

A Proposal for Establishing the Centre for Place and Sustainability Studies

Prepared by:

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The Centre name (Place and Sustainability Studies) draws from a growing international movement of “place-focused” sustainability studies as foci for inquiry across academic disciplines, and from Aboriginal and grassroots communities around the world who are “place attached” and working to improve the wellbeing of local people and the places in which they live (Alvarez & Rogers, 2006; Greenwood, 2011; Gruenewald, 2003). The relation of local place to changing global trends is a core theme in sustainability research. The international dimension of the proposed centre, and the broad context of sustainability, will serve to guide local and regional inquiry with a global and planetary context of interconnected challenges and opportunities (e.g., local adaptation to climate change, fostering environmental literacy, and creating sustainable economies).

1. Purpose, Rationale, Mission, and Goals

Purpose

The purpose of the Centre for Place and Sustainability Studies (CPSS) is to incubate and support diverse place and sustainability related research, education, and outreach initiatives within the LU community, in the region, and internationally in order to create the conditions for social and ecological justice.

Rationale

Around the world, businesses, governments, non-government organizations, educational institutions, and citizens are at work innovating to respond to the many social, environmental, and economic challenges of sustainability. Institutions of higher education have a significant role to play as leaders in sustainability education, research, innovation, and engagement (M'Gonigle & Starke, 2005; Wals & Jickling, 2002). As a signatory to the Talloires Declaration for sustainability in higher education, Lakehead University committed to creating an institutional culture to “engage in education, research, policy formation, and information exchange” toward the goal of “environmental literacy” (University Leaders for a Sustainable Future, 1990). In 2009, Lakehead University joined with 20 other Ontario universities to sign the pledge, Ontario Universities Committed to a Greener World. This multifaceted document pledges signatories “to assist in finding solutions to the challenges of environmental sustainability; to share knowledge about sustainability and climate change; and to incorporate, wherever possible, principles of sustainability into our own operations” (Council of Ontario Universities, 2009). More recently in its 2010-2011 Report to the Community, Lakehead University declared that a major strategic direction is “leading the nation in environmental sustainability” (Lakehead University, 2011).

Such declarations of commitment and leadership in sustainability are a recurrent theme in university policy worldwide. The Association for the Advancement of Sustainability in Higher Education (<http://ASSHE.org>) currently has over 1000 member institutions that are actively pursuing major sustainability initiatives in North America. The growing body of literature around sustainability in higher education suggests that coordinating university initiatives in research, education, governance, and operations (see Figure 1) maximizes learning, results in meaningful change, and benefits people and the environment (AASHE, 2010; Corcoran & Wals, 2004).

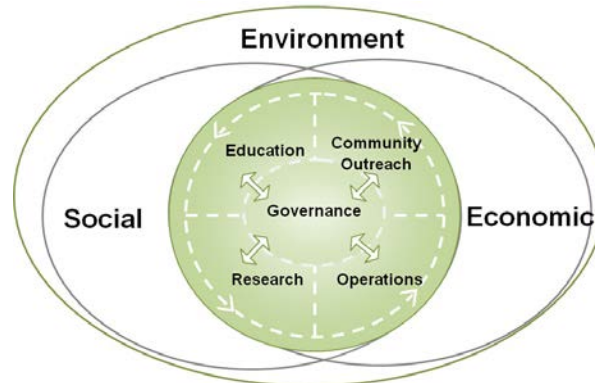


Figure 1. *Framework for University Sustainability Commitment*
(from the U of Saskatchewan, 2011)

In response to what has been described as the sustainability revolution in higher education, many universities are investing in a range of sustainability initiatives by creating new positions such as the Sustainability Coordinator, as well as restructuring or creating new faculties, schools, colleges, centres, and institutes around the theme of sustainability (Edwards, 2005). The Centre for Place and Sustainability Studies will add to Lakehead University's diverse sustainability profile, and serve as a focal point for a range of research and outreach initiatives across the university. Its members and leadership will be responsive to the research around sustainability across disciplines, and contribute to the burgeoning research on sustainability in higher education.¹

Mission

The Centre for Place and Sustainability Studies will:

- Support the development of smaller scale research and outreach initiatives in the LU community and in the wider community and region (current research and outreach initiatives supported by SSHRC ASU funding are described in Appendix A.)
- Generate a range of larger scale research and outreach initiatives in the LU community and in the wider community and region (current research and outreach initiatives include: LU Outdoor Learning and Meeting Place Project; Thunder Bay Schools Environmental Education Coordination Project; Cascades Fine Papers Cultural and Ecological Heritage Project; Heart of the Continent Partnership Project)
- Establish a Resource Clearinghouse and Networking Porthole for Place and Sustainability Studies

Centre Goals

Primary

- Increase the capacity for place and sustainability research, education and outreach at Lakehead University by establishing an action-oriented presence and identity for the Centre in the University community, in the region, as well as nationally and internationally

¹ The following refereed journals regularly publish studies on sustainability in higher education: *International Journal of Education for Sustainable Development*; *Sustainability: The Journal of Record*; *International Journal of Sustainability in Higher Education*; *Journal of Sustainability Education*; *Solutions*; *Alternatives*; *Environmental Education Research*; and the *Canadian Journal of Environmental Education*.

- Support the development of smaller scale research and outreach initiatives in the LU community and in the wider community and region through small grants (SSHRC Partnership and ASU grants)
- Generate a range of larger scale multidisciplinary research and outreach initiatives in the LU community and in the wider community and region
- Convene teams and partners to develop proposals for research and outreach initiatives to external funding agencies in public and private sectors

Secondary

- Establish a portal and meeting ground for current and prospective undergraduate and graduate students with multidisciplinary interests in place and sustainability
- Establish a mechanism by which undergraduates and graduate students can experience and conduct place-responsive sustainability research at LU
- Establish an International Clearinghouse for Place and Sustainability Studies
- Disseminate new knowledge relating to place and sustainability research

Proposed Method of Achieving Goals

Centre goals will be met by initiating the following activities:

Primary

- Convene participants twice monthly to plan Centre research and outreach initiatives and execute work plan
- Convene a wider Advisory Committee annually to shape Centre research and outreach initiatives
- Invite and fund proposals for smaller scale research and outreach initiatives in the LU community and in the wider community and region (from SSHRC ASU grant and future revenues)
- Generate multidisciplinary larger scale research and outreach initiatives in the LU community and in the wider community and region, and apply for external funding
- Develop a phased process for expanding participation across the campus and community
- Identify and develop key interdisciplinary place-based learning sites for research and teaching on Lakehead's campus and in the greater Thunder Bay region (e.g., Outdoor Learning and Meeting Place)

Secondary

- Maintain an engaging Centre website that enhances Lakehead University's sustainability profile
- Host an annual symposium featuring Centre-related research, education, and outreach
- Recruit and foster graduate and undergraduate student participation across faculties
- Help document and publicize Lakehead University's sustainability efforts
- Convene an International Advisory Board of academics and leaders in the sustainability revolution

Tertiary

- In collaboration with Lakehead University Student Union's Sustainability Commissioner, implement the Sustainability Tracking and Rating Assessment System (STARS) from the Association for the Advancement of Sustainability in Higher Education (AASHE)
- Conduct an inventory of resources available to Centre from other units and related centres (e.g., technical support from the Remedial Action Plan)
- Support undergraduate, graduate, and post-doctoral research proposals in relation to the Centre goals
- Establish partnerships with other sustainability centres in Canada and internationally that are pursuing similar work

2. Relevance

Place and sustainability studies describe a broad spectrum of interdisciplinary inquiry and action around some of the world's most pressing social and environmental problems (e.g., energy, climate change, health, social equity, economic wellbeing, education, security, cultural conflict, food, water, habitat loss and degradation, species

extinction, etc.). Like all communities and regions worldwide, Thunder Bay and all of northwest Ontario are in the process of adapting to its changing social and ecological environment. It is within this context of global, regional, and local change that the proposed Centre aims to strengthen Lakehead University's interdisciplinary research capacity, specifically in the areas of Culture and Society, the Environment, Northern Studies, Aboriginal Studies, and Health Research Across the Lifespan. In addition, the proposed Centre aims to contribute to the local community through research and outreach, thus enhancing Lakehead University's strategic aim of leading the nation in environmental sustainability.

In their substantial research programs, and as leaders of diverse communities, the applicants emphasize the interrelatedness of cultural and ecological inquiry, the significance of local place, as well as the significance of Aboriginal cultures to environmental inquiry and education. Together as faculty across disciplines, the Centre aims to enhance the capacity for innovative interdisciplinary research, education, and outreach among faculty and students whose work revolves around local cultural and ecological issues in global contexts. The Centre for Place and Sustainability Studies brings a new dimension to Lakehead University structure because it provides a broad umbrella for place and sustainability-related work across disciplines.

3. Life Expectancy, Sustainability, and Budget

This proposal aims at creating a permanent Centre for Place and Sustainability Studies. The relevance of sustainability to higher education and to people worldwide is steadily increasing, and this proposal will create new structures and processes that will enhance the university community's ability to respond to new challenges and opportunities. The Centre Management Team is comprised of a group of experienced researchers and community leaders with a significant track record of publishing and securing external funding. *As stated above, our goal is to convene teams and partners to develop proposals for research and outreach initiatives to external funding agencies in public and private sectors.*

Centre co-Directors Dr. David Greenwood and Dr. Robert Stewart currently have operating budgets to seed-fund Centre activities for the first five years (see Appendix B, Five Year Expenditures and Revenue Plan). Larger proposals and associated budgets will emerge from the processes the Centre has begun to catalyze. For example, Dr. Greenwood is currently a co-applicant and finalist on a \$1.9 million SSHRC Partnership Grant ("Sustainability Education Partnership Network") directly related to Centre goals; four Centre-affiliated faculty members from four different departments are collaborators on this grant. Examples of emergent larger scale projects within the Center that are or may be leading to external funding proposals include: LU Outdoor Learning and Meeting Place Project; Thunder Bay Schools Environmental Education Coordination Project; Cascades Fine Papers Cultural and Ecological Heritage Project; and Heart of the Continent Partnership Project. In addition to future revenues from external funders, the Faculty of Education and Department of Geography have committed administrative, technical, and graduate student support for the sustainability of the Centre. As stated above, a goal of the Centre is to conduct an inventory of additional resources available to the Centre from other units and related projects (e.g., technical support from the Remedial Action Plan).

4. Research Plan

As described above with examples of smaller and larger-scale initiatives, the overarching research plan of the Centre for Place and Sustainability Studies is to generate research, education, and outreach initiatives at Lakehead University and in the wider community and surrounding region. Through a series of 14 meetings since August, 2011, the multidisciplinary group of participants has identified six priority research themes that are currently guiding the research plan of the Centre. These priority research themes include:

- Community-University Partnerships
- Healthy People/Healthy Places
- Urban and Rural Sustainability
- Environmental and Sustainability Education
- Regional Aboriginal and Non-Aboriginal Relations
- Sustainability at Lakehead University

Current and future Centre research activities will focus on supporting and developing projects and outreach initiatives within each of these themes, along with relevant funding proposals.

Centre faculty and graduate students will also be conducting ongoing educational research on Centre activities through a participatory action research methodology. Given the interdisciplinary nature of place and sustainability studies in higher education, our central research questions to be addressed are:

- 1) How can research universities organized around discrete disciplines better support sustained interdisciplinary research, teaching, and outreach around place- and sustainability- specific themes and issues?
- 2) How can the proposed Centre function to identify, analyze, document, create, and support innovative approaches to place- and sustainability-responsive learning in multiple communities?

Significantly, these research questions also formed the core concept of the successful SSHRC ASU grant which is seed-funding the Centre (\$90K over 3 years). The Centre has also played a key role in a recently funded SSHRC Partnership Grant for the development of the nationwide Sustainability Education Policy Network (\$2 million over 6 years). Five Centre faculty were involved in this major proposal; the SEPNI will significantly enhance research opportunities for faculty and students.

To date, the formation of the Centre has been featured in the narratives of two successful SSHRC grants. As well, a prospective international researcher, two prospective post-doctoral researchers, two prospective doctoral students, and one current master's student have applied for research funding to work with the proposed Centre. It is anticipated that this trend will continue.

5. Commitments by Lakehead University

As stated above, a goal for the Management Team is to conduct an inventory of resources available to Centre from other units in the Lakehead University community. Below is a summary of current commitments from the Faculty of Education and the Department of Geography.

The Faculty of Education has currently committed:

- space allocation to support the Centre (within Department of Geography and Faculty of Education)
- secretarial and accounting support (within Department of Geography and Faculty of Education)
- graduate student support (within Department of Geography and Faculty of Education)
- technical support/geomatics
- RAP coordinator

6. University Facilities

The Centre for Place and Sustainability Studies will *not require additional space commitments* from the University at this time and will use existing facilities according to established rules and procedures.

7. Membership

The goal of membership is not to maximize affiliate members, but to create a network of committed associates who wish to make substantive contributions and take on substantive roles.

Centre members will be designated as Research Associates. Research Associates are defined as faculty members, staff, undergraduate students, graduate students, and post-doctoral researchers at LU and other partner research universities. Research Associates are also defined as research partners outside of higher education in schools, government, non-government organizations, and in the business community.

Membership is established by invitation and application. Those seeking membership will be required to describe their interests in relation to place and sustainability studies. Membership is ongoing and will be maintained by

participating in Centre activities. Membership can expire through non-participation in Centre activities (as deemed by the Management Team).

8. Governance

Governance will be accomplished through a Management Team, an Advisory Committee, and an International Advisory Board. These leadership bodies will foster “constellation collaboration” (Surman, 2006), described below. The Management Team will be composed of two co-directors who are faculty members from two different academic fields, faculty members from at least three additional fields, and two community members, thus demonstrating the multidisciplinary and inter-institutional vision of the centre. The Management Team will meet monthly, and conduct the business of the centre (i.e., create and execute a work plan of centre research and outreach initiatives). Committed members of the Management Team include faculty members David Greenwood (Education), Rob Stewart (Geography), Lesley Curthoys (Outdoor Recreation), Mirella Stroink (Psychology), Todd Randall (Geography), Phil Fralick (Geology), and Brian Ross (Northern Ontario School of Medicine); and community members Graham Saunders (Environment North) and Christy Radbourne (Lakehead Public School Board).

The Advisory Committee will be formed by invitation from the Management Team, and will be composed of at least three faculty members with representation across faculties, three community members from diverse social sectors (e.g., government, business, NGO), and 1 graduate student. The Advisory Committee will meet annually, and the Management Team will report to the Advisory Committee on Centre progress. As well, a reporting mechanism will be established for community partners to report on the impacts of the Centre to the Management team.

An International Advisory Board will be formed to connect Centre activities to an international network of place and sustainability focused scholars and researchers. An international dimension is desirable, as sustainability research requires multinational, intercultural, and global perspective. The International Advisory Board will meet once annually by teleconference with members of the Management Team to explore multinational partnerships. Current nominees for the International Advisory Board include internationally renowned sustainability researchers Gregory Smith (Lewis and Clark College, US), Margaret Somerville (University of Western Sydney, Australia), and Arjen Wals, (Wageningen University, the Netherlands, and Richard Kahn (Antioch University Los Angeles, US).

“Constellation collaboration” is an approach to governance developed at the Centre for Social Innovation in Toronto. Surman (2006:1) defines this approach as “a complexity-inspired governance framework for multiorganizational collaboration. It is a way of organizing a group of interested parties to meet a need without having to create a new organization to ‘hold’ the issue. It is a tool to help us recognize and become conscious designers in a complex ecosystem of organizational collaboration.” The applicants and Centre participants have embraced this organizational framework because of its fit with our goal of incubating and supporting a range of place and sustainability related research, education, and outreach initiatives within the LU community, in the region, and internationally. It also provides a model for expanded participation in Centre activities. Appendix C provides a visual example of how leadership emerges from group vision to respond to community needs.

9. Personnel

The hiring of additional personnel is contingent on future external funding and will follow established Lakehead University policy.

10. Legal Implications

No legal implications are expected.

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Appendix A:

Examples of smaller scale research and outreach initiatives in the LU community and in the wider community and region currently supported by Centre funding and partnerships:

1. Developing a sense of place during medical training. Brian Ross, Northern Ontario School of Medicine

The Association of the Faculties of Medicine of Canada have said in their Future of Medical Education in Canada vision that medical school should be accountable to community need. This is medical education about somewhere rather than anywhere. One way to achieve this is to recruit and train doctors to practice in the local community. This involves specific knowledge and skills regarding medical practice in a place, and also depends on the trainee physician developing a strong personal sense of place. Fostering a sense of place can occur by giving the students direct experience with a potential future place of employment. At Lakehead University, medical interns are developing place-based connections through several mandatory small town and rural placements. In this project the experiences of the students and faculty will be investigated as starting point to understanding how a medical sense-of-place develops, and therefore how this can be maximized towards the end of better medical care for local communities.

2. Learning through film: Place-responsive environmental education for youth in Northern Ontario, Eleanor Albanese, Ariel North Productions

"Under the Pearl Moon" is a film and educational project bringing together the arts, environmental, and educational communities to examine and express the aesthetics of regional environmental learning during middle childhood. The project combines the dynamic components of 1) a Northern Ontario live action drama titled *Under the Pearl Moon*, which will be broadcast in a variety of national and international film festivals, and 2) the development of a comprehensive educational resource. In tandem with the film's production and Lakehead University graduate courses, film vignettes and hands-on ecological lessons will be researched and designed for elementary school classrooms. An *Under the Pearl Moon* educational website will also be constructed and made available to teachers across Canada.

3. Adventure Learning at Kingfisher Lake Outdoor Education Centre, Kelly Henderson

This project will involve the development and expansion of curricular activities at Kingfisher through the purchasing of much-needed materials, including skeletons, terrariums, and pond nets. These tools for experiential learning will also catalyze a research initiative that aims to capture the stories of students' experiences at Kingfisher. In partnership with Lakehead Public Schools and Lakehead University students, teachers at Kingfisher Lake Outdoor Education Centre will explore how these experiences relate to the objectives of character education and the development of ecological literacy through schooling. Kingfisher Lake Outdoor Education Centre, owned and operated by Lakehead Public Schools, is a unique facility offering curriculum-linked experiential education for elementary and secondary school students. It provides a multitude of year-round and residential learning opportunities to instill an awareness of and appreciation for the environment, while simultaneously enhancing classroom learning.

4. The Big Boreal Adventure Goes Historical, Geraldine Ysselstein

Building upon the success of Big Boreal Adventure initiative, which saw approx. 10% of Thunder Bay's population explore the natural heritage of this region, the Big Boreal Adventure will be creating a series of historical discovery tours. With the understanding that the histories of places are most often complex and contested, this project aims to introduce the community to the layers of history that exist in Thunder Bay, develop relationships between Aboriginal and non-Aboriginal communities, and encourage interaction with themes of place and sustainability among youth. A self-guided discovery book will be made available through all Lakehead Public Schools, as well as through the project's community partners, including the public libraries, the Thunder Bay District Health Unit, and the Thunder Bay Historical Museum. The Centre for Place and Sustainability Studies will fund the research and development of this discovery book, and in doing so, will involve university students, faculty, and community organizations in exploring diverse understandings of the histories of Thunder Bay.

4. Roots to Harvest, Erin Beagle

In its fifth year of operation, Roots to Harvest is a non-profit community organization that uses gardening and farming to develop skills and capacity amongst youth in Northwestern Ontario. Each summer, Roots to Harvest hires 10 youth apprentices and 2 summer coordinators to engage in experiential learning that extends well beyond the production of food, and into transformative experiences that empower youth to see themselves as citizens. In supporting the hiring of one summer garden coordinator, the CPSS will engage in community research with the Roots to Harvest participants, as well as their community partners, to explore the impacts of this summer work experience on participants' understandings of themes of place and sustainability. CPSS research engagement with this initiative will also consider how universities might develop their own capacity in supporting local community research and action.

5. Lakehead University Outdoor Classroom Initiative, Brent Cuthbertson

Lakehead University is renowned for the natural heritage of its Thunder Bay campus, and this feature makes possible exceptional learning opportunities across faculties. With the support of the Deans of the Faculty of Education and the Northern Ontario School of Medicine, the CPSS is engaging in an inclusive participatory process beside community stakeholders to develop an outdoor classroom and meeting space at Lakehead University. Having already involved students in the ORPT program in this collaborative research process, the CPSS is currently engaging students, faculty, administrators, and staff across the university, as well as community organizations, to better understand the needs of these various stakeholders for an outdoor space. Partnerships are also being developed with Lakehead's Ogimaawin-Aboriginal Governance Council to learn from their wisdom on the processes of teaching and learning in outdoor spaces.

6. Creating an interdisciplinary Lake Superior field course, Aaron Nicholson, Lake Superior Remedial Action Plan

This purpose of this project is to facilitate a networking and learning opportunity for faculty, students, and community partners engaged in Lake Superior research. A diverse range of community members including representatives of government agencies, academics, First Nation communities, and local environmental organizations will be immersed in a remote island ecosystem for a five day field-based workshop focused on the development of an interdisciplinary post-secondary course centred around utilizing place-based learning to

understand the complexity of ecological change. The workshop will be organized around a system of introductory learning sessions facilitated by the participating members. Each participant will be asked to prepare a short learning session relating to environmental monitoring or place-based learning techniques. Session topics range from advanced bio-monitoring methodologies, to local fishing strategies, traditional plant uses, and local history. Interviews with participants will focus on synthesising the perspectives relating to environmental monitoring, local ecological change, place-based learning, and field course potential.

7. Teaching critical literacy: The natural environment as text, Christy Radbourn, Lakehead District School Board and Joan Chambers, Lakehead University

This project is a collaborative effort between Woodcrest Public School, Lakehead District School Board, and Dr. Joan Chambers of Lakehead University with additional funding from the Ministry of Education through their Teachers Leadership and Learning Program (TLLP) grant. The project explores teaching critical literacy skills using the natural environment as text, while integrating multiple perspectives, including Aboriginal, curricular, and community. Students and teachers are engaged in several outdoor experiential opportunities and will be using their experiences and knowledge to plan and construct an outdoor classroom which will serve as a focal point for future environmental education efforts in the school. The teachers, students and researchers in the project are collaborating with Aboriginal and community partners, including Elder Gerry Martin, The Lakehead Regional Conservation Authority, and Kingfisher Outdoor Centre and will present their findings at the Ministry of Education's TLLP Research Symposium in Toronto, November 2012.

8. Public Event: Lighthouses of the North Shore - Preserving Our Heritage, Remedial Action Plan

The purpose of this event is to raise awareness of socio-ecological issues associated with Lake Superior and to further support our regional cultural identity and sense of place. The Lake Superior lighthouse is an iconic cultural image within this region and represents the hardships and perseverance of the North Shore coastal lifestyle. In 2010 the Heritage Lighthouse Act was adopted as a means to protect these cultural resources by allowing them to be used for other purposes - including interpretive centers, research facilities, and other community-based uses. The goal of this event is to educate and inspire individuals, municipalities, and non-profit groups to engage in maintaining and utilizing these vanishing heritage sites. The North Shore RAP offers a far reaching network of community members including regional environmental groups, government agencies, industry stakeholders, and non-government organizations. This event offers opportunities for the Centre of Place and Sustainability Studies to increase its community profile and publicly announce a relationship with a long running Great Lakes Environmental Program.

Appendix B: Five Year Expenditures and Revenue Plan

Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Costs	<p>ASU</p> <ul style="list-style-type: none"> GA stipends \$9,750 Seed grants \$8,000 Website \$1,000 Travel \$8,250 Speaker \$1,000 Workshop \$1,500 Retreat \$500 <p>GLSF</p> <ul style="list-style-type: none"> Geomatics Technical services \$15,000 Outreach and Education \$20,000 Data Collection \$4,000 Information technology \$4000 Lake Superior Evening \$4500 Printing \$2000 Overhead \$5500 <p>RAP</p> <ul style="list-style-type: none"> RAP coordinator salary \$65,000 Course Release \$13,000 Travel \$2000 Outreach and Events \$2000 Printing/Communications/website \$1,250 Overhead \$9,250 <p>GLSF-Stormwater Monitoring</p> <ul style="list-style-type: none"> Salary 35,640 Travel 2250 Communication/dissemination 1500 data collection 8500 Equipment 4000 	<p>ASU</p> <ul style="list-style-type: none"> GA stipends \$9,750 Seed grants \$8,000 Website \$1,000 Travel \$8,250 Speaker \$1,000 Workshop \$1,500 Retreat \$500 <p>GLSF</p> <ul style="list-style-type: none"> Geomatics Technical services \$15,000 Outreach and Education \$20,000 Data Collection \$4,000 Information technology \$4000 Lake Superior Evening \$4500 Printing \$2000 Overhead \$5500 <p>RAP</p> <ul style="list-style-type: none"> RAP coordinator salary \$65,000 Course Release \$13,000 Travel \$2000 Outreach and Events \$2000 Printing/Communications/website \$1,250 Overhead \$9,250 <p>GLSF-Stormwater Monitoring</p> <ul style="list-style-type: none"> Salary \$25,000 Overhead \$2,500 <p>PG</p> <ul style="list-style-type: none"> Doctoral GA \$15000 Travel \$8500 	<p>ASU</p> <ul style="list-style-type: none"> GA stipends \$9,750 Seed grants \$8,000 STARS \$1,000 Travel \$8,250 Speaker \$1,000 Workshop \$1,500 Retreat \$500 <p>GLSF</p> <ul style="list-style-type: none"> Geomatics Technical services \$15,000 Outreach and Education \$20,000 Data Collection \$4,000 Information technology \$4000 Lake Superior Evening \$4500 Printing \$2000 Overhead \$5500 <p>RAP</p> <ul style="list-style-type: none"> RAP coordinator salary \$65,000 Course Release \$13,000 Travel \$2000 Outreach and Events \$2000 Printing/Communications/website \$1,250 Overhead \$9,250 <p>PG</p> <ul style="list-style-type: none"> Doctoral GA \$15000 Travel \$8500 Conference \$1000 	<p>GLSF</p> <ul style="list-style-type: none"> Geomatics Technical services \$15,000 Outreach and Education \$20,000 Data Collection \$4,000 Information technology \$4000 Lake Superior Evening \$4500 Printing \$2000 Overhead \$5500 <p>RAP</p> <ul style="list-style-type: none"> RAP coordinator salary \$65,000 Course Release \$13,000 Travel \$2000 Outreach and Events \$2000 Printing/Communications/website \$1,250 Overhead \$9,250 <p>PG</p> <ul style="list-style-type: none"> Doctoral GA \$15000 Travel \$30600 	<p>GLSF</p> <ul style="list-style-type: none"> Geomatics Technical services \$15,000 Outreach and Education \$20,000 Data Collection \$4,000 Information technology \$4000 Lake Superior Evening \$4500 Printing \$2000 Overhead \$5500 <p>RAP</p> <ul style="list-style-type: none"> RAP coordinator salary \$65,000 Course Release \$13,000 Travel \$2000 Outreach and Events \$2000 Printing/Communications/website \$1,250 Overhead \$9,250 <p>PG</p> <ul style="list-style-type: none"> Doctoral GA \$15000 Travel \$8500 Conference \$4906

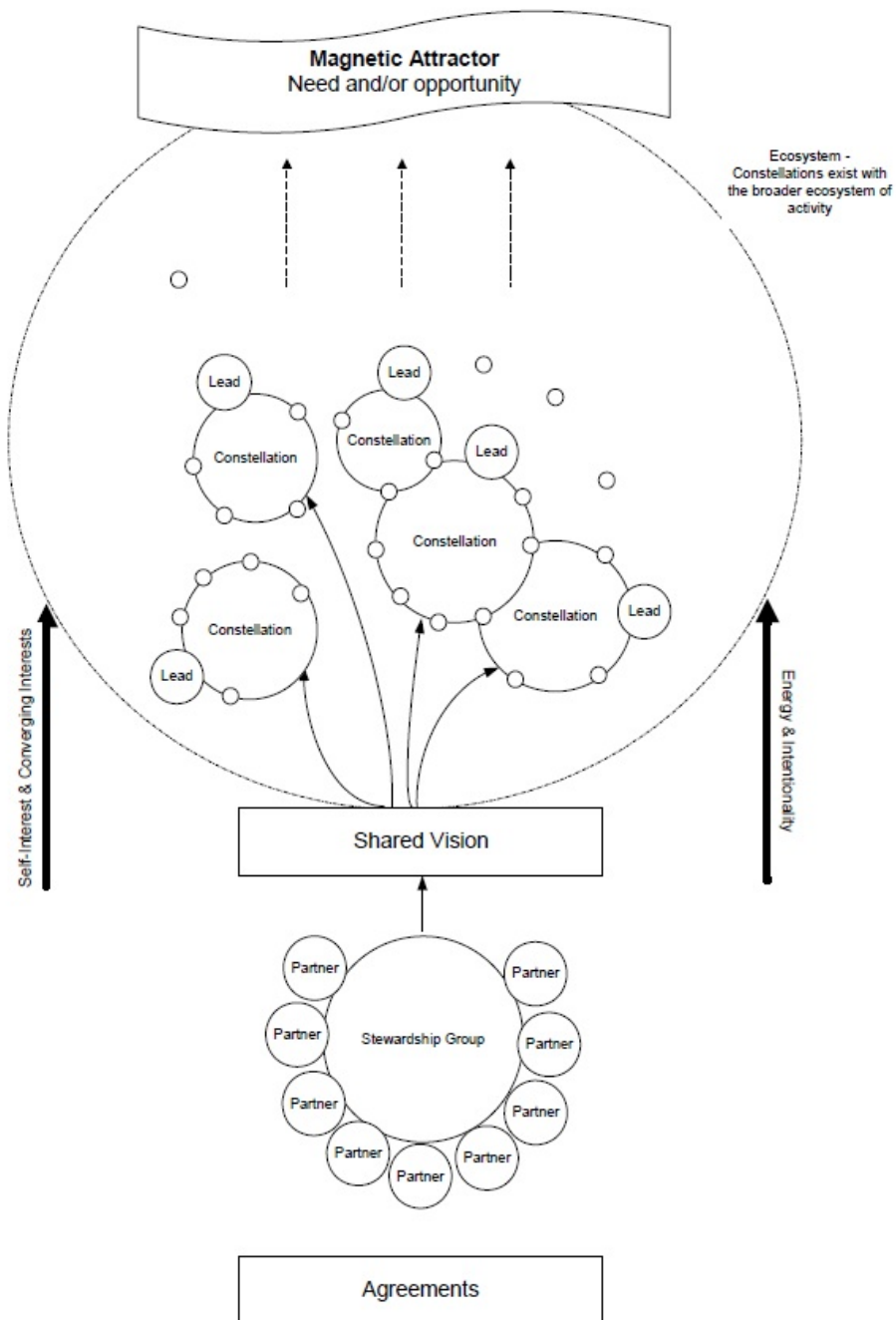
ASU Aid to Small Universities, GLSFF Great Lakes Sustainability Fund, RAP Remedial Action Plan, GLSFF-SM Great Lakes Sustainability Fund--Stormwater Monitoring, PG Partnership Grant (SSHRC)

Appendix B: Five Year Expenditures and Revenue Plan

	<ul style="list-style-type: none"> Overhead 5190 				
Total Cost (projected)	234,080	228,000	201,500	193,600	175,406
Funding Source	30,000 (ASU) 55,000 (GLSF) 92,000 (RAP) 57,080 (GLSF-SM)	30,000 (ASU) 55,000 (GLSF) 92,000 (RAP) 27500 (GLSF-SM) 23500 (PG)	30,000 (ASU) 55,000 (GLSF) 92,000 (RAP) 24500 (PG)	55,000 (GLSF) 92,000 (RAP) 46,600 (PG)	55,000 (GLSF) 92,000 (RAP) 28,406 (PG)
Total Funding (projected)	234,080	278,000	201,500	193,600	175,406
Total (5-year)					1,032,586

ASU Aid to Small Universities, GLSFF Great Lakes Sustainability Fund, RAP Remedial Action Plan, GLSFF-SM Great Lakes Sustainability Fund--Stormwater Monitoring, PG Partnership Grant (SSHRC)

Appendix C: Constellation Collaboration



Adapted from Surman (2006), this model depicts a governance structure that invites leadership around shared vision. The model also shows how participation can expand as constellations are formed.