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City of Duluth Parks and Recreation Division

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DATE: 09/30/2010

SUBJECT: City to save money with solar powered trash compactors

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City to save money with solar powered trash compactors.

The City of Duluth has been awarded a grant in the amount of \$41,159 from the Department of Natural Resources Solar Legacy Grant Fund for the purpose of placing solar powered trash and recycling units along Duluth's Lakewalk.

It is estimated over 1 million people use the Lakewalk annually, which contributes to the high volume of garbage. Mayor Ness was aware of the increasing trash problem, found out about the "green alternative" and requested staff look into implementing the system. "This grant is timely as the city continues to look at new ways to implement "green" alternatives to existing problems. We are appreciative of this Solar Energy grant from the Department of Natural Resources which offers us an energy efficient tool that increases work efficiency, benefits the community, and promotes sustainable practices," said Mayor Don Ness. The extension of the very popular Lakewalk to Brighton Beach will increase the need for a sustainable solution which will not only enhance but improve our efforts to maintain this trail.

Based on a one to one ratio of replacing current trash cans with solar compactors the City would experience a 75% reduction in operation costs and a annual CO2 reduction of 9 tons.

The plan is to install 10 solar powered trash compaction units and 10 recycling trash units to be placed along the Lakewalk. All the units will wirelessly communicate via a short message service (i.e. text message) to a central server located at Park Maintenance Center. They will then be able to review the status of all the trash units in real time. We will be able to minimize the number of trips to remove the waste from the containers by knowing the status of each container. By tracking our data over time, we can optimize our routes to minimize the number of trips while maximizing our savings. If we reduce the number of times we travel to empty the trash containers, we automatically reduce the gas, manpower, and equipment maintenance it costs to remove the trash.

The trash containers can hold up to 5 times as much as traditional containers. The units use solar energy to run a compactor that reduces the trash. The trash containers operate on about the same amount of energy as one Christmas-tree light. The trash unit does not need direct sunlight. It runs on a 12 volt battery that is kept charged by its solar panel on sunny or cloudy days. The battery provides a power reserve for several weeks, so it performs well even in northern latitudes.

The containers are safe to use because the hopper prevents hands from reaching the compaction area and the unit locks. The motor will not operate with the door open. The machine also runs on a safe low voltage. There are no odor problems because the unit is an enclosed system, so odors are contained inside. The containers are made of tough, heavy gauge galvanized steel, polycarbonate shield, and high impact ABS plastic sides. The units will be able to resist scratches, dents, and graffiti and are bolted down for added security.

The estimated installation of the units is scheduled for spring 2011.

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