**D R A F T**

**A Redlands Sustainability Atlas**

Proposal Sketch of a Lighthouse Project for the Center for Spatial Studies

**OBJECTIVE**

Phased development of an Atlas that integrates economic, environmental, and social health information in the form of interactive sustainability maps for (1) the University campus, (2) the City of Redlands, (3) the Inland Empire region (i.e., the upper Santa Ana watershed region).

**PHASE ONE**

The initial work would focus on point data that identified places associated with people, organizations, and programs that seek to create more sustainable communities. Examples might include:

Green Buildings

 LEED certified buildings, Energy Star certified, Solar PV installations, etc.

Food Landscapes

 Local farms, farmer market sites, community gardens, citrus groves

Sustainable Transportation

 Public transit stops and routes; bike lanes and lockers; EV charging stations, etc.

Water Resources

 Waterways, water treatment sites, stormwater systems, water infrastructure

Education

 Educational institutions, community training and tutoring programs, museums, etc.

Green Business

 Local business sites noted for their green products and/or services

Health Care

 Wellness centers, medical treatment infrastructure, public health facilities and services

Housing and Urban Development

 Affordable housing, land use planning, population and migration trends

Parks, Reserves, and Natural Landscapes

 Community parks, nature trails, protected habitat areas, outdoor recreation centers

Heritage Sites

 Historic homes, missions, ancient burial sites, and other areas of historical and cultural interest

Social Service, Religious Organizations, and Human Welfare Sites

 Homeless shelters, churches and synagogues, children’s services, campus service learning program

Recycling and Waste Reduction

 Recycling centers and MURFs, wastewater treatment, composting, recycling bins on campus, etc.

Energy and Climate Protection

 Major renewable energy production sites, energy infrastructure, lighting, climate adaptation zones

One possible version of the project during phase 1 would confine itself entirely to development of an interactive campus sustainability map. This could be modeled on the existing and relatively new map created by the sustainability program at U.C. Davis: <http://campusmap.ucdavis.edu/sustainability>. Camille Kirk, a campus sustainability planner at UC Davis, has offered her services (cmkirk@ucdavis.edu) in helping other schools develop similar mapping projects, along with programming and interface information that can be freely copied. The Davis campus used “Green Map” ([www.greenmap.org](http://www.greenmap.org)) for developing their features and Google Earth to identify latitude-longitudes for each of their points, then linked icons and photos to each site. We could become perhaps the first campus to use ESRI products for this purpose.

Alternatively, it may be desirable to adopt a regional approach from the outset, using a systems approach to identify features and sites worthy of mapping throughout the Inland Empire. The primary objective during the initial phase will be to inventory place-based features that are strongly associated with sustainability goals and practices (e.g., renewable energy production sites, major green businesses, highly visible heritage sites). Emphasis will be placed on conventional mapping of existing sustainability landmarks and systems. Criteria will be developed for determining which features should be included and how they should be categorized.

Regardless of approach, a campus sustainability map will presumably be the first product to emerge, due to the smaller scale and lower complexity involved in capturing campus sustainability features. Making it interactive and useful for recruiting prospective students and better informing existing students, faculty, and staff would all be highly desirable. The City of Redlands may also have good reasons to support and facilitate rapid progress on a citywide sustainability map for general planning purposes. The Redlands Sustainability Network could serve as an NGO leader for much of the community-level work.

Depending on the geographic focus or scale, the project may be easier to accomplish using multiple teams – e.g., campus team, regional team – and by employing interdisciplinary representation of students, faculty, technical staff and researchers in the Redlands Institute, specialists from ESRI, and university administrators. All participants should be interested in integrative forms of knowledge and education. Some tasks will require only basic skills in mapping and GIS, thus student-based design studios and clinics will be one way in which project work can be incorporated in the classroom. Other tasks will involve leading-edge thinking and research in spatial analysis and synthesis. These will be of increasing importance to the second and third phases of the proposed lighthouse project.

**PHASE TWO**

The effort to envision and develop more sophisticated or advanced approaches to mapping sustainability progress and its challenges will begin in earnest during the second phase of the project. The objective during this phase is to move beyond the conventional tools and approaches of community mapping in order to innovate and apply novel ways of understanding sustainability issues in this region. Innovations might include “Aps” for connecting spatial studies about sustainability to social media sites, smart phones, and other electronic communication and computing devices. Subjects that heretofore have not been featured in sustainable community studies might be explored using time-series geospatial animations that displayed, for example, immigration trends by origin and destination, or per capita water consumption trends over time by area (Zip+4?), or “greenspace-blackspace” ratios for each community in a region, showing how surface area of parks and open space compare to paved areas of roads and parking lots.

An important theme within the sustainability mapping project will be “systems health” measurement and visualization.

Health of people, communities, ecosystems, and economies will all be emphasized as interdependent contributions to the overall health of our region. Together, they largely determine regional quality of life.

Resident-defined neighborhood mapping projects, such as the study prepared for Claremont by Dr. Andrew Lohmann, a former graduate student of mine, might have interesting applications in Redlands and elsewhere. The idea here is to understand how members of a community understand their place in “phenomenological neighborhoods” and how that understanding contributes to their sense of community. Using GIS to explore how freeway projects and other large-scale developments affect community cohesion, sustainability, and other factors might provide an interesting sociological application for many participants in the lighthouse project.

**[Add sections addressing how current work by Johannes and others could be extended, refined, integrated…]**

ESRI’s Community Analyst software and other tools are available for use in novel ways to examine how scholars might operationalize the concept of *sustainable community*. During phase two, these types of tools will be tested and refined for use in measuring and tracking indicators of community sustainability. They could also be integrated with or linked to survey research, geo-design, and related land use planning projects that bear on the question of sustainability.

**PHASE THREE**

Following the preparation of a regional sustainability atlas, the focus will shift to the educational uses and design applications of the materials prepared during the first two phases. Here, the focus will be on applications that improve learning, decision making and design. For example, specific ways in which the sustainability atlas can contribute to campus planning and operations will need to become part of the standard operating procedure. Similarly, ways in which it can enhance general plan revisions and land use decisions for the City of Redlands would be specified. There would also be efforts through the San Bernardino Associated Governments (SANBAG) and other public bodies to identify ways in which the atlas will contribute to regional planning and development programs.

Perhaps the most important development during this phase will be efforts to incorporate use of the atlas and its applications in our curriculum and classroom teaching. A wide variety of disciplines and programs will find relevant and appropriate content for use by students. The mere existence of a high-quality sustainability atlas will serve to bolster both spatial literacy and knowledge about sustainability on our campus.

In order for the atlas to remain interactive and useful for multiple stakeholders, it is imperative that arrangements are made during this phase for periodical updating and refinement of the atlas information. It will be important to present the project at all times as dynamic and evolving, rather than as something leading to a static or final product (i.e., a book). It is likely that one of the most important benefits of this project will be found in its spinoffs and unanticipated “mutations.” In fact, one helpful way to evaluate its success will be to compare the long-term utility of the sustainability atlas with other projects of this type, including the highly regarded Salton Sea Atlas. Properly conceived and funded, the sustainability atlas should become a living document that is, itself, *sustainable*!

**LEADERSHIP STRUCTURE**

This could be accomplished in a variety of ways. The Council discussed the possibility of co-leaders or managers, probably including a new Director of Spatial Curriculum and Research. Other approaches might include a technical director and a faculty coordinator, or a small steering committee composed of faculty and staff who are broadly representative of the institution. Such a steering committee could also function as a grant review committee for dispersing internal funds in an annual competition for “most promising” campus proposal to add new layers or dimensions to the project.

**BUDGET**

[To be determined…]

**PERSONNEL AND TIMELINES**

[To be determined…]