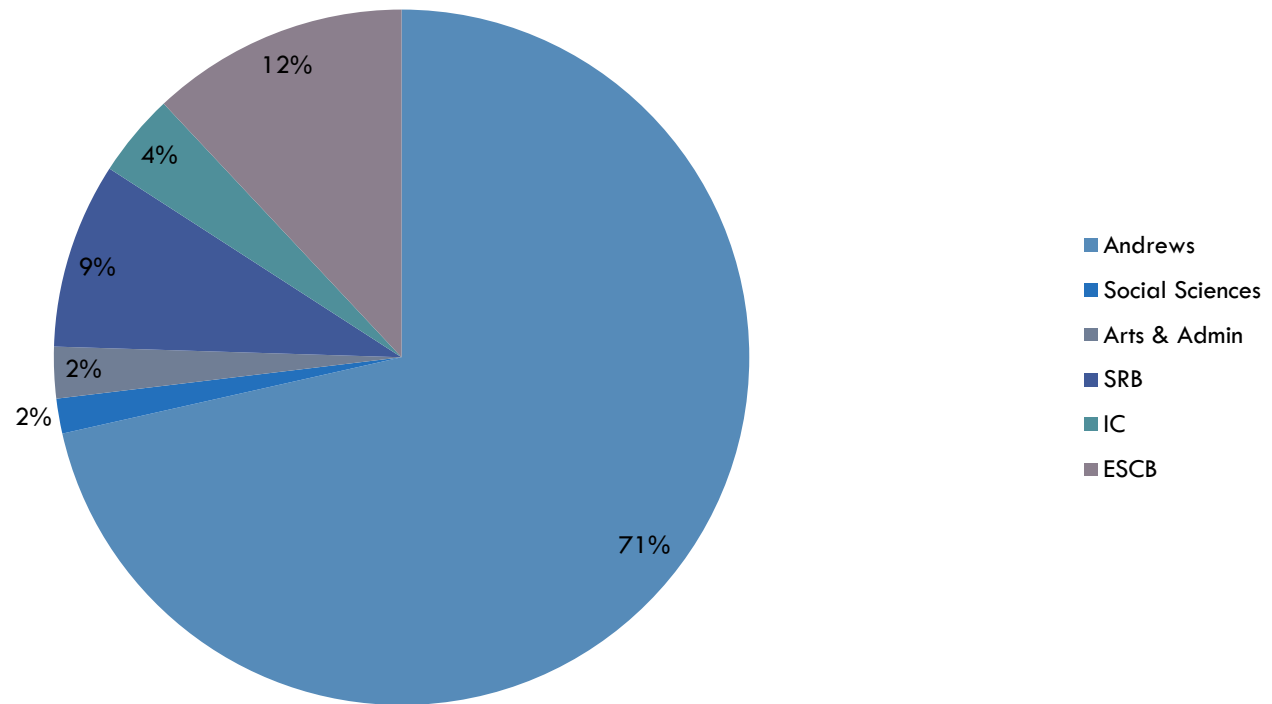
Innovation Grant Fund		
Single-year project		\$20M pending
MAESD approval		
Multi-year project(s)		\$TBD



Retrofits Grant Fund for Cap and Trade Non-Participants		
UTM	MAESD allocation	\$ 3.5M
UTSC	MAESD allocation	\$ 3.5M

Greenhouse Gas Reduction – MAESD

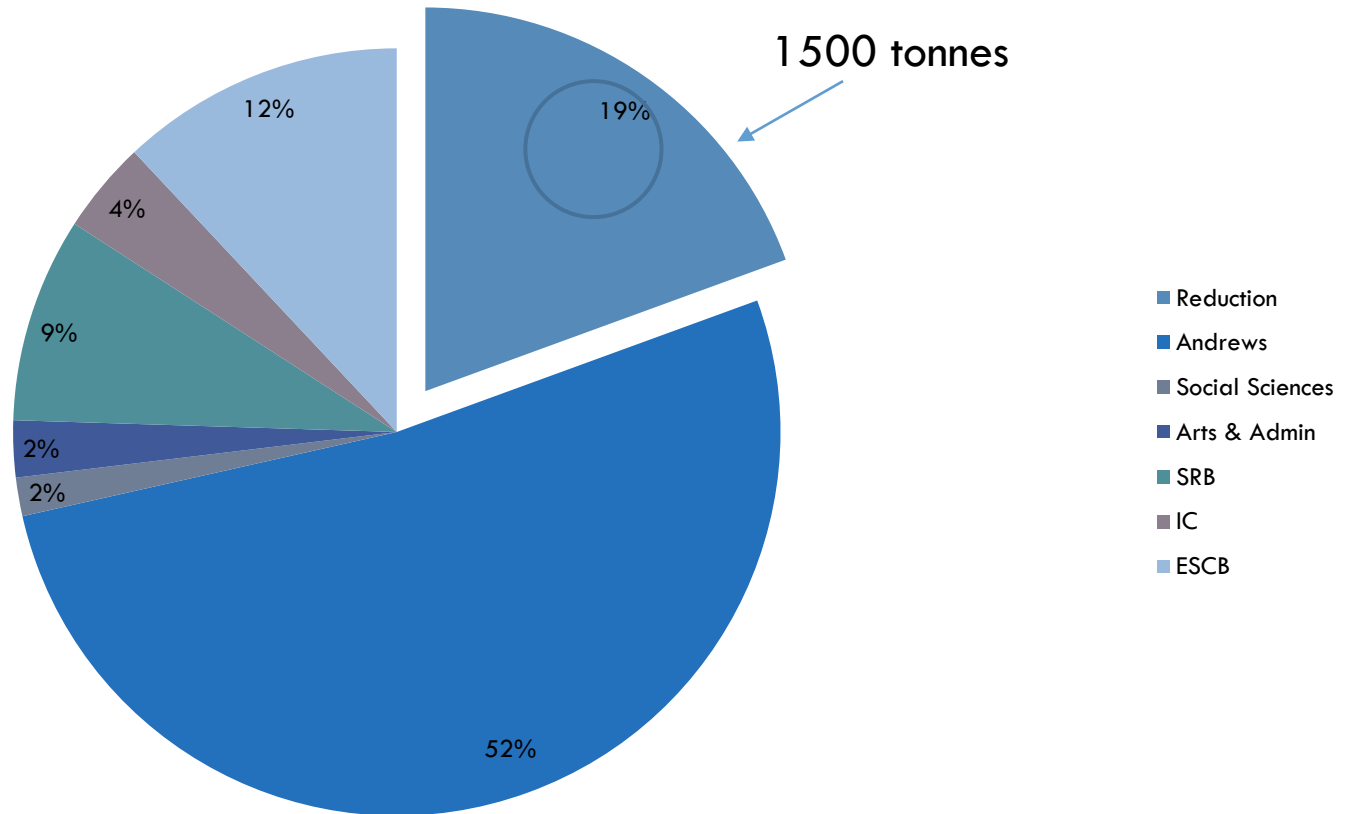
□ UTSC Scope 1 GHG's – approx. 8000 Tonnes CO2



GGRP – Fixed Grant (3.4 Million)

- UTSC will received a fixed amount of 3.4 Million
- Focus on high intensity areas dealing with direct combustion (GHG's Scope 1 – Heating).
- Some examples are:
 - ▣ Fume hood controls
 - ▣ Demand Control Ventilation
 - ▣ Replacement of the remaining Air handling systems

GGRP – Fixed Grant (19 % Reduction)

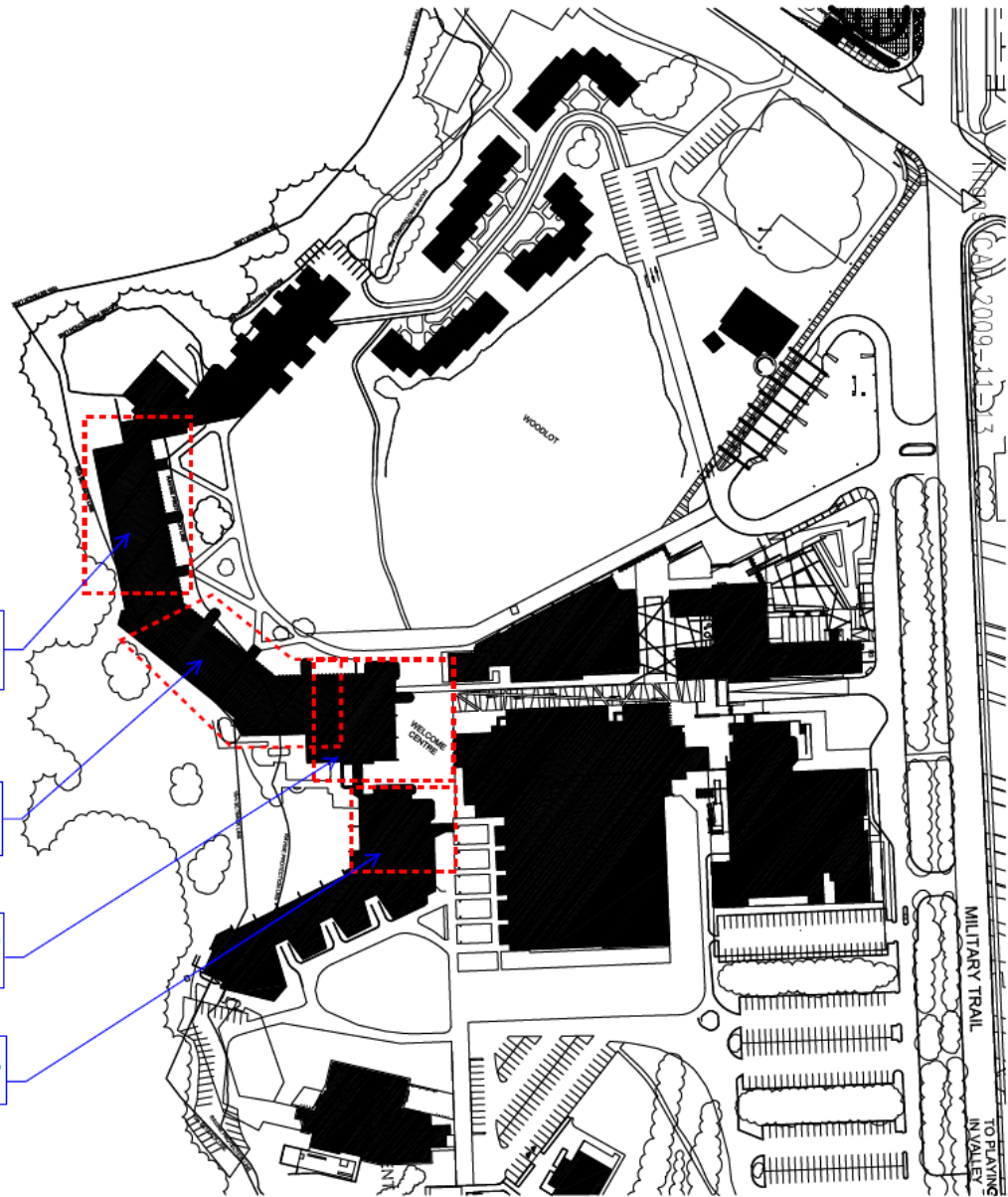


HEATING CONVERSION + D.C.V.
- 400 TONNES

D.C.V. + HEAT RECOVERY
- 200 TONNES

CENTRAL UTILITIES PLANT EFF.
- 700 TONNES

MARKET PLACE DCV.
- 200 TONNES



GGRP – Interest Free Loan (3.4 Million)

- Financial Payback/Utility Savings will be monitored and used to pay back the loan.
- Loan will focus on electricity reduction which have higher Utility Rates and result in a higher payback.
- Some examples will be LED lighting retrofits in high occupancy areas (ie. Meeting Place)

GGRP – Innovation (Single Year)

- \$ 77.2 Million Across Sector (18 Universities) In a competition
- AT UTSC Focus on Central Utilities (Heating) on the South Campus
- Optimized solution to hopefully include renewables like Geothermal

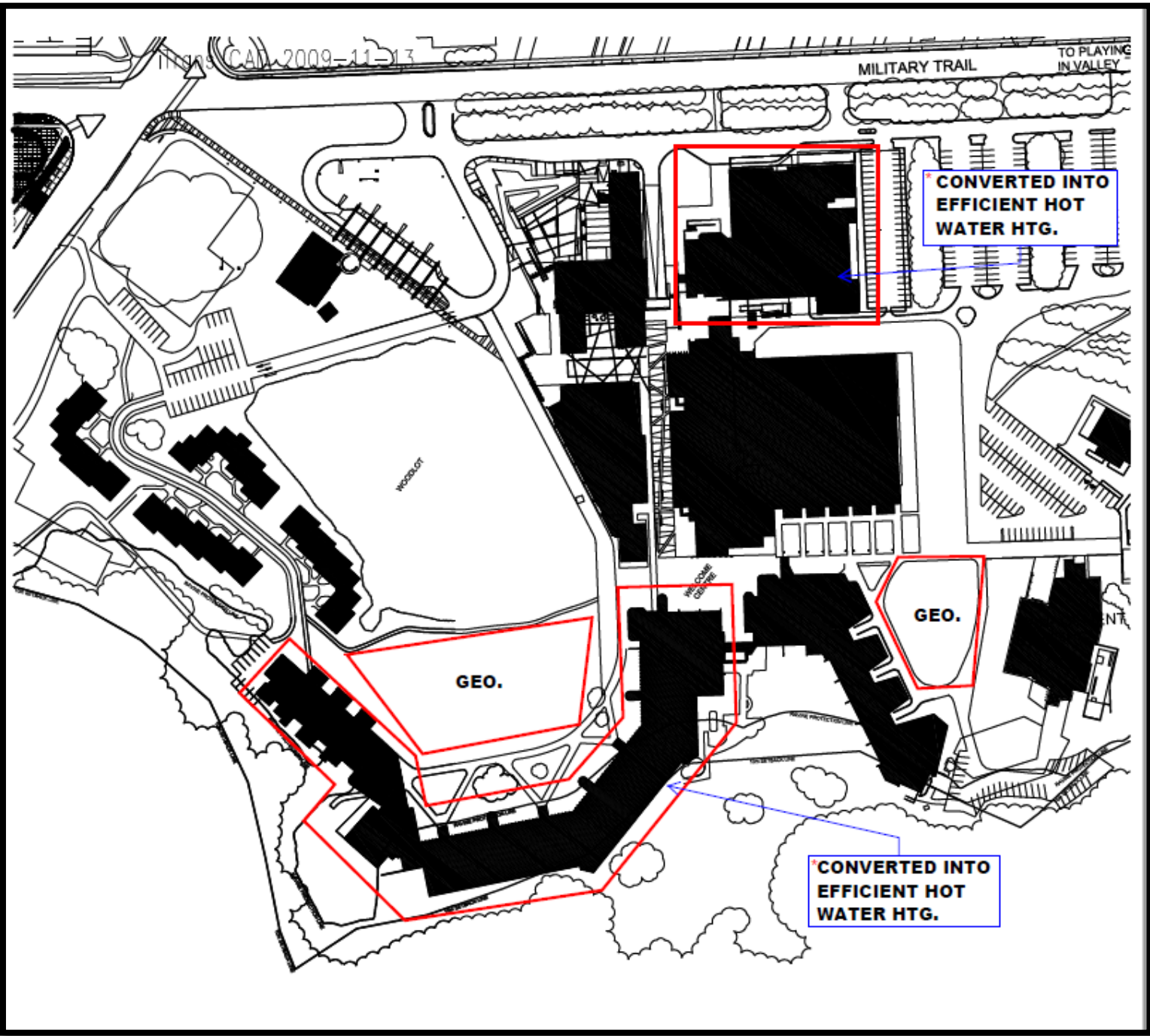
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WOODLOT

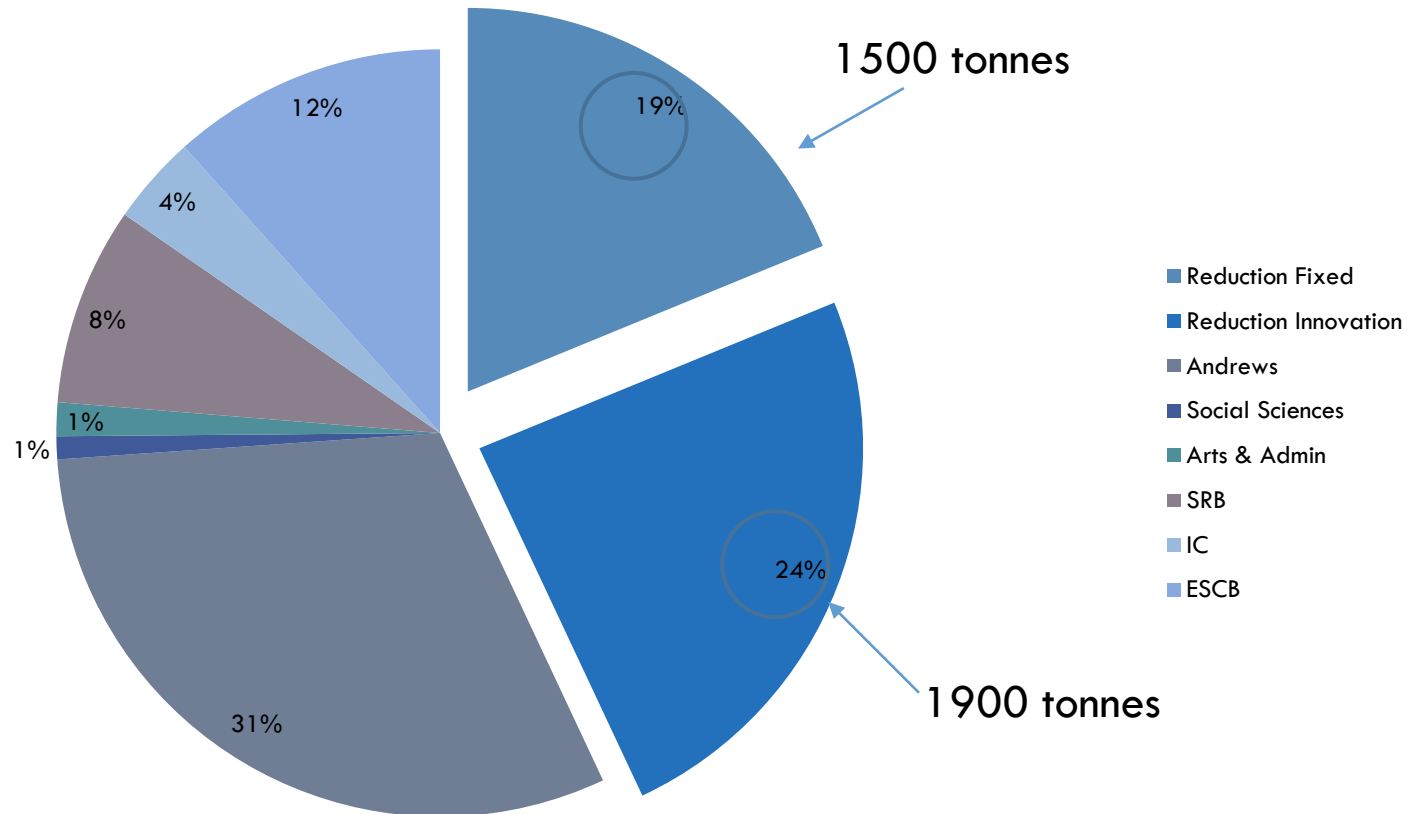
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GGRP – Grant + Innovation (43 %)



GGRP – Innovation (Multi-year)

- MAESD is requesting multi year proposals and will possibly come forward with a supplement to the program
- Focus would be on North Campus Development taking development toward net zero with distributed energy, solar etc.
- Potential Synergy in a Tri Campus Plan