

Gonzaga Climate Action Plan

As submitted by the ENVS 499 Senior Capstone Course.

As part of the Gonzaga's Environmental Studies department senior capstone course (Spring 2012) taught by Greg Gordon, PhD, the following students conceived, designed, and implemented this project. This semester coincided with the university's development of a Climate Action Plan through the ACSS. Students researched CAPs from other universities, attended ACSS meetings, met with faculty and staff, researched and presented their recommendations. What follows is their final project.

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Overview

As a Jesuit, Catholic institution, Gonzaga University cultivates a community that exhibits an integrated spiritual, social, and ecological vision. On January 29, 2009, President Robert Spitzer, SJ approved the creation of the Advisory Council on Stewardship and Sustainability (ACSS), calling on individuals across the institution to make recommendations regarding the University's role in stewardship and sustainability. On October 7, 2010, President Thayne McCulloh signed the American College and University Presidents' Climate Commitment (ACUPCC) and charged the ACSS with the responsibility of implementing this commitment, linking Gonzaga University with nearly 700 institutions across the country dedicated to achieving carbon neutrality. Furthermore, the Society of Jesus, in its 34th General Congregation, described climate change as an unprecedented challenge. With a stated devotion to social justice, moral judgement, and intellectual inquiry, Gonzaga University has developed this Climate Action Plan (CAP) in acknowledgement of its pledge to direct its resources to address the human impact on the environment.

As a part of Creation, we are constantly, from birth to death, and beyond, in an intimate and inextricable relationship with our environment. Similarly, in an International Pastoral Letter, The Catholic Bishops of the Columbia River Watershed Region noted:

We live in a literal watershed and are simultaneously at a figurative watershed moment, a time of making important decisions that will impact, into an unforeseeable future, this place we call home and habitat. It is now important to envision how we can rise to meet our responsibility to care for the waters in the present, and for the future.

Degradation of the environment, overuse of resources, and alteration of global climate will affect us all, but will be felt disproportionately by the poor and disadvantaged. Gonzaga University faces the challenge of gathering strength from its surrounding community to correct the path on which we currently travel, to ensure that the actions of the blessed and privileged have a positive and constructive impact on the whole of Creation.

Therefore, Gonzaga University has undertaken this responsibility to restore its relationship with Creation by establishing a plan to preserve the ecological harmony which characterizes our Earth community. In order to meet this goal of faith and flourishing, the ACSS created this collection of visions, values, and objectives to breathe life into the university's climate commitment and structure a discussion around campus climate neutrality. As we are called by Creation to be stewards of the natural world to maintain its natural integrity, the University's commitment to sustainability has deep meaning and importance. Sustainability, as defined by the 1987 UN Brundtland Commission as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs," is a necessary and consistent value in the University's moral commitment to the ecological crisis. As Pope John Paul II stated, "there is an order in the universe which must be respected, and that the human person, endowed with the capability of choosing freely, has a grave responsibility to preserve this order for the well-being of future generations."

This document presents the 2012 Climate Action Plan (CAP) for Gonzaga University. The purpose of this CAP is to provide instruction for achieving greenhouse gas (GHG) reductions as prescribed by Gonzaga University and the ACUPCC. This CAP consists of agreed upon targets informed by current data, technologies, and understanding. GU will use the steps outlined in the CAP to achieve climate neutrality. As a living document, the university will use this CAP to re-visit and revise progress on an on-going basis.

Section 1 – Campus Culture

The peoples of the region, though in distinct local communities, are envisioned as a unit connected by the web of waters and integrated as one watershed community

– The Columbia River Watershed: Caring for Creation and the Common Good

The ecological crisis is, first and foremost, a cultural crisis. A lack of reciprocity and respect for our local community and nature has led to an imbalance in ecological stability. Our region is connected both as an ecological community and as a social community. As the impact of our lives on others' livelihoods intensifies, our culture must reflect a deepening commitment to mutuality and interrelationship. Standing alone, we will be washed away in the current; together, we create our own tide.

Gonzaga University will stand with the Spokane community towards building a deeper ecological and communal connection. With the creation of this network Gonzaga University will work towards carbon neutrality by creating an interconnected, diverse community.

Public support is essential to ensuring that our values and goals are translated into behavioral changes. This section will address the climate of campus culture to identify key areas for action and community unification. Communicating the goals of the Climate Action Plan to the Gonzaga community is an essential component of achieving carbon neutrality and reducing the university's ecological footprint.

Gonzaga will address campus culture by focusing on three strategies:

1. Raise awareness about campus climate and sustainability initiatives
2. Encourage behavioral changes and support the goals of the CAP
3. Partner with the Spokane community to educate and promote cooperation

Present Initiatives

Gonzaga University encourages students to organize on campus and get involved in order to create a diverse educational community that shares in the interests and knowledge of others. Several organizations and clubs on campus educate and advocate for environmental issues, and have already changed campus culture. Their efforts are summarized below.

Gonzaga Outdoors

Gonzaga Outdoors provides students with opportunities and recourse to explore the wild areas of the Inland Northwest with guided adventures, stewardship projects and workshops. The organization gives students the chance to gain skills and knowledge regarding the wildlife and ecology of the Inland Northwest while gaining a sense of place and appreciation for nature and an active lifestyle. Currently the program is actively supporting bike community through their bike shop for all Gonzaga community members, bike rental and The Green Bike Program, which recycles bikes back to students for semester rentals.

Gonzaga Environmental Organization (GEO)

The student-led Gonzaga Environmental Organization (GEO) brings together students concerned about environmental issues to advocate for activities and initiatives that increase

awareness about environmental issues, promote environmentally-friendly initiatives on campus, and educate the greater University and Spokane Community. In addition to increasing availability of recycling on campus and coordinating Earth Week activities, members of GEO volunteer for a variety of environmental causes in the Spokane community. Students actively celebrate to realize a more sustainable world.

Gonzaga Student Body Association (GSBA)

The Gonzaga Student Body Association (GSBA) proposed and put into effect a mandate to ban single-use plastic water bottles on campus and provide reusable water bottles to all incoming students. In 2011 GSBA banned single-use Styrofoam containers, with the help of GEO. In the fall of 2011 GSBA organized a committee of interested student to study and help implement an opt-out student Green Fund that would support student run sustainability projects on campus. The Student Senate has passed a resolution supporting the creation of the Student Green fund after over 900 students were surveyed.

Center for Community Action and Service Learning (CCASL)

The Center for Community Action and Service Learning (CCASL) organizes community service activities on campus and in the community. Many of these activities relate to sustainability and environmental awareness. One such campaign is The Notebook Project, in which recycled cereal-box cardboard and office paper are bound together to form a notebook that is sold at the CCASL house and the campus bookstore. All proceeds benefit Earthbound, a fund that provides volunteer opportunities operating environmentally focused programs at local elementary and middle schools. CCASL has also constructed Community Garden that feeds food insecure Spokane community members as part of the campus kitchens a program that diverts food waste.

Recommendations

Design of the New Student Center

The construction of the new University Center is about more than simple design. Constructing a new building, especially one so central to campus life, sends a strong message to future students and employees about what values are important to our institution. The University Center must send a message that is consistent with the goals of the Climate Action Plan by emulating the most progressive and inspirational building designs. This new construction will have a profound influence on the development of the Gonzaga's campus culture, and so the students of ENV5 499 took it upon themselves to make recommendations on the design of the building. Because construction will begin soon after the CAP takes effect, this document should take advantage of this opportunity to influence the campus for decades to come by advocating for a building design that promotes the values of sustainability, education, and leadership on environmental issues. See **Appendix A** for specific recommendations on the amenities, educational opportunities, design possibilities, and aesthetics of the University Center.

New Student Orientation

The New Student Orientation program provides an excellent opportunity to influence the attitudes and impressions students have about Gonzaga. Including messages and informative activities during orientation about sustainability and the campus' current efforts will instill a belief in students that the Gonzaga community cares about the environment and is taking active

steps to address relevant environmental issues. New Student Orientation will incorporate three elements to achieve this goal. First, orientation will include the distribution of newsletters, fliers, and emails informing students about sustainability activities and organizations on campus. Second, organizers will create demonstrations and exhibits carried out in the residence halls that inform students about their environmental impact. Third, educational meetings and speakers will inform students about environmental problems and solutions in the Inland Northwest. (See Appendix A for specific recommendations)

Environmental Outreach

Building on Spokane's strengths as a community, Gonzaga will collaborate with local and regional environmental organizations. Partnership with environmental organizations will build trust with the Spokane community and communicate the university's commitment to its prosperity. Gonzaga students will have the opportunity to surround themselves with like-minded individuals in the community and shape who they are as individuals and members of the Gonzaga and Spokane community. (See Appendix A for a list of local and regional environmental organizations)

Stakeholders

- Representatives of the student body
- Student Life (representative from the Office of Student Life)
- Student Government (representative from GSBA)
- Residential Life
- Members of organizations like GEO and GU Outdoors
- New Student Orientation

Key Performance Indicators

Survey Student Awareness, Student Satisfaction, Values

Surveys and questionnaires will be distributed throughout the year by different organizations. Residence Life, GSBA, GEO, CCASL, and other organizations would produce surveys looking at the current state of sustainability awareness and culture amongst the Gonzaga community. In addition, following surveys would examine the effectiveness and general opinion of participants involved in sustainability events and measures.

Amount and Extent of Community Connections

A list of Spokane environmental organizations who are interested or currently working with Gonzaga University on sustainability will be created and updated on a yearly basis. Spokane organizations were asked if they were interested in: coming to campus and educating students about the organization, host a workshop and other educational events, be available for an interview, and provide internships or other service learning opportunities.

Attendance at Sustainability Events

The attendance and popularity of the sustainability events will give an insight on the overall enthusiasm and active involvement amongst the Gonzaga student, faculty, and staff population. Hopefully over time sustainability events will gather attendance from a wide demographic of participants affiliated with different majors, concentrations, occupations, and personal opinions.

Section 2 – Education

The deepening of our faith experience in God's creative gift of life calls for transformative change in the way we respond to the urgent task of reconciliation with creation.

– Healing a Broken World

Knowledge emerges from our experiencing Creation with authentic reflection. Communion with nature provides an ecological solidarity and shared awareness that major environmental change will have catastrophic effects on human communities throughout the globe. Experience gives us the power of discernment in a path toward prudent action. A change of heart can direct us toward the proper path of reconciliation with Creation, of healing a broken relationship with Earth. The first step to heal this relationship is education.

Present Initiatives

The degree programs at Gonzaga University currently include two undergraduate majors that emphasize environmental sustainability.

B.A. in Environmental Studies

In 2009 Gonzaga University added an Environmental Studies Major and Minor program within the College of Arts and Sciences. The interdisciplinary Environmental Studies program integrates theory and practice to produce global citizens with the capacity to solve the planet's most pressing environmental and social concerns. Such a program empowers students to initiate and facilitate environmental stewardship and sustainability, both within the Gonzaga community and the bioregion. The 36-credit major is built upon integrating science, humanities, and social science courses. The required introductory interdisciplinary course and senior symposium build cohesion and a sense of community for the major.

The Environmental Studies program is based upon four essential foundations: eco-literacy, ethical awareness, reflective practice, and authentic application. This foundation encompasses Gonzaga's baccalaureate goals and the core principles of Jesuit education of experience, reflection, and action. The essence of an environmental studies program based upon such principles addresses the question of: "How do we build a just and sustainable future?"

B.S.C.E. in Civil Engineering

The Civil Engineering Department is part of Gonzaga's School of Engineering and Applied Science. Students completing the requirements for a degree in civil engineering have a choice of technical electives from four areas: environmental engineering, geotechnical engineering, structural engineering, and water resources engineering. Students may enroll in an environmental engineering concentration requiring additional course work, which provides a strong background in the essential areas of environmental engineering.

B.B.A in Sustainable Business (Official name TBD)

The Business School is in the process of developing a focus on sustainability.

Gonzaga Law School

The Gonzaga Environmental Law Clinic provides legal representation to not-for-profit environmental organizations in the Inland Northwest, such as the Spokane Riverkeeper. The Clinic gives students an opportunity to apply academics to legal practice. While they are enrolled in the Clinic, students will represent Spokane Riverkeeper, or other applicable organizations, on Clean Water Act citizen suit enforcement actions. Students may also appear on behalf of a client in front of regulatory agencies, provide written comments, or forward the mission of an environmental group.

Sustainability across the curriculum

Classes focused on sustainability, food ethics, social justice, and other environmental issues are currently offered within the following departments: engineering, philosophy, chemistry, biology, religion, history, sociology, psychology, economics, entrepreneurship, and political science. (A full list of classes by major can be viewed in Appendix E)

Recommendations

Curriculum Revision

Environmental issues are relevant in every major and should be incorporated more effectively within the curriculum. Incorporating sustainability into university education requires the following revisions to the curriculum:

1. Students will be required to complete one core course that focuses on environmental issues.
2. Students will be required to complete one course within their major that focuses on environmental issues specific to their area of study. Workshops will be provided to assist faculty incorporate this material in their classes.

In order to incorporate environmental material into majors, sustainability workshops will be provided to assist faculty integration of environmental issues into courses. These workshops will be based upon the Curriculum for Bioregion and Green Threads Workshops currently taught by the Washington Center. Before workshops take place, the individuals leading the workshop will meet to collaborate with the Dean or Assistant Dean of each school to determine how environmental issues relate to each college. Deans and Assistant Deans will be encouraged to attend the sessions. Faculty will be given monetary incentives to encourage attendance and participation.

While students can currently take social justice, science, religion and philosophy classes that pertain to environmental topics during their junior and senior year, there are not enough of these classes offered to allow each student to take the proposed one class minimum. To meet these requirements, a freshman seminar class will be mandatory for all freshman and transfer students. This seminar class will connect the class theme with the local community and environmental issues. Additionally, more upper division classes within social justice, science, religion and philosophy will be offered for students who wish to pursue these topics in more depth.

Environmental Study and Research

Gonzaga University is an undergraduate institution with a relatively small number of faculty conducting undergraduate-driven research. Despite these relatively small numbers, Gonzaga University can and will do its part to contribute meaningful scientific research. One of the primary areas of environmental research is the study of climate change. For example, faculty are working to understand more about how climate change and other anthropogenic factors affect ecological systems. Additionally, student and faculty researchers are working to solve problems such as how to implement agriculture into urban communities.

Key Performance Indicators

Survey

Students will be given a short survey at the beginning of their freshman year and the end of their senior year to gauge improvements in environmental education. This survey will seek to assess environmental awareness and knowledge as well as the value students place on the environment. Furthermore, in the final senior survey, students will be asked which classes addressed environmental issues and how significant they were to their education.

Registrar Data

Use data from the registrar office to determine the number of students who have taken a sustainability or environmentally-related course

Alumni Information

Number of alumni working in climate or sustainability fields.

Section 3 – Infrastructure

Or do you not know that your body is a temple of the Holy Spirit
within you, whom you have from God?
– 1 Corinthians 6:19

Ecology comes from the Greek *oikos*, meaning inhabited house or place of dwelling. *Oikos* encompasses the whole relation of a lived place. This Greek phrase is often repeated in the Bible accompanying illustrations of homes as the sites of miracles, religious gathering, and communion. As the body itself is the dwelling place of God, the spaces we live in contain sacred meaning. Managing the footprint of Gonzaga University will be a constant endeavor. The University is not only the sacred living space of our students, but also resides within a sacred environment.

Gonzaga University is committed to work towards climate neutrality, or zero net emissions. As a signatory to the American College and University Presidents Climate Commitment (ACUPCC), Gonzaga has adopted the responsibility to reduce its Scope 1 and Scope 2 emissions through cultivation of a campus infrastructure which minimizes and eventually eliminates net carbon emissions. In order to achieve necessary reductions, this plan establishes a Campus Energy Efficiency Project Advisory Council (CEEPAC) to implement the following objectives:

1. Gonzaga University must appoint a full-time Sustainability Coordinator who will be tasked with ensuring that Gonzaga is able to live out its responsibilities properly. The Sustainability Coordinator will be an important fixture in helping Gonzaga meet its climate commitment, and will be well positioned to oversee and guide the various elements of the Climate Action Plan.
2. Preventing future emissions in new infrastructure. New buildings will be designed to meet a minimum of LEED Silver standards and built to minimize carbon footprint. All other new infrastructure will be analyzed for carbon efficiency before construction; design will seek to minimize the Scope 1 and Scope 2 emissions of all future permanent structures and plant maintenance practices.
3. Reducing current emissions through retrofitting and establishment of sustainable plant management practices. Among CEEPAC's primary responsibilities is the development of retrofitting projects on campus to reduce Scope 1 and Scope 2 emissions of existing structures and maintenance practices.
4. Offset of all non-reducible emissions. Due to Gonzaga's location, some emissions (particularly those associated with heating) may be unavoidable. Purchase of emissions offsets will be phased in to meet those emissions. Purchase of offsets is not intended to replace concerted efforts to reduce emissions. The Sustainability Coordinator will establish a functional timeline for increasing the percentage of net carbon emissions over successive years until Scope 1 and Scope 2 emissions are eliminated.

Present Initiatives

PACCAR Center for Engineering

Currently, Gonzaga's only LEED certified building is the PACCAR Center for Engineering. In 2010, PACCAR was given the prestigious Gold certification rating from LEED. The Gold rating is the second highest rating that LEED gives.

Recommendations

The Campus Energy Efficiency Project Advisory Council (CEEPAC)

The Campus Energy Efficiency Project Advisory Council (CEEPAC) will include the following groups and departments to be represented in the council. This group will manage and implement all sustainable infrastructure initiatives outlined in this plan. CEEPAC will be charged with selection, implementation, and assessment of these projects.

Stakeholders

- Sustainability Council
- Associated Students (GSBA)
- Plant Services (3 Representatives)
- College of Arts and Sciences Dean's Office
- Environmental Studies Department
- Information Services/IT
- School of Business
- Office of Sustainability
- Provost Office (Senior academic administrator)
- School of Engineering
- School of Law
- Student life
- University Operations
- University Relations
- Finance (Purchasing)
- Housing/ Development
- Sodexo
- Jesuit/Campus Ministry

Governance and Responsibilities

CEEPAC will meet at least two times per year and produce a report on the status of campus projects and other sustainability initiatives. This report will be assembled annually or biannually, with respect to the availability of data and information. CEEPAC will detail current projects and plans for future projects, assess progress through collaboration, and generate dialogue on campus sustainability initiatives. The council will target key projects that will most significantly impact the climate commitment by authorizing responsible parties, setting guidelines for execution, and ultimately implementing projects. Timelines put forth by the council will be voted upon and decided by a two-thirds majority vote, with the final approval needed by the President of the University. The attendance of the council is crucial to Gonzaga's

success with the ACUPCC and the future of the University. Attendance by key stakeholders is mandatory. The membership of the council will be open, to the public and meeting minutes will be recorded and posted on a future website.

Sustainable Infrastructure Initiatives Fund

Projects headed by CEEPAC will intend to save the campus money through funded retrofitting projects. The success of these projects will guarantee positive monetary benefit, which will be directed into a savings fund dedicated to future campus improvement.

Prevention of Future Emissions

Leadership in Energy and Environmental Design (LEED)

All new buildings and large renovations must, at a minimum, meet the LEED Silver standard. This includes projects currently in development, specifically the new University Center and the Hamilton parking garage. This plan does not require that Gonzaga raise certification standards; however, it does require that Gonzaga offset the carbon emissions of all new infrastructure.

Offsets for Future Construction

Future buildings are held to a minimum LEED Silver standard. When planning new buildings, Gonzaga must include the cost of carbon offsets in budgeting considerations. All new buildings must have 50% of their carbon emissions reduced through carbon offsets and 10 years after construction must have 100% of carbon emissions offset.

Retrofitting Existing Infrastructure

Reduction of emissions in existing infrastructure will be achieved through funding and support of ongoing retrofitting projects. Responsibility for retrofitting project planning falls under CEEPAC. Retrofitting projects fall into two primary categories: on campus buildings and off campus university-owned housing.

Financial planning for retrofitting projects comes under two primary funding sources: upfront university investment and the “Retrofitting Savings Fund.”

1. The ACUPCC mandates that signatories fund initiatives and projects which target carbon neutrality. As a result, initial funding for projects will be derived from existing university budgets and funding campaigns.
2. A “Retrofitting Savings Fund” (RSF) will be established to direct money from retrofitting project energy savings to future projects as determined by CEEPAC. Furthermore, CEEPAC should allow university donors to contribute directly to the “Retrofitting Savings Fund.” Additional study may be conducted to explore options for minor temporary tuition increases and faculty pay deductions to finance initial improvements.

Retrofitting of On-Campus Buildings

CEEPAC will direct and oversee university retrofitting projects. Annual reports will target 1 - 5 primary projects for development over successive years. A minimum of one long-

term (approx. 3 - 10 years) solution and one short-term (approx. 1 - 3 years) project should be pursued during each reporting cycle. CEEPAC should emphasize identification and implementation of fiscally and technically effective strategies to reduce carbon in response to existing infrastructure needs. CEEPAC will evaluate projects annually and include findings in an annual report to the proposed Campus Sustainability Coordinator.

Resource Dashboards

One primary short term project to be developed upon completion of Gonzaga's CAP is the installation of "Resource Dashboards" in resident facilities and major campus buildings. Resource dashboards will display real-time resource use (energy, water, natural gas, carbon emissions) in building commons. "Resource Dashboards" provide a mechanism for increasing student / faculty awareness of emissions and for coordinating Gonzaga RHA programs designed to compete for low emissions. Long term applications include uploading data to Gonzaga-owned websites for increased awareness.

Lighting

One primary long term project is reduction in lighting wattage. Many rooms on campus are lit by higher wattages than are necessary. Lamps should be replaced with lower wattage bulbs across campus (possibly 25 watts) to lower total energy consumption. Additional study of optimal lighting may be necessary.

Short Term and Long Term Priorities

A number of short term and long term priorities may be adapted from suggestions in the document "Elements of a Campus Energy Conservation Program" available from Plant Services.

Off-Campus Buildings and On-Campus "House-Style" Offices

Gonzaga owns a number of single family residential buildings both on and off campus. These buildings house both students and a number of department offices. Many of these buildings are approaching 100 years of age and are poorly insulated and inefficient. Off campus retrofitting focuses will include energy audits. Projects are to be overseen by CEEPAC and included in annual reports to the Sustainability Coordinator.

Although Gonzaga does not directly pay energy bills for students living in off campus homes, off-campus student energy use is part of the University's Scope 1 and Scope 2 emissions. As landlord, Gonzaga is responsible for reducing these emissions.

Audits

CEEPAC will oversee energy audits conducted on a rolling basis to identify points of concern and to develop targeted projects for improvement.

Improvements

CEEPAC will direct retrofitting improvement projects a manner similar to on-campus facilities. Retrofits for "house-style" offices should be paid from the "Retrofitting Savings Fund" with savings returned to the fund for future programs. Off-campus housing projects should be financed through a combination of the "Retrofitting Savings Fund" and student financing.

Student Financing of Off-Campus Housing

After initial investments from the RSF have begun to improve efficiency, rent for students residing in off campus housing will be raised commensurate to energy savings from student energy bills to achieve a zero-net cost for students.

Grounds Management

Retrofitting of grounds management will be managed in a manner similar to on-campus buildings. Projects should emphasize reducing carbon emissions of activities. Projects will be coordinated by CEEPAC.

Sprinkler Systems

A number of projects may be conducted to improve the efficiency of watering services on campus. These may include:

1. Coordination of sprinkler aiming to minimize water lost to non-target surfaces (esp. Sidewalks).
2. Installation of solar panels to power sprinkler valves and systems.
3. Establishment of a compost buyback system which allows Gonzaga to use organic collections (i.e. Leaf litter, grass clippings) to produce fertilizers. This will allow Gonzaga to minimize use of synthetic fertilizers.

Offsets

Gonzaga University committed to reduction of greenhouse gas emissions when it signed the ACUPCC. This section outlines strategies for reducing Gonzaga's Scope 1 and Scope 2 infrastructure emissions. These strategies promise marked improvements in emissions; however, they fall short of achieving zero carbon emissions. As a result, high quality carbon offsets will be purchased to bridge the gap between reduced infrastructure emissions and zero infrastructure emissions. Offsets will not be used as an alternative to emissions reductions. Instead, offsets are meant to cover the balance of emissions when all possible avenues for infrastructure emissions reduction have been pursued.

Purchasing Strategy and Timetable

CEEPAC will phase in offset purchases in coordination with the university's emission reduction timeline. CEEPAC will establish an offset start date on which Gonzaga will be committed to purchasing offsets equal to a baseline percent of Scope 1 and Scope 2 emissions (eg. 20%). Once offset purchase begins, Gonzaga will increase emissions covered by offsets on a yearly basis until 100% of emissions are covered by offset purchases. Offset purchase is designed with two primary goals:

1. The elimination of net-carbon footprint of all Scope 1 and Scope 2 infrastructure emissions.
2. The creation of financial incentive for the design and implementation of retrofitting goals.

Key Performance Indicators:

CEEPAC and the Sustainability Coordinator will assess University performance within their annual reports. Key indicators are primarily built into the individual sections. Other important indicators include: ensuring that annual plans are produced and that they accurately assess yearly emissions in relation to emissions goals, and effective management of the Retrofitting Savings Fund.

Section 4 – Transportation

If we live by the spirit, let us also walk by the spirit.
– Galatians 5:25

Our spirit revolves around Creation; it is with God that we travel from place to place. There is a divine connection between people and their places of dwelling. To embark is not to move the body alone, but to exercise the experience of Creation in motion. It is through this movement that the Gospel is seen and heard.

Transportation is an integral part of the Gonzaga community as it accounts for a large portion of our daily lives. These pieces tie together the faculty, staff and students to achieve Gonzaga's mission. We are at a critical moment for changing our behaviors regarding transportation and its impact on the environment, and aim to establish a precedence for future Zags. With global oil prices at an all time high, and the green movement gaining momentum, we as a University need to re-examine our transportation goals.

Students

As members of the Gonzaga Community, it is essential to the well-being of the university as a whole that all students contribute towards the goal of carbon neutrality. Currently, student CO₂ emissions constitute 8% of scope 3 emissions, but this does not include air travel. In the past three years, the total number of miles driven for Gonzaga University Students has increased and presently remains higher than the total number of miles driven by Gonzaga Faculty and Staff.

Current Status

In 2011, Gonzaga University students traveled 5,475,445 miles by automobile, which is an increase from 2009 and 2010, and 78,625 miles by bus, which decreased from 2009 and 2010. For more information on total miles driven from 2007 to 2011 consult Gonzaga University's Greenhouse Gas Inventory.

Based on data collected from June 2010 to May 2011, students purchased the highest number of parking permits sold on campus, with 942 parking permits allotted for Residential Hall Parking lots alone. Furthermore, a 2007 study found that Gonzaga University currently provides more parking spaces in their Residential Hall Parking lots than are required by the city and currently exceed the demand.

Present Initiatives

In 2011, Gonzaga established a sustainable purchasing guideline mandating, "When replacing vehicles, Gonzaga shall consider less-polluting alternatives to diesel such as compressed natural gas, hybrids, electric batteries, and fuel cells, as available." In addition, all fryer oil generated by Zag Dining is recycled by Spokane Biodiesel and used locally but not by any of the campus fleet.

For information about current resources see Appendix B – Transportation.

Goals

E ducate the students about how altering behavior and habits can make a significant difference.

Provide the student body with new alternative transportation options and generate interest in the new programs through offering incentives.

E ffects - Through inspiring Gonzaga University students to initiate change, they will become influential role models for the faculty, staff, and greater Spokane community.

R ecommendations

ZipCar

Investing in ZipCar for the use of student, faculty and staff will reduce the number of vehicles brought to Gonzaga University. By providing several ZipCars to students and staff, the community could discover this as an alternative mode of transportation. According to the ZipCar website, “Each Zipcar shared takes at least 20 personally-owned vehicles off the road.”

Options

Considering the large impact of students’ total miles travelled in the past three years, it will be crucial for the university to address their current role in generating greenhouse gas emissions and identify mitigation strategies. Possible alternative plans include:

- 1.Raising parking fees
- 2.Providing a tuition break for students who refrain from bringing cars
- 3.Prohibit all Freshmen (and possibly Sophomores) from bringing their cars
- 4.At Freshman Orientation, provide information sheets and a quick lecture on green practices
 - a.Info sheet about walking time to various locations around Spokane
 - b.Transit and alternative transportation options
 - c.Importance of maintaining properly inflated car tires
- 5.Provide alternative transportation options:
 - a.Free bus passes/further subsidized bus passes
 - b.Free shuttle service on the weekends to and from downtown
 - c.Organized shuttle/bus trips to Mount Spokane, Schweitzer Mountain, Trader Joe’s
 - d.Bike and Ride Shares
 - e.ZipCar
- 6.Increase the number of parking stalls reserved for carpool and vanpool
- 7.Install parking meters/start charging for off-campus stalls

Faculty and Staff

From 2009 to 2011, Gonzaga Faculty and Staff have increased their total automobile miles commuted by 113,117 miles. Bus travel has fluctuated back and forth throughout this time. Faculty/Staff commuting CO2 emissions constitute 7% of scope 3 emissions, but does not include air travel.

Current Status

The total automobile mileage for Faculty and Staff increased from 4,874,203 miles in 2009 to 5,007,320 miles in 2011. Compared to the total number of miles driven by automobile for Gonzaga Students, the Faculty and Staff drive just under half a million miles less. However,

taking into consideration the ratio of employees to students (1,127 to 7,837), proportionally, the employees drive much more than the students. In 2011, the average employee drove approximately 4,440 miles, whereas the average student drove around 700 miles. Similarly, in 2011, the average employee commuted 43 miles by bus and the average student commuted 10 miles by bus.

At present, a lot more is known about Gonzaga Faculty and Staff commuting habits than the student's commuting behaviors thanks to various surveys and reports conducted by the Employee Transportation Coordinator.

Goals

Encourage the use of alternative transportation away from Single Occupancy Vehicles to Vanpools and carpools. To make this objective easier, promote the rideshare program and other currently established programs.

Building awareness is paramount to the success of the Commute Trip Reduction (CTR) program.

Create future jobs and internships designed to efficiently reduce employee's commute trips.

Staff Proximity Incentives

Living closer to the school would give an overall reduction in carbon emissions. Gonzaga will provide the faculty with incentives to live within a walking distance of the university. This will benefit the environment as well as the professors.

Options

1. Provide alternative transportation options:
 1. Encourage employees to live closer to campus
 2. Bike and Ride Shares
 3. Extend the use of ZipCar to employees
2. Provide a greater incentive than a \$15 reduction on parking permits to encourage carpooling Same deal for students?
3. Offer a greater incentive than a \$5 reduction for bus passes Same deal for students?
4. Increase the number of parking stalls reserved for carpool and vanpool
5. Install parking meters/start charging for off-campus stalls
6. Pave the gravel bike path connecting Gonzaga University to the Centennial Trail

Parking

Currently, there is no incentive for Gonzaga students or faculty to use alternate transportation, which leads to congested parking areas and unnecessary fuel emissions. Gonzaga makes it convenient and cheap to drive and park as a single occupant vehicle as well. There are also numerous faculty and students traveling from similar areas of Spokane and surrounding, with no means for easy carpooling. The last parking issue is that after Gonzaga's new parking garage is constructed, parking pass costs must be representative of the actual costs to build the structure, which, in this case, is approximately \$28,000 each space.

Current Status

According to 2009 counts, there were 3200 parking spaces and only 3120 parking passes sold. But, these do not adequately represent the number of commuting students. According to Rick William Consulting in 2007, the on-street parking is nearly 100% occupied between 10:00 a.m. – 11:00 a.m. (at 97.3%), leaving just 11 available spaces within the on-street supply in the areas most proximate to campus use. With no charge incurred for this parking, it is easy for a student to justify traveling in a single occupancy vehicle to school.

The Logan Neighborhood

Because there are currently no costs associated with parking off campus, individuals have no incentive to park on campus, thus leading to overcrowding of neighboring streets.

Incentives

Cost is the main variable which can be changed that will affect student and faculties transportation decisions. In combination with charging per visit and working with the City of Spokane to zone all parking in and around campus, alternate transportation incentives will be provided to Gonzaga students.

Air Travel

Gonzaga uses air travel for academic purposes, administrative conferences, athletics, and studying abroad. In addition, Gonzaga brings other groups and individuals to campus, including speakers, lecturers, career services, and faculty and student recruiting.

Current Status

Included in this report are the amounts of carbon dioxide emitted in the last three years via airline, but these are only rough estimates. In order to get accurate numbers, the university must consolidate all of its air travel to one corporate air travel vendor. This will allow the university to calculate the carbon footprint of its air travel.

Below are the emissions estimates of Gonzaga air travel in the last three years:

Year	Emissions (metric ton of CO ₂ e)
2009	4,451
2010	4,526
2011	4,951

Consolidation and Classification of Air Travel

Travel is an essential function of faculty and student intellectual and spiritual growth, but air travel is one of the highest contributors to university emissions. Therefore, air travel can be an easy target for quick reduction. In order to achieve reduction in emissions the university will contract with a single vendor to provide air travel and require all faculty and staff flights be booked using this program. The vendor will be responsible to accurately track airline miles traveled and classify trips in order to identify trips that could have used an on-campus video conferencing or web conferencing.

Promote video and web conferencing

Gonzaga will evaluate and install videoconferencing systems for use in long distance meetings and provide incentives to use these technologies. Web Conferencing is a convenient way to reduce air travel, while giving professors the opportunity to continue their education. This could benefit the students due to professors missing fewer classes for conferences. Some professors could get limited in the amount of conferences they could attend, therefore missing educating opportunities.

Education

Educating members of the Gonzaga community as to their individual impact on the environment is the first step air travel reduction. The university will inform departments of their annual air miles traveled and increase awareness of the resulting impact on the environment in order to encourage decisions that favor sustainability and conservation.

Study Abroad

The university will evaluate an option for students traveling overseas in a "Sail Abroad" program, which would encourage students to sail, instead of fly, to their destination. This option dramatically reduces their footprint while still being able to enjoy their educational experience outside of the United States. A study abroad program in North America, which focuses on Indian reservations, inner-cities, or Canada will be implemented.

Faculty

Faculty will attend fewer conferences per year. Incentives for departments will be implemented to encourage the use of alternative modes of transportation.

Travel Alternatives

The university will explore Amtrak options, carpooling and trip share, and bus or van rental. Gonzaga will implement programs to encourage students to stay on campus during breaks, including keeping food services running.

Funding

Savings as a result of reduced travel will be reallocated to fund other options, such as travel alternatives or video and web conferencing incentives.

University Fleet

Transportation is a critical part of any campus community both for the transportation internal and external. Gonzaga owns and maintains 120 vehicles ranging from tractors to 12 passenger vans. The current fleet choice is limited by vehicles frames, winter driving, and the local availability of refueling options. Zag Dining owns and operates its own vehicles as well. Many departments also rent vehicles to meet their needs when the school rental pool is not available. Currently there is no system in place to track miles driven or CO2 produced by the fleet. While Gonzaga tracks the volume of gas purchased, this does not include information regarding consumption by individual vehicles.

Current Status
2011 Gasoline Use

Category	Gallons Consumed
Plant services	23,905 *keyboard summary report
Department	8017.94 * Controller's office Gas Card
Total	31,000

Goals

Gonzaga will educate the community about fleet use and determine the necessary of transportation. The university will equip its campus fleet with the most sustainable transportation options and reduce use of vehicles dependent on fossil fuels. Steps will be taken to share the efforts of departments to eliminate emissions.

Biodiesel Recycling

Gonzaga currently recycles their oils from Zag dining at Spokane Biodiesel. Gonzaga will convert its current fleet to biodiesel.

Stakeholders

- Students
- Faculty from the various departments
- Staff
- City of Spokane
- Spokane Transit
- Spokane Regional Transportation Council
- Plant Services
- Support Services
- Athletics
- Clubs (CCASL, GSBA, GU Outdoors, etc.)
- Resident Life

Key Performance Indicators

Student

With the implementation of Zipcar, overall student use will be a measuring point. A required parking permit questionnaire that monitor the number and types of passes sold (e.g. carpooling, hybrid, etc.) will inform Public Security and Safety Coordinator methods and distances traveled

Faculty and Staff

As a means of ensuring that the CTR Employer Survey Report receives a sufficient response rate, this document can be used to indicate SOVs, carpooling, and alternative commuting methods.

Parking

If more people buy parking passes on campus, it could mean fewer people are parking on the street. Vice versa, if fewer parking passes are sold, it could mean more people are parking on the street. Either way it can be difficult to judge whether there are less cars using parking, or if they are parking in a different spot. We can track parking records to get a limited feel and a comparative of parking over the years. This would be most effective if zone parking were implemented around campus. This might infer that driving has decreased.

Air Travel

After an accurate account of air miles traveled is established by tracking through one booking agency, an overall reduction in miles traveled can be calculated. Also if there is a reduction in air travel, there will be more money left over in the air travel fund. This would insinuate that alternative forms of more environmentally friendly travel are being used.

Fleet

An overall reduction in the amount of unleaded and diesel fuel. In the future, if compressed natural gas is adopted, accurate documentation will be needed. Progress of the entire fleet will be measured as an average of fuel efficiency. The university will ensure that a tracking method for total miles traveled by department is created and reduction goals are established.

Section 5 – Food

Now the Lord had planted a garden...
— Genesis 2:8

Food is both a necessity for and a symbol of life. Our relationship to food extends beyond the nourishment of our one body to form community through shared meals, the breaking of bread, and agricultural spaces. God’s Creation, the Earth, produces a bounty of sustenance, such that life is continually sanctified. God’s presence is sustained through the constant transformation of life into life. Our flourishing is connected and interdependent; our care of one cannot be separated from our care of all.

Food is a fundamental component for sustaining and continuing life. How our food is produced, transported, and used can serve as a catalyst for transforming the campus lifestyle into one of a conscientious cyclic method. Rather than simply farm to fork, recommendations concerning the production, transportation, use, as well as disposal of food shall be implemented thereby encouraging students to initiate a lifestyle conservation and sustainability.

Goals

In order to reduce carbon by means of food, three areas will be considered:

1. Collaboration with dining services. Where and how food is grown or produced, the manner in which it is prepared, as well as the manner in which it is served are all key components to transforming the campus culture to one that thoughtfully considers areas in which to reduce the carbon footprint.
2. Proper management of disposing of food can impact the carbon footprint in a positive manner for the campus as well as surrounding community. The cycle of food does not stop at the fork. Disposing of food as well as the products used to transport the food in a proper manner will eliminate unnecessary waste, cut down on transportation costs, and improve the immediate area.
3. Completing the cycle through compost. Composting helps divert material that would otherwise be garbage into a more environmentally friendly and productive use. By furthering already intact composting initiatives and eventually expanding the movement, a great contribution to lowering carbon on campus can be achieved.

Current Initiatives

Gonzaga Dining is proactive and already has some programs in place such as the reusable cup discount, biodiesel, dishwashing systems, and Xpress Nap Holders, selling of fair trade coffee, along with setting up local farms to provide as much local food as possible to Gonzaga. Sodexo focuses on selling organic and healthy foods in the new market on campus and around all locations. They also offer a variety of meatless meals to reduce our carbon footprint as well as donate coffee grounds to the Campus Kitchen Garden.

Bottled Water Ban

The Gonzaga Student Body Association (GSBA) proposed the bottled water ban to Sodexo, the dining service on campus in May of 2008. Sodexo is in charge of all of the food services on campus and a ban on plastic water bottles on their part ensured that no plastic water bottles would be sold anywhere on campus. The policy was implemented in September 2008 school year. First year students are given re-usable water bottles at the beginning of the year during orientation. The main dining hall and other dining facilities allow the students to fill their re-usable water bottles. There is also a water cooler located in the student union building where students can fill their bottles.

Paperless Student Evaluations

As of the fall 2011 semester, all student course evaluations will be electronically completed on-line. In addition to saving more than 100 hours of labor, shifting to online evaluations is expected to save between 120,000 and 150,000 sheets of paper (more than 24 cases) and 8,000 to 10,000 large manila envelopes and labels.

Responsible Purchasing

Gonzaga buys eWaste products, electronics that are replaced are either reused or recycled.

Reusable Cup Discount

Sodexo dining services offers 15 cents off each drink if a reusable cup is used.

Clean Green

Gonzaga University participates in Spokane's "clean green" program, composting over 35 tons of leaves and needles annually. The industrial composting facility, Barr-Tech, can take food waste, clean green, and food contaminated paper and cardboard products, including pizza boxes.

Compost

In 2010, a compactor for compostable products was installed at the COG. Containers for compostable materials are currently available at the Martin Centre, Madonna, Coughlin, Cataldo, Dooley, Corkery, Chardin, Crimont, and Roncalli buildings.

Plant Services has provided Gonzaga students with the opportunity to compost outside of the dining experiences. Containers are placed behind Cataldo, in Kennedy, in the Sharp-Boone alley and near Goller to ensure students have more access to composting waste. Plant services also uses these containers when disposing of the yard waste they collect when maintaining campus grounds. Sodexo currently composts at the COG and Marketplace Express and works with Waste Management & Barr-Tech on composting goals. Coffee grounds are currently donated to Campus Kitchen Garden. Underneath the main dining hall in Spike's and Subconnection only compostable to-go materials are used. In these facilities, there are separate containers in which compostable items can be discarded.

Currently, Sodexo and Plant Services are working to divert food and yard waste. Sodexo has reduced their waste from three garbage pick-ups to two garbage pick-ups per week. They hope in the coming year that they can curb their waste to only one garbage pick up per week. The

reduction in waste has come with an increase in composting. Sodexo composts all of the food waste in the main dining hall. This is achieved by not having any garbage cans in the dining facility. Instead, waste goes to the back where Sodexo employees separate the compostable waste from trash.

Recommendations

Dining Services

Choose-To-Reuse

“Choose-To-Reuse” will be a program in which all to-go containers would be reusable. Students will be encouraged to use reusable coffee and water containers. As an incentive, students will be offered discounts on their drinks.

Local Purchasing Program

All major food contractors shall agree to work with their distributors to purchase a minimum of ten percent locally grown products. They shall further agree that the ten percent is an initial percentage of dollars spent and that contractors will purchase as much local produce and product as possible. All food contractors and University will review the local purchases annually and mutually agree on increases to the percentage where and when possible.

Furthermore, in regards to agriculture, all major food contractors shall purchase regionally grown, organic agricultural products, if the products are available and if the vendor can meet the applicable quality standards and pricing requirements. When serving dairy products, contractors will use local milk whenever feasible.

On the dining services website there is a map which is supposed to show all the local farms which Gonzaga currently use. The problem is that food suppliers change every month. Nonetheless having the map up and running will be very beneficial to the student population and sustainable efforts.

Campus Deliveries

Contractors will minimize deliveries to campus in order to reduce carbon footprint of unnecessary vehicles coming to campus and contractors will follow waste minimization tactics such as providing staff training regarding proper thawing methods, equipment energy use as well as offer trayless dining.

Composting

Dining services will compost food waste to the greatest extent possible. Leftover food will be donated to Campus Kitchens where contractors, CK, and local food banks will work together to help meet the needs of the community and reduce waste on campus.

Dining

Dining services, such as the COG, should switch from buffet style (one swipe and you have unlimited food) to a per item with credits. Through a per item system the amount of wasted food will decrease producing less trash/compost and cutting down on the amount of food needed.

Waste Management

Move out

The end of the semester move out day produces massive amounts of trash because people just dump stuff into the dumpsters. We recommend setting in place a program which will provide separate bins such as recycling, thrift store items, nonperishable foods, broken objects that can be recycled or fixed, etc.

Campus-Wide Recycling

All recyclable materials are to be recycled through the Gonzaga recycling program. This includes, but is not limited to: paper, newspaper, cardboard, aluminum, plastic, steel, and batteries.

Sustainable Purchasing

25% post-consumer waste recycled paper should be the standard for all applications where economic use of paper and quality of service is not compromised or the health and safety of employees prejudiced.

Whenever possible, Laser and Inkjet cartridges shall be properly recycled.

The use of multiple use (as opposed to virgin, single use) interoffice envelopes should be used whenever practicable.

The use of reclaimed stone and brick and the use of secondary or recycled aggregates will be specified whenever practicable.

Transportation products, including signs, cones, parking stops, delineators, channelizers and barricades shall contain the highest post-consumer content practicable.

All documents (by Gonzaga and suppliers) shall be printed and copied on both sides to reduce the use and purchase of paper, whenever practicable.

All surplus desktop computers, notebooks and monitors shall be disposed of through the WA Department of Ecology's E-Cycle Washington program or equivalent.

Packaging that is reusable, recyclable or compostable is preferred, when suitable matters and programs exist and eliminate packaging or use the minimum amount necessary for product protection, to the greatest extent practicable.

Products that are durable, long lasting, reusable or refillable are preferred whenever feasible.

Implementation of Waste Management

There are certain logistical changes that need to be made to the waste programs on campus. There needs to be better implementation of the new single-stream recycling program on campus. Because of the resemblance of the single-stream recycling bins to trash cans, there has

been confusion amongst students which has led us to conclude that the recycling bins need to be better labeled and further distributed around campus.

Education surrounding the recycling programs on campus will be expanded. In order to achieve this, student organizations will create an informational packet to distribute during Freshman Orientation that explains the programs and the benefits of expanding recycling and reducing the amount of trash produced on campus. Also, there will be a series of dorm and campus residence incentives that would entail weighing the amount of recycling per residence/building and using the weights as a competition for prizes. These types of incentive programs will provide a fun way to increase participation and education in campus waste programs.

Composting

Compostable products purchased shall meet American Society for Testing and Materials (ASTM) standards as found in ASTM D6400-04. Biodegradable plastics used as coatings on paper and other compostable substrates shall meet ASTM D6868-03 standards.

Key Performance Indicators

Dining Services

- Pounds of trash produced from major dining areas
- Amount of water consumed by dishwashing machines
- Amount of coffee cups used per month
- How many food deliveries to campus per month
- Centralized Information Center: online map of where food comes from.

Waste Management

- Number of trash pick-ups per week (campus wide and per building)
- Dorm Participation in recycling implementation programs.
- Monthly/Semesterly weight of recycling compared to a baseline weight.
- Move Out: bins of different categories: recycling/ nonperishable food/ thrift store/ trash etc.

Compost

- Pounds of compost produced per month/semester/year.
- Number of composting locations on campus.

Appendix A – Campus Culture

New Student Orientation

Each fall, a new group of incoming students arrives at Gonzaga wide-eyed and ready for their incredible four-year journey. As the Gonzaga ethos, mission statement, curriculum, and extracurricular activities have shown us, the college experience is about so much more than simply doing enough homework to get a degree. Gonzaga embraces the dynamic process of the transformation of the whole person, providing opportunities to question conventional knowledge, to explore one's moral fiber, and to develop further into the person that enters adulthood and society. This stepping stone from childhood to "the rest of our lives" is spearheaded by the Student Life/Residential Life/Zag Dining/Orientation leaders who are responsible for providing the transition into the college life in those exciting and anxious first few days. The New Student Orientation is the weekend-long program that provides the foundational information that allows new students to succeed in their transition to the college lifestyle.

Currently, sustainability, efficiency, and other environmentally focused messages and aspects are only incorporated in so far as purchasing/supplies policy, placing recycling bins, and reduction in the amount of food, water, and items that are given away during the event. The idea of sustainability is not explicitly addressed in orientation. However, there are opportunities for improvement.

Inspired by feedback from students taking part in the orientation program, the orientation plan takes an inside-out approach, allowing students to gradually increase their comfort level with the community. The three-day event gradually eases students in to their own dorm communities and the greater communities of Gonzaga and Spokane.

There are three simple, attainable ideas that we recommend adding to the current New Student Orientation agenda that would foster a sustainable, environmentally conscious Gonzaga community.

1. Newsletters, flyers, or emails to prospective or incoming freshman, educating them on the current and future state of the Gonzaga sustainability efforts. For example, a blip on the newsletter could read "Did you know Gonzaga University's residence halls are adding water and electricity consumption monitors which will display each room's current usage? It is another step in GU's campaign to becoming completely sustainable and carbon-neutral." The students would be aware of the actions that GU is taking as well as their importance. This sort of information would be sent out prior to their arrival on campus and gives them an idea of what they should expect when they do arrive in August.
2. Demonstrations and exhibits during the orientation process. Residence hall leaders (RA's, RD's etc), student life leaders, orientation leaders, and Gonzaga environmental groups could offer educational demonstrations about the University and the average student's consumption habits. For example, a fallen tree could be laid across the Quad with a message reading that "by the end of this month, the average

GU student will have consumed enough paper products to cut down another tree like this one.” A similar demonstration could be done with resident halls showing them just how much energy is used/saved during showers, powering appliances and lights, and other actions requiring various resources, followed by tips and possibly incentives for cutting down on their own personal consumption.

3. Educational assemblies/ local environmental issues. Orientation should incorporate informational sessions on the Spokane region and the current environmental issues. Many Gonzaga students are not from the Inland Northwest and aren't aware of regional environmental concerns. Incorporating an educational event into Orientation would be very helpful in raising awareness of sustainability campaigns and provide an interest for future events throughout the school year.

Community Environmental Outreach

What Gonzaga University is Doing Now

Community involvement programs fall under four categories: Children/Youth Programs, Elderly Disabled and Health Care Services, Environmental Outreach, and Homeless and Low-Income Programs. Gonzaga University is collaborating with nine organizations that provide environmental services. The organizations include: the American Lung Association, Friends of the Centennial Trail, Habitat for Humanity Store, Inland Northwest Land Trust, P.e.a.c.h. Community Farm, S.N.A.P. Living Green, SpokAnimal C.A.R.E., St. Margaret's Shelter Garden, and West Valley Outdoor Learning Center.

American Lung Association

Goals include reducing tobacco use, preventing and controlling air pollution and providing education and funding research to make life more comfortable for people with asthma or other lung disease. There are environmental health volunteer opportunities throughout the year, assisting with health fairs and community events.

Friends of the Centennial Trail

Friends of the Centennial Trail assist in the maintenance and development of the Spokane River Centennial Trail. Current projects include development of a conceptual plan to create a safer crossing at Mission Ave and Perry Street. During the spring, summer and fall season certain volunteer activities are available, such as weeding along parts of the trail and other items that need attention.

Habitat for Humanity Store

Sell donated new and used building materials to the public with all proceeds going to the Spokane affiliate to build houses for deserving families.

Inland Northwest Land Trust

The Inland Northwest Land Trust works with willing private landowners to preserve and protect the natural lands, waters, and working farms and forests of the Inland Northwest.

P.e.a.c.h. Community Farm

By volunteering for this organic farm Gonzaga students are helping to bring nutritious produce to low-income Spokane citizens.

S.N.A.P. Living Green

Living Green with Spokane Neighborhood Action Programs is a program that teaches how to lighten our impact on the planet, conserve energy and save money.

SpokAnimal C.A.R.E.

Shelter staff are dedicated to helping people better understand their pets and encourage all families to attend obedience classes following the adoption of their new dog.

St. Margaret's Shelter Garden

St. Margaret's Shelter Garden grows produce and flowers for use at the shelter and sale at the South Perry St. Farmer's Market from June through September. The goal with the garden is to provide an opportunity for low-income people to earn income and/or access to fresh, organic produce.

West Valley Outdoor Learning Center

Gives teachers and students an opportunity to have experiences in an outdoor setting, it instills an appreciation for fish, wildlife, and our natural resources. All activities are tied to the Washington State Essential Academic Learning Requirements.

What is in the draft

Currently there is no list of environmental organizations that Gonzaga University is involved with. There are some programs that Gonzaga wants to start or is currently working on. These programs include:

- Spokane Farmers Market on Campus- Attempt to work with the Spokane Farmers Market and try to get the Wednesday market on campus once during the fall and spring. Convenient access for students to buy their weekly groceries locally.

- 5.Scotchman Peaks Benefit Meals - Have had fundraiser dinners and lunches to raise money for the Friends of Scotchman Peaks. They are a lobbyist group trying to get the peaks turned into a National Wilderness Area.

- Volunteering Participation - We regularly or will start participating in the following volunteer projects: Spokane River Clean-Up; Dishman Hills Natural Area Work Party; Turnbull National Wilderness; Reserve Work Party & Tree Planting; ONE World Organic Garden/Kitchen.

Earth Week Activities - During this time we are actively involved with many activities and events. E.g. chalking environmental facts, Earth Day Spokane, movie screenings, tree plantings, weeding out invasive species with biology professors. In the past we have also collected all the COG food waste to send a message to students to waste less.

- 3.Ruellen-Day Community Garden - The Ruellen-Day Garden was founded in October 2010 and will have its first grow season in Summer 2011. The first plants to go in the ground were garlic in late October 2010. The garden is approximately 40 by 45 feet in size. The garden will follow organic growing methods and has two composting containers and a

greenhouse. The garden's #1 mission is to educate students and the #2 mission is to feed organic produce to those in the surrounding Spokane community who are least likely to be able to buy it.

Organizations within Spokane who show an interest in working along with Gonzaga University to promote community involvement include:

The Lands Council

The Lands Council preserves and revitalizes Inland Northwest forests, water, and wildlife through advocacy, education, effective action, and community engagement.

Envision Spokane

Envision Spokane is a nonprofit organization created in 2007 to bring the leaders of Spokane's neighborhood councils, nonprofit community organizations, and labor union locals together to discuss ways to improve the quality of life within Spokane.

Conservation Northwest Spokane office

The Conservation Northwest's Spokane office works at building support for the Columbia Highlands Initiative. Protect wild lands and wildlife in the inland Northwest, from the Spokane and Columbia Rivers north to the Selkirk Mountains. Spokane is the hub of the Inland Northwest and the home of outdoors loving people who like to hike, boat, fish, hunt, and camp in and around the nearby mountains, lakes, and streams.

Appendix B: Recommendations for new University Center

Vision

In living and exemplifying its Jesuit foundation, Gonzaga has the opportunity and responsibility to design a University Center that embodies Gonzaga's core beliefs, such as leadership, lived values, and care for the whole person. A University Center should be more than just a structure; it should serve as a beacon for the greater Gonzaga and Spokane communities. The building, in and of itself, should not only provide the essential and ubiquitous functions of an administrative structure, but also project Gonzaga's values to the greater community. The Center should also convey a sense of place and regional identity.

Overview:

The University Center should serve as a hub of sustainability for the entire campus, acknowledging the tradition of our community while providing the resources for transformation for present and future students. This document has been divided into four domains to inform and inspire more dialogue on how to make the University Center the catalyst for Gonzaga's ethic of sustainability and education.

Abstract

Education

Turning the University Center into an educational tool will increase the value of the building and help contribute to the educational mission of Gonzaga University. If the new University Center is built in an innovative, environmentally-friendly way, it will offer many educational opportunities for the Gonzaga and Spokane communities and serve as a hub of sustainability on campus. The building can attain this purpose through providing tours, resource for classes, putting up an informative display, and creating an online dashboard.

Design

The design of the University Center should reflect its living environment and mimic the many natural processes found throughout its surrounding landscape. Thus, we suggest incorporating a rainwater collection system, waterless urinals, a green roof, and sustainable and local building materials into the construction of the new University Center. Furthermore, the new building should maximize the use of natural lighting and incorporate alternative energy sources, such as wind turbines and solar photovoltaic panels.

Aesthetics

As the newest and most state-of-the-art building on Gonzaga's campus, the University Center needs to be aesthetically appealing, with decorations and facilities that reflect the values that inspired its living design. Our recommendations on the aesthetics on the building include integrating wall murals, indoor gardens, and a living wall. All these recommendations will foster an educational space while maintaining functionality.

Amenities

The University Center will be a multi-purpose structure that should meet the variety of needs of the community. We have focused our attention on aspects and services that we feel are necessary and beneficial to the Gonzaga University community and reflect the overall goal of carbon

neutrality. Our recommendations include the suite of amenities Crosby currently provides, as well as a ballroom, grocery store, rooftop dining, rock wall, bike shop, and additional study areas.

Education Recommendations

Online Dashboard

An online dashboard would allow students, faculty, staff, and Spokane community members to see first-hand the energy consumption of the new University Center, broken down into multiple categories such as: electricity consumption, water consumption, gas usage, and indoor air quality. Additionally, the dashboard could be used to show how green technology has been incorporated into the building. In this capacity, an online dashboard would display measurements of roof temperature, solar/wind power used and the contribution of a green roof to the energy usage of the building. An online dashboard would be an effective way to educate the Gonzaga and Spokane communities about energy consumption and green technology in general, and would also offer an example of the environmentally responsible precedent that the new University Center will set.

Building Tours

Tours will become an excellent way to maximize the educational value of the building, especially if they are delivered by enthusiastic, knowledgeable guides. There are two different types of building tours that can be integrated into the building: comprehensive guided tours by the building manager or some other qualified guide, and general campus tours led by the same students that tour prospective freshmen and their guests around campus. A tour by the building manager could be integrated into lesson plans for engineering, design, environmental studies, and other curricula. It would be comprehensive and educational, designed to capture the imagination of the participants. In addition to this, general campus tour leaders should be able to articulate the aspects of the building that should most excite and educate prospective students. These tours will allow students and others to experience the way the building functions first-hand.

Educational Display

Finally, an interactive educational display in the entry area of the new University Center would allow visitors to take self-guided tours of the building and gain information about any aspect of its design structure and operation. Additionally, the online dashboard will be displayed here, to show energy consumption in real-time. These displays are similar to museum exhibits, including interesting information about either the building itself or basic principles of sustainable design that inspired the University Center's construction. For example, an explanation of LEED certification would help clarify what "LEED Platinum" means. Considering the recent popular interest in being "green," this display would allow students to explore aspects of sustainability that would particularly interest them, for example: how a green roof or solar panels would produce energy for the building; how a rainwater catchment system could impact building water usage etc. In this capacity, the University Center would serve as a hub for the sustainability movement on campus.

Design Recommendations

Rainwater Collection

One intriguing feature of the LEED Platinum certified Saranac Building in downtown Spokane is a rainwater collection system. The University Center should contain a similar system. A rainwater collection and storage system will allow the new University Center to save money and use less water. A collector on the roof of the building will direct rainwater to tanks that located in the basement of the building. The water will go through a light filtration system where it will be directed to toilets and any plants or garden that is located within the vicinity of the building. Rainwater collection systems are now a readily available and affordable.

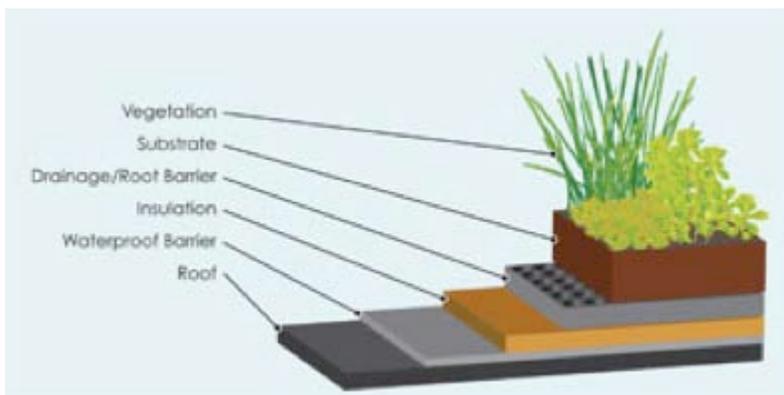
Waterless Urinals

Gonzaga University seeks to "safeguard the integrity of our natural world for present and future generations." As our world population grows, more and more people are using up a limited resource. Therefore, it is important that we use our water wisely and not waste it. Gonzaga University can make a big difference.

A waterless urinal saves on average up to 45,000 gallons of water a year. Twenty-two waterless urinals can save up to 1,000,000 gallons of water per year. A waterless urinal will not only save water but there will be savings on: repairs for blockages, overflows, leaks, sensors, and the cost of replacement parts. With increasing water and sewer costs, the payback will be quicker.

Green Roof

Green roofs are both economical as well as environmentally friendly. The roof of the building should use local plants, lichens, and mosses to: aid the capture and storage of water, improve the insulation of the building, minimize the impact of land-use, and improve upon the lives of its users and inhabitants. A green roof would benefit the quality of air and water, as well as serve as an immediately productive role, producing quantities of food for the surrounding community. The additional mass provided by the green roof insulates the building for sound, increases the lifespan of the roof, reduces energy needed for heating in the winter and cooling in the summer, helps control stormwater runoff, and filters pollutants, including CO₂ and heavy metals out of the air and water. There are multiple types of green roofs that can be created depending on the use. An extensive roof would be a more economical and practical choice for the new University Center. These roofs are virtually self-sustaining and require only minimal maintenance. The plants are usually small and native, using less soil.



We envision a University Center with a living roof that is not only environmentally friendly, but also educates all visitors while serving as a space to reflect and study. The roof of the building would serve as the reflective center of the design, the place where users come to dwell and experience the ecological values embedded in the building's construction. As such, the new University Center roof should be accessible to all visitors and students. A café would entice all parties to the upper levels of the University Center. In order to be economically feasible, the café would need both inside and outside areas for people to enjoy drinks and snacks. The café would look over the school, and benches could be placed along the living roof so people can enjoy nature while studying. The café will provide everyone a reason to visit the roof and while getting a coffee people will get a chance to see the purpose of the living roof. A plaque explaining how the living roof works would be beneficial to educating all visitors.

Building Materials

Gonzaga University encourages students to take an active role in the greater Spokane community during their four-year tenure. The design of the University Center should take a similar route. Builders should obtain materials from local companies and suppliers whenever possible. Gonzaga's focus on local supplies will mitigate emissions associated with long distance material transport and support the local economy.

The current Center of Gonzaga (COG) building will be demolished to free space for the new University Center building. Designers should seek to reuse as many materials from the COG as possible without incorporating materials which pose a threat of off gassing.

Passive Solar Energy

The design of the University Center should take advantage of the natural lighting offered in Spokane through windows, skylights, and paint selection. Spokane's geography and climate feature significant sunlight. We propose that the Student Center imitate the current design of the COG dining room, featuring large south facing windows to capture as much light during the winter months as possible. In addition, the Student Center should maximize use of skylights, light shelves which reflect light further into rooms, and sky tubes throughout the building to minimize energy use necessary for lighting. Designers should pay special attention to concentrating skylights on the north side of the building which receives less sunlight than the south side during winter months. Finally, we recommend that specialty reflective light paints be used to maximize light from natural and artificial sources. Internal lighting should be designed in a way which compliments the natural lighting during daylight hours and then can be increased during darker hours of the day.

In addition to these strategies, more ideas can be found at:

http://www.bchydro.com/guides_tips/green-your-home/lighting_guide/Make_The_Most_Of_Natural_Light.html

Alternative Energy

While the design of the new University Center seeks to minimize energy usage through a number of strategies, another important aspect is the potential for the center to generate a portion of its own electricity on site. The design process should assess the viability of solar photovoltaics

(PV). At a minimum, the center should be built with proper electrical attachments such that a future PV array could be easily fitted to a pre-existing mounting rack. In addition to solar energy, the new University Center should include roof mounted wind turbines which harness some of the north flowing wind gusts common to Gonzaga's campus during winter months.

Aesthetics Recommendations

Indoor Garden

When designing the University Center, the use and distribution of indoor plants should be carefully considered. The type and abundance of indoor vegetation is crucial to fostering a healthy work, study, and leisure environment for the employees, students, and visitors at Gonzaga University. Due to the centrality and significance of the new Student Center, ensuring that this building is both welcoming and educational is of utmost importance. Thus, I recommend either building an atrium in the middle of the University Center or modeling the building after a conservatory design. The greenhouse area could contain a wide gamut of plant species and be divided into various regions or garden plots with different themes. The gardener could cultivate vegetables in one plot, fruits in another, medicinal herbs and spices, local vegetation, and tropical plants, to list a few examples. Thus, dividing up the garden into plots could encourage a more focused and educational visit if accompanied by tours about the importance, function and history of each species within their respective plot.

Two useful resources to consult when starting the research on atriums and conservatories include the University of Montana's University Center and the Alice Hand Callaway Visitor Center and Conservatory at the State Botanical Garden of Georgia. For example, a helpful insight is that the University Center first planted native and temperate plants in their atrium, but they did not survive due to improper temperatures, and therefore, cultivated tropical plants instead. The University of Montana also installed a running brook in the midst of their atrium, which enhanced the relaxing nature of the area. The State Botanical Garden of Georgia at the University of Georgia also focused on tropical plants and includes vegetation that contain common uses for food, beverages, and medicine, among other functions. Warren Wilson College's EcoDorm offers helpful advice about outdoor permaculture, edible landscaping, and gardening management. Lastly, the sustainable outdoor garden at the University of Santa Clara offers some guidance in terms of sustainable hardscape and information on medieval plant species. The four universities mentioned above can offer some advice and direction for vegetation and garden themes to consider when designing the University Center.

Aesthetics constitutes a very important component of a major building such as a University Center. Thus, incorporating an atrium or conservatory with a wide range of plant species inside will create a convivial atmosphere, promote further studies and research about sustainable gardening, and provide practical functions, such as filtering air pollutants, dampening noise frequencies, and decreasing the dryness in the air. Furthermore, the fruits and vegetables produced in the atrium could be harvested by and for Gonzaga University members or distributed to Sodexo for its use on campus. A bulletin board allocated at the entrance of the garden could guide this harvesting process by identifying the fruits that are ripe and plants that are edible. Through including extensive indoor vegetation, Gonzaga University will not only develop a hospitable ambience for current employees and students, but also enhance the draw for

prospective students to attend Gonzaga University due to the nature and unique structure of our University Center.

Living Wall

The new University Center needs to be a place of comfort for students to study, lounge or eat. With comfort in mind, a living wall will be beneficial in many ways. A living wall is part of a building, specifically a wall that is completely covered in vegetation. First, as an aesthetic, it will be pleasing to the eyes and bring natural smells indoors. Another aesthetic pleasure is it can be a beautiful living work of art. Along with these, it can help to improve indoor air quality. A study published in Environmental Science and Technology stated that Volatile Organic Compounds (VOCs) can be found indoors in the parts per billion and with 85% of our day spent indoors these small numbers could be harmful. Thus, this study concluded that living walls can reduce these VOC's indoors. Further, since Gonzaga signed the president's climate commitment in working toward carbon neutrality, it needs to continue to persevere in making this campus as environmentally friendly as possible.

Waterloo University has integrated a living wall into its new University Center that it built. Though I don't know what the finished costs were, Darlington estimated the base price would be \$1500 per square meter of living wall (biostem). These prices included plants, growth medium, support structure and plumbing system parts. Other possible costs include water pumps (dependent on size of unit), a duct work system large enough to filter air and maintenance costs. For more information on the Waterloo project:

<http://environment.uwaterloo.ca/research/watgreen/projects/library/f02livingwall.pdf>
<http://newsrelease.uwaterloo.ca/gallery/Our%20Campus/living-wall-close-up-looking-down.jpg.php>

<http://www.biostem.ca/files/Darlington%20and%20Dixon%20Indoor%20III.pdf>

Darlington, Alan, James Dat, and Michael Dixon. The Biofiltration of Indoor Air: Air Flux and Temperature Influences the Removal of Toluene, Ethylbenzene, and Xylene. 53 Environmental Science and Technology, 2001. 35, 240-246.

Wismer, Susan. *Waterloo University*. Rep. Watgreen. Web. 21 Apr. 2012.

<<http://environment.uwaterloo.ca/research/watgreen/projects/library/f02livingwall.pdf>>.

Painted Wall Murals

Gonzaga's mission statement ends with the following quote, "We hope that all our graduates well live creative, productive and moral lives, seeking to fulfill their own aspirations and at the same time, actively supporting the aspirations of others by generous sharing of their gifts." Following these beliefs, we should paint large wall murals throughout the new University Center. The themes of these should be ideas such as social justice and nature. One way is to integrate cultural history. Native American culture is a large part of the Pacific Northwest's history. Such murals would give Gonzaga students a better sense of place and history> Following the idea of social justice, murals of villagers from countries all over the world could provoke emotion and light even larger fires within Gonzaga students. But more than just current

students reach future Zags when they tour the school. Make them see that it is a place they want to get involved in. Next, because Gonzaga uses Spokane's motto of "near nature, near perfect," we should have murals of rivers, fields and forests. Other ideas include; salmon, the Cascades Mountains, lighthouses, apple orchards, grape vineyards, natives flowers and plants, native birds, the Omak stampede, wildfires, wildlife, farms or farm houses, wheat fields and recreational activities such as mountain biking, kayaking, hiking, fishing and boating. The painting for these murals could be advertised first to Gonzaga student artists that have a talent and passion for art. Further, it can be advertised to local artists as well. I feel that I have addressed the justification for these extravagant walls, but if I had to recap in one sentence; Show current and future students Gonzaga's commitment to social justice through imagery, while at the same time improving air quality and creating a relaxing atmosphere for student life.

Amenities Recommendations

The new University Center should embody the definition of an amenity and serve as a constructive and beneficial resource to student life on campus. In accordance with the goals outlined in the Climate Action Plan, the University Center should reflect Gonzaga's increasing efforts toward carbon neutrality. By providing the necessary services and retail outlets required by students and faculty in a centralized location, the University Center will decrease the need for external commuting. Creating a focal point for the campus will result in decreased automobile traffic to and from campus, aiding in the reduction of carbon emissions. It will draw prospective students to it and allow our alumni to see how many positive and sustainable choices our campus is making with new construction. New suggestions were selected based on their success on other college campuses and organized with current services into three categories.

Epicenter of Campus Community

The new University Center should house all current offices that are in Crosby, including the information desk, career center, bookstore, mailroom, and bank. The University Center should also house sufficient office space for all student organizations that are sporadically placed all over campus. In addition to amenities already included in the existing student center, a pharmacy, grocery store, multi-purpose ballroom, rock wall, bike shop, variety of food vendors, rooftop dining, and bar should be included.

Education Accommodations & Administrative Offices

The new student center should be a place where students are able to work on their studies in a more relaxed setting. Group study tables, booths, nooks and other study accommodations should be incorporated into the design of the building. The new University center should also provide sufficient office space for all student organizations that are currently dispersed throughout campus.

We can help Gonzaga's students achieve the goal of limiting off campus transportation by incorporating various resources and services that will allow students to take care of all of their basic necessities and needs at this University Center. By cutting down on the trips required to go into town, the university has aided students in decreasing their carbon footprint. Gonzaga should make every attempt to provide these services for its students.

Recreation

The recreational features of the University Center should also be noted. The inclusion of these features will allow students a place gather and engage in a wide variety of social activities. The University Center should serve as a forum for the Gonzaga community, allowing everyone a place to meet. Providing stages and multi-purpose ballroom(s) will give the university a place to host a wide variety of functions. Though some of the amenities may seem somewhat far fetched, they are certainly attainable and would certainly be used. At Massey, they even have a student owned/funded bar that operates on select hours on certain days. It provides an atmosphere for students to legally indulge and enjoy the trivia nights, karaoke, concerts, viewing parties etc. Nearby is a café/restaurant that welcomes everyone to enjoy the relaxed bistro-esque atmosphere. The social benefits of these amenities can not be understated in helping foster the Gonzaga community feel.

Bike Shop

We recommend that a bike shop would significantly impact our campus because it will raise interest in using bikes and allow people who already own them to have better access for maintenance and gear. We can collaborate with the Gonzaga Outdoor office by having a bike-sharing program, bike identification number system that is shared with University Police, and a cheap, educative experience when people need their bike fixed.

Rock Wall

A rock wall or climbing wall would integrate outdoor recreation into the University center. Despite Spokane's variable winter weather, a rock wall would allow students to enjoy an outdoor activity while adding a unique aspect and attractive quality to our university center.

Rooftop Dining/Bar

The inclusion of this feature will allow students a place gather and engage in a wide variety of social activities. The student center should serve as a sort of forum for the Gonzaga community, allowing everyone a place to meet. The social benefits of these amenities cannot be understated in helping foster the Gonzaga community feel.

Features

We recommend that in effort to achieve sustainability on our campus, we must be able to provide our students with the necessary resources and basic necessities in our University Center. We can help Gonzaga's students achieve this goal by incorporating various resources and services that will allow students to take care of all of their basic necessities and needs at this student center. By cutting down on the trips required to go into town, the university has aided students in decreasing their carbon footprint. Gonzaga should make every attempt to provide these services for its students.

Grocery Store & Pharmacy

In order to alleviate traffic as well as increase support for local businesses, we encourage the incorporation of a small grocery store as well as a pharmacy. This will help contribute to the University Center as a focal point for campus life.

Multi-Purpose Ballroom

Providing a stage and multi-purpose ballroom will give the university a place to host a wide variety of functions including airing basketball games, movie showings, lectures, and other campus wide events.

Appendix C – Transportation

Part 1: Sustainability in Campus Culture

Transportation

GU participates in Spokane County's trip reduction program and charges a premium for SOV (single occupancy vehicles) parking in order to discourage people from driving by themselves.

Part 4: Reducing Scope 3 Emissions – Transportation

Parking Management:

Provision of special parking slots and reduced parking charges for carpoolers

Offering rideshare matching service through www.rideshareonline.com

Financial Incentives/Subsidies:

Provision of subsidies for bus fares and online bus pass purchases

Guaranteed Ride Home Program

Site Amenities:

Provision of bike parking in the bike racks or lockers and changing areas and showers.

Advertising:

Promote using a commute trip alternative every month and utilize the Spokane County site – www.mycommute.org for promotional materials and prize offerings

Distribution of commute trip brochure to all new employees and annual distribution to existing employees

Air Travel

Impacts- Currently the University has records of 5,829,867 miles traveled per year by University faculty/staff and organizations such as Athletics. This number includes travel booked through one of the 3 travel agencies used by the University. Any travel directly arranged by individuals, who pay themselves and then request reimbursement, are not captured in this number.

Strategies for reduction-The use of Webinars and conference calling has increased, and is a potential for reducing a limited amount of the air travel. The travel associated with Athletics cannot be reduced. The University is working on a more centralized air travel program that will help to capture more of the overall air travel.

Faculty Commutes

CTR Employer Annual Report & Program Description (submitted 4/11)

WA State requires implementation of CTR Programs and report completion

Employee Information

Total Employees: 1100

ETC Information

Trained Employee Transportation Coordinator (ETC)

ETC spends on average 8 hours a week on CTR activities

ETC has a active worksite committee to help with CTR program

Working Parking Information and Parking Management

1200 parking spaces on-site for the employees and controlled by the employer

Only 16 of 1200 reserved for HOV (carpool/vanpool) parking

Pay, on average, \$6.25 per month

Proceeds from parking spaces do not go to CTR Program
 Charge \$60 per space for carpool and \$75 for SOV
 0 SOV parking spaces were eliminated in the past 12 months
 Public Safety and Security Coordinator manages parking permits for employees
 Jamie Burchett manages carpooling
 Not anticipating any changes to parking information and management
 Financial Incentives and Subsidies (monthly per employee)
 Transit (bus) subsidy = \$5.00
 Carpool = \$15 annual parking permits savings
 Bicycling subsidy = free onsite bike lockers for 24 employees
 Work Schedules and Schedule Changes
 Currently have 4/40 for compressed work schedule
 Offers Flex Time (flexible start/end times)

CTR Employer Survey Report

Survey Date: 7/29/2009
 Response Rate: 27%
 Drive Alone: 89%
 VMT per employee: 8
 Total Employees/Surveys Distributed: 913
 Surveys Returned: 247
 Estimated CTR – Affected Employees: 913

Motorpool Usage from June '10 – May '11

Lists the Department rentals per month from June 2010 to May 2011
 Most = ISP with 118 rentals
 Second = CCASL with 64 rentals
 Third = Athletics with 43 rentals
 Total = 419 rentals

Parking

Executive Summary - Rick Williams Consulting

Parking and Transportation Demand Management Consulting

Written May 28, 2007

Covers: Executive Summary of parking study done within Spokane's University District

Background:

 Survey done April 25th and May 2nd

 5,119 on- and off-street parking

 Total hourly counts conducted for 3,019 stalls (588 on-street and 2,431 off-street) for 9 hours per study day

 Objective = identify peak occupancies for University District (Riverpoint Campus and Gonzaga University)

 Gonzaga University analyzed academic/administrative uses for 1,051,178 gross ft² and 2,100 beds for residency

Key Findings

Have a “Combined Study Area” report

Gonzaga University

Peak hour and occupancy by lot and time

Overall = 323 empty off-street stalls during this period

Most availability = McCarthy Athletic Center lot and Music Annex lot

On-street parking at full capacity

Suggests moving permit parkers to off-street sites to allow parking for visitors

Academic/admin uses 1,393 spaces

Recommend building/acquiring more stalls

2.97 beds for every residential parking stall

Actual demand = 3.53 beds per residential parking stall

Summary: Report provide basis for future parking planning and hope University District better plan for growth

Parking Permits Sold

Department Gas Use = 8017.94

Under Year Parking Pass costs, not list HOV pass at \$60 (not have one?)

Parking Pass Counts from 06/01/2010 to 5/31/2011

Total Parking Passes Sold = 3,120

Most sold = Residence Hall Parking Lots (942)

Second = Staff/Faculty Parking Lots (636)

Third = Commuter Student Parking Lots (595)

Fourth = Law School Student Parking Lots (420)

Bike Locks = 304

Highest Carpool count = 20 (Total = 34)

Parking Counts

From Ken Sammons as of August, 2009

As of August 7, 2009

Total # of Stalls = 3,200

Total # of H/C Stalls = 70

Total # of Van Accessible Stalls = 50

Fleet - Vehicles:

Set targets to reduce per vehicle fuel consumption and increase efficiency of College owned and operated vehicles.

Adopt a purchasing policy that replaces the current rental fleet with new vehicles with reduced carbon emissions.

Adopt policy of using B20 as a minimum level of biodiesel to replace current diesel use.

Test higher blends of biodiesel (B40 or B80) for suitability in vehicles. Once determined, adopt the higher level blends as policy.

Augment vehicle database to include information on fuel use and mileage used each year in order to help inform future purchasing decisions.

Information needed

Intro

Mention behavioral aspect once get the survey results back.

Current Status

There is no information provided for Commuter Rail or other alternative transportation methods. Peak travel hours and parking lot status based on time could easily have changed in the past five years due to an increase in student enrollment.

Future Goals

Reduction Goal: It would be nice to know the accurate percentage of students' eCO₂ emissions in order to be able to say "We will reduce the total student transportation equivalent carbon dioxide emissions from 8% to X%" (Currently, we know that student eCO₂ emissions constitutes 8% of total emissions, but this number does not appear accurate enough to utilize since it appears to only take into consideration transportation by automobile and bus and disregards modes like train and air travel. Furthermore, there are significant gaps in information where the section is left at 0%, such as Other Directly Financed Air Travel, Study Abroad Air Travel, Solid Waste, etc.

Future Options

The amount of eCO₂ emissions that various mitigation strategies could eliminate will need to be researched and calculated.

Faculty and Staff

Fill in by when (XXXX) Gonzaga University is aiming to achieve carbon neutrality.

Current Status

The numbers used to calculate the ratio of students to faculty/staff is from two different sources, both recent though:

Employee info from At-A-Glance 2011-2012

Student info is from the Gonzaga University Enrollment 2010-11)

Appendix D---Elements of a Campus Energy Conservation Program:

- Energy Awareness
- Energy Conservation Measures
- Energy Smart Capital Improvement Program
- Deliberate Targeting of Worst Offenders
- Energy Performance Contracting
- Green Computing
- Incentives for Energy Conservation
- Super Energy Efficient Planning and Green Design
- Documentation of Savings and Centralized Metering

Importance of End Use Conservation

Steam Boiler - 65% of heat energy created by combustion of Natural Gas ends up in end user space as heat 35% is wasted to environment in combustion and distribution.

Energy Awareness

- Requires a culture change
- Use environmental themes to motivate
- Target biggest offenders first
- Multi- faceted marketing campaign
- Reinforce other green initiatives
- Sustainability Coordinators/Eco- Rep Program

Energy Conservation Projects

- Building Envelope
- Lighting
- Air Conditioning
- Temperature Control
- Motors Fans Pumps
- Lab Ventilation
- Heat Recovery
- Swimming Pools
- Energy Management
- Information Feedback

Projects - Building Envelope

- Weather/infiltration sealing
- Increased insulation
- New high performance windows
- Low Emissivity (Low- E) window film

Projects - Lighting

- De- lamping – permanently turning off fixtures
- Re- lamping – replacing inefficient lamps with new more efficient
- Increase task lighting – decrease general lighting
- Design for lower lighting levels

- Improve controls – Timers, Occupancy and Daylight sensors
- Convert outdoor lighting to High Pressure Sodium
- Eliminate or reduce decorative outdoor lighting
- Consider general LED Lighting indoors and outdoors
- White wall paint for maximum light reflectivity
- Design criteria of new lighting load of less than 1 watt per SF

Projects - Air Conditioning

- Replace old AC equipment with max efficiency models
- Discontinue use of inefficient window units
- Reduce AC operating hours
- Stop super- cooling and reheating to control humidity
- Clean cooling coils on regular basis
- Maximize free cooling with economizer cycle
- Open windows and passive cooling in lieu of AC
- Close windows when AC is in operation
- Consider evaporative cooling

Projects - Temperature Control

- Reduce temperature p settings in winter
- Increase temperature settings in summer
- Maximize night, weekend and holiday temperature setbacks
- Control space temperature remotely with EMS
- Limit range of occupant control temperature

Projects - Motors, Fans, and Pumps

- Minimize run hours to match operating hours
- Replace old motors with high efficiency new
- Install variable speed drives on pumps
- Operate VSD at maximum turn down
- Convert constant volume fan systems to Variable Air Volume
- Close outside air dampers during morning warm up
- Reduce outside air ventilation rate using CO2 sensors, VSD, outside air dampers and demand control ventilations.
- Eliminate three- way bypass valves reduce needless pumping

Projects - Laboratory Ventilation and Hoods

- “Green Chemistry”- doesn’t require ventilation or hoods
- Turn off 100% outside air when lab not in use
- Decommission or remove unneeded hoods
- Use ventilated storage cabinets in lieu of fume hoods for chemical storage
- Variable Air Volume Hoods in lieu of Constant Volume
- Replace old conventional hoods with new low flow
- Retro fit ventilation and hood systems with heat recovery

Projects - Heat Recovery

- Run around loops
- Heat wheels
- Heat pipes
- Desiccant wheels
- Air to Air Heat Exchangers

Projects – Swimming Pools

- Limit ventilation to that required by code
- Install heat recovery
- Use high efficiency boilers for heating water

Projects - Energy Management Systems

- Switch to direct digital controls
- EM systems that are easy to program
- Fully train staff
- Optimize Start/Stop
- Night Set Back
- Demand Shedding
- Remote programmed lighting control

Projects - Information Feedback Systems

- Centralized and remote energy metering system
- Display screens that show energy use, eCO₂ emissions and cost saving at each building

Energy Smart Capital Improvement Program

- Tough energy efficiency standards for all renovations and capital improvement projects
- Prioritization of projects that conserve and improve energy efficiency

Deliberate Targeting of Worst Offenders

- Specific, aggressive, comprehensive targeting of most energy intensive and energy wasteful buildings and energy systems.
 - Electric Heat
 - Large outside air ventilation systems
 - Fan system which operate at full capacity when actual occupancy is a lot less
 - Super cooling supply air in air handling units to 55 degrees and then reheating (during cooling season)
 - Heating and power plants
 - Data Centers

Green Computing

- All computers on campus have their power management features engaged
- Turn off computer when not in use
- Match the number of operating computers to actual customer load in computer labs. (most of the computers in labs should be turned off during slow periods)
- Highest standards of efficiency for new computers and servers

- Virtualization of desktop computing

Incentives for Energy Conservation

- Innovative strategies to assign energy costs to campus energy users or cost centers so that there are real dollar incentives for energy conservation for campus building occupants
- Elimination of “split incentives” that discourage full cooperation with the energy conservation program
- In multi- school college and university systems, a policy which allows all or part of the energy conservation dollar saving to remain with the school that achieved them.

Super Energy Efficient Planning and Design

- Reduce conditioned space and avoid new construction by consolidating operations and improving campus space utilization
- When new construction is necessary, only build the most energy efficient buildings to reduce legacy energy costs and minimize the need for future energy conservation retrofitting

Documentation of Savings and Centralized Metering

- Keep accurate p energy balance of campus energy systems (cooling, heating, power)
- Meter all energy systems at each facility on campus (cooling, heating, power)
- Centralize and store all meter data for accurate trending of energy usage at each facility.
- Install electronic metering systems that provide more accurate and timely meter readings.

Heating and Cooling Plant Solutions

- Fuel Switch
 - Bio Bunker “C” (Camilina Oil) in lieu of Natural Gas
 - Burn Wood Chips, Wheat Straw in lieu of N.G.
(capital investment- new boilers, hoppers, ash handling)
- Steam Cogeneration
 - Make electricity with Natural Gas in lieu of purchased electricity. Use waste steam for heating requirements. (capital investment- steam turbine)
- Thermal Storage
 - Make ice at night. Melt ice during peak electricity demand during the day to augment chilled water. (capital investment – storage tank)

Install Renewable Energy Technologies

- Geothermal
 - Use cooling and heating capacity of aquifer to supplement campus cooling and heating loop. Open Loop Well System. Ground Source Heat Pumps.
- Solar
 - Photovoltaic Electric Arrays
 - Passive Solar (thermal mass)
 - Delighting
 - Domestic Hot Water Arrays
- Wind
 - Utility Scale Turbines (1.5 – 2.5 Megawatt) – 300 ft tall
 - Small Wind Turbines (25 – 100 Kilowatt) – Building mounted

Buy Renewable Energy

- Benefits of buying green power:
 - Shifts power generation away from fossil fuels
 - Contribute to construction of specific energy type through long term contract with developer
 - Financial hedge against future price volatility with long term contract
 - Demonstrate civic leadership
 - Public Relations Benefit
 - Increase campus morale
 - Serve educational purpose

Renewable Energy Certificates (R.E.C's)

- Increments of 1000 kilowatt hours (1 REC = 1000kWh)
- Represent the “environmental attribute” associated with renewable power. “Is the power generated really carbon neutral?”
- Certified by independent agency to guarantee production and that power is not double sold.
- Sources include solar electric, wind, geothermal, biomass, certain types of hydro, hydrogen fuel cell.
- Typically cost 1 - 3 cents per kWh, a premium cost over and above purchased electricity.

Maximize Space Utilization

- Current space utilization issues;
 - Media enhanced versus plain old classrooms
 - Small classes in big rooms
 - Low usage after 2 pm, Fridays, and summer.
 - Summer cooling load high in low occupied spaces
 - Winter heating load high in low occupied spaces
- Strategies to address poor space utilization;
 - meet program needs for new space by reconfiguring and better utilizing existing space
 - stop heating or cooling spaces when unoccupied
 - Moth ball low use or unoccupied buildings during the summer. Consolidate space during summer.
 - Aggressive scheduling including starting classes earlier, scheduling them later in the afternoon, holding more of them in the evening and on Fridays.

Construct Green Buildings

- LEED Green Building Rating System
 - Sustainable sites, Water Efficiency, Energy and Atmosphere, Material and Resources, Indoor Environmental Quality
 - Certified, Silver, Gold, Platinum
- Architectural 2030 Challenge
 - Supported by AIA
 - Focuses specifically on reducing energy consumption and greenhouse gas emissions.
 - Provides average energy consumption performance in KBTU/SQFT/YR by building type so that reduction targets are more precisely understood.

- Labs21 for Campus Laboratory Buildings
 - Builds on LEED rating systems
 - Adds prerequisites for health and safety, fume hood energy use, and plug loads

Fleet Solutions

- Buying only the most fuel efficient vehicles
- Choosing the most fuel efficient vehicle appropriate for the task
- Using vehicles which run on alternative fuels like electricity, biodiesel, or compressed natural gas
- Implementing policies to reduce vehicle miles driven
- Implementing a no idling policy

Commuting Solutions

- Raise awareness of transportation
- Increase use of public transit by students, faculty and staff
- Increase carpooling
- Increase bicycling
- Reduce on- campus driving
- Reduce the need to single occupancy vehicle(SOV) commute
- Refocus campus parking policy
- Reduce the carbon- intensity of vehicles used for commuting
- Other Strategies

Air Travel Solutions

- Make teleconferencing easier and more accessible.
- University wide contract with online meeting service like Citrix Gotomeeting, Microsoft Livemeeting or WebEx.

Carbon Offsets

- GHG emissions can be offset by purchasing financial instruments that help pay for projects which reduce GHG emissions elsewhere.
 - Example - harvest methane created at landfill and combust in a boiler to make electricity.
 - ACUPCC Voluntary Carbon Offset Protocol
 - If purchasing offsets must be certified and guaranteed by third party.
 - Clean Air Cool Planet's Guide to Retail Carbon Offset Providers

Appendix E List of sustainability –oriented courses at Gonzaga University

Engineering:

CENG 224 Applied Stream Ecology
 CENG 225 Geology
 CENG 331 Soil Mechanics
 CENG 331L Soil Mechanics lab
 CENG 352 Fluid Mechanics
 CENG 303 Environmental Engineering
 CENG 305 Environmental Engineering Lab
 CENG 352 Water Resources Engineering
 CENG 352L Water Resources Engineering Lab
 CENG 404 Sustainable Systems and Design
 CENG 413 Ground Water
 CENG 414 Waste Management
 CENG 416 Hydrogeology
 CENG 417 Transportation Engineering
 CENG 424 Physicochemical Treatment Processes
 CENG 425 Transport in the Environment
 CENG 427 Infrastructure Design
 CENG 432 Quantitative Risk Analysis
 CENG 444 Air Pollution
 CENG 450 Geospatial Data Applications
 CENG 454 Biological Treatment Processes

Business School:

Econ 304 Economics and Environmental Protection
 Social Entrepreneurship and Sustainable Business

College of Arts and Sciences:

Environmental Studies Major/Minor:

ENVS 101 Introduction to Environmental Studies
 ENVS 103/BIOLOG 123 Human Ecology (ENVS 102/BIOLOG 102)
 ENVS 104/CHEM 123 Environmental Chemistry
 ENVS 110/BIOLOG 140-Field Botany –
 ENVS 111/BIOLOG 159-Fields Studies in Biodiversity –
 ENVS 160/RELI 112-Old Testament and Ecojustice –
 ENVS 200 Case Studies in Environmental Science
 ENVS 199/BIOLOG 199-Conservation Biology –.
 ENVS 304-Water for Life-Africa –
 ENVS 324-SOCI 382-Population and Society –
 ENVS 340/HIST 396-History of Yellowstone-
 ENVS 358/PHIL 458 Environmental Ethics
 ENVS 499 Environmental Studies Capstone
 ENVS 320/ECON 304 Economics of Environmental Protection
 ENVS 321/SOCI 383 Environmental Sociology

ENVS 322/PSYC 333 Environmental Psychology
ENVS 323/POLS 329 North American Environmental Politics
ENVS 350/PHIL486 Ethics of Global Climate Change
ENVS 351/PHIL 459 Ethics of Eating
ENVS 352 Environmental Health
ENVS 353 Environmental Law
ENVS 399 Special Topics-Environmental Social Sciences

Philosophy:

PHIL 458 Environmental Ethics
PHIL 459 Ethics of Eating
PHIL486 Ethics of Global Climate Change

Chemistry:

CHEM 123 Environmental Chemistry

Biology:

BIOL 123 Human Ecology
BIOL 140-Field Botany –
BIOL 159-Fields Studies in Biodiversity –
BIOL 323-Conservation Biology

Religion:

RELI 112-Old Testament and Ecojustice

History:

HIST 396-History of Yellowstone

Sociology

SOCI 382-Population and Society
SOCI 383 Environmental Sociology

Physiology

PSYC 333 Environmental Psychology

Political Science:

POLS 329 North American Environmental Politics

Law School

Environmental Law - Toxic & Hazardous Waste Control
Environmental Law - NEPA, ESA, CAA, & CWA
Environmental Dispute Resolution
Employment Law
Water Law

Appendix F- Memos

TO: Parking Garage Planning Group

March 5, 2012

SUBJECT: Parking Garage Recommendations

As proud members of the Gonzaga Community and senior environmental studies students, we felt obligated to voice our support for sustainable features that could be integrated into the new parking garage scheduled to be built this spring. Currently, our class is invested in helping the ACSS complete the President's Climate Action Plan, which was signed in 2010 and must be submitted by this summer. Through this process we realize that as a campus community we face many crucial decision-making challenges as to how we will embody the Jesuit ethic and provide for all current and future Gonzaga students, faculty, and staff. Furthermore, as a University it is paramount that we continue living out our mission of social justice and do our part to ensure that posterior/subsequent generations can enjoy a sustainable environment. The carbon footprint from this new parking garage will be of no little consequence and it is unfortunate that we must build this infrastructure to meet 20th century conceptions of transportation. Nevertheless, we recognize that this is the reality of the legal requirements and will be necessary to develop the new University Center. We also understand that there will be a missed opportunity and potential future expenses if we do not seize this opportunity now to influence the construction of the parking garage. It is critical that we design this parking structure in such a manner as to facilitate the future adaption to the social changes that will occur in our lifetime deriving from anthropogenic climate change. This Transportation Hub must be ready to meet the transformation that will need to occur from the carbon the cars of today to public transit, bike transportation and diverse fueled vehicles of the future Gonzaga Community. To this end we ask that the following be considered:

Bike Travel

Gonzaga's convenient placement, just off the Centennial trail, provides easy access for biking to and from campus. However, in order to encourage biking to become a norm we recommend installing multiple bike storage areas, locker rooms, and showers throughout campus. The Transportation Hub could serve as the center for many of these diverse transportation facilities, which would address the issue of easy access for bicycles entering and exiting the structure onto the regional trails.

Public Transit :

With a bus line on Hamilton, consideration to create a covered sitting area integrated into the proposed storefront could provide comfortable access for the Gonzaga Community members that elect to use public transportation and create an incentive for its increased use.

The Car of the Future

The infrastructure required to charge all electric cars should be added, and priority parking spots be allotted for carpools and ride shares along with other incentives for high efficiency cars.

Infrastructure

This building could also be constructed so as to reduce the total university footprint by installing photovoltaic solar panels and a native water neutral landscape. The building could be designed to allow event space for Student Life when a parking level is unoccupied, or even plumbed and wired for future retrofit options in order to simplify a possible future conversion from parking to office spaces.

Thank you for taking the time to listen to our concerns!

Senior Environmental Studies Class 2012

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