

Department : R.O.C.K.S. (Recycling on Campus at Keene State College) and The President's Council for a Sustainable Future

## **Keene State College Strategic Plan Initiative Proposal**

### **LED Exit Light Proposal**

There is an opportunity to save a significant amount of energy and money on Keene State College's campus. Currently there are 408 exit lights that are lit by 40-watt incandescent bulbs. By replacing all exit lights lit with 40-watt incandescent bulbs with 2-watt light-emitting diode (LED) bulbs Keene State College can save tremendously.

This proposed initiative reinforces the College's mission and values. By installing LED exit lights the College will save a tremendous amount of energy, which will increase the College's environmental stewardship and sustainability. The proposed initiative will not only create energy and fiscal savings, but it can also serve as an excellent learning experience for students. In fact, it already has; R.O.C.K.S. students collected the data used in this proposal and have learned about how effective research can potentially result in positive changes in their campus's sustainability. The LED exit light initiative can continue to serve as a learning tool by educating the community about energy conservation methods. As well, it can serve as a springboard for integrating campus sustainability initiatives into the growing environmental studies framework and other academic departments. Interdisciplinary concepts such as life-cycle assessments, energy conservation, economics, writing and management can all be taught using this initiative as an ongoing learning tool.

The savings accrued by the LED exit light initiative will also exemplify several of the College's strategic goals. These exit lights will make an efficient use of the resources required to create a safe and effective learning community. The LED exit light initiative will capitalize on Keene State College's existing strengths by increasing the functionality of the buildings. LED exit lights draw less energy, last longer - thereby reducing the frequency of burned out exit lights - make exit lights more visible and give off less wasted energy as heat. LED exit lights would help minimize Keene State College's weakness of having older buildings by updating the safety and maintenance of the exit lighting system. Finally, the monetary savings accumulated from this initiative could be passed on to the students to further the accessibility to and affordability of a Keene State College education.

Action steps would include:

- Confirming the collected data with the Physical Plant Electrical Shop.
- A choice of either replacing each fixture as the current lights burn out or, (since the numbers are so compelling) dedicate time/personnel to replacing all lights as a project over a short, specified amount of time.
- Developing a spread sheet to track energy data in all buildings to measure the efficiencies.
- Develop a spread sheet of maintenance costs (personnel time, costs of equipment, etc)
- Publicity about the impacts of the project once it is substantially completed
- Encouraging educational opportunities with interested faculty and students

There will be a significant impact on Keene State College's energy and therefore fiscal expenditures. There is an initial investment of \$12,240- 36,720. There is a low and high estimate that result from the variety of LED exit lighting systems available as well as the varying amounts of time that each system may need for installation. However, if all the incandescent exit lights are replaced with LED exit lights Keene State College has the opportunity to save 135,639.84 Kilowatt-hours per year or \$19,467.55 per year. These savings will earn back the initial investment in 7.54 months for the low estimate or 22.63 months for the high estimate. To evaluate the calculations that arrive at these savings please see the data sheet and assumptions page attached. Funding could come from the "energy" account if a payback method can be agreed upon. Funding could also come from the Physical Plant utilities fund, since that account would accrue the saving accumulated by the avoided energy use.

The outcomes of this initiative are energy and monetary savings. Other outcomes could include educational opportunities for students and faculty and publicity opportunities. In addition, the energy and monetary savings will reduce Keene State College's financial risk. This will allow the College to manage cost and resource use more strategically.

LED exit lights also increase the safety of the buildings and reduce the need for exit light maintenance. The energy and monetary savings can be measured and documented by the physical plant by evaluating Keene State College's energy bill, which will show energy consumption and cost. Also the physical plant can measure and document the maintenance required by the LED exit lights and how frequently they need to be replaced.

