

***Walk the Talk: Integrated Sustainability Initiative***  
**Final Scientific/Technical Report**

**1. Award Information:** DE-EE0001979

- a)** The Period of Performance 10/01/2009-09/30/2014
- b)** Total Funding: \$1,903,000 (\$951,500 Federal, \$951,500 Cost Share from UNR)
- c)** Contact information at the University for queries about the project: John Sagebiel [jsagebiel@unr.edu](mailto:jsagebiel@unr.edu) or Academy for the Environment office [environment@unr.edu](mailto:environment@unr.edu).

**2. Distribution Limitations:** None. This report is for public release.

**3. Executive Summary:**

The overall objective of this project was to demonstrate, through a series of real-world applications of existing technology, the benefits to the University of Nevada, Reno and the community, of various sustainability efforts. The project was very successful and has stimulated the Campus to take on more projects after seeing the successes of those initial ones funded through this project. The three areas of this work could broadly be described as energy efficiency, renewable energy and recycling. Under the first project, the campus did several projects replacing or changing heating and cooling systems, using state funding. The DOE funding initially funded the replacement of lights in one campus parking garage with LED lights. Subsequently, the campus facilities group recognized how effective this was and leveraged funds to do the other two garages. Similarly with the renewable energy project, once the first system was installed and working well, the campus committed funds to more than double that system. Lastly, the recycling efforts expanded the use and awareness on campus and led the campus to begin using a single-stream recycling program once it became available in this area, hopefully leading to more participation by the campus community. Thus, overall the project areas each did what they were intended to do, which was to demonstrate the usefulness of these sustainability programs and thus encourage the campus to do more.

All this great work helps the campus' goals overall, but without additional effort would not reach beyond the campus. This was the objective of the education and outreach effort. The combination of events, websites, and videos enabled us to reach many key decision makers and at the same time provide a long-term presence on the web that we can use to further educate people. The overall goals were met or exceeded and will continue to pay dividends into the future.

**4. Comparison of Goals, Objectives and Actual Accomplishments:**

The goals and objectives of this demonstration project were to "come as close as possible to a 'closed loop' campus for energy and material consumption and discharge, focusing on three dimensions of campus operations: 1) Physical Infrastructure (such as campus planning and older building retrofits); 2) Institutional Practices (such as improved conservation habits and recycling); and 3) Programmatic Developments (such as building community partnerships, drawing on faculty/student expertise, making practices visible to the community as models for individuals, businesses and other institutions.)"

Through this Sustainability Initiative, the University of Nevada, Reno, has made significant strides in achieving these goals. Each of the component projects outlined in the proposal (and subsequent approved modifications) have been completed successfully and have improved campus infrastructure, changed operational practices, and raised awareness of the sustainability issues both on campus and in the community. The objectives of Tasks 1-6 are outlined in the Project Activity section (see below), and describe the accomplishments successfully achieved by each task.

**5. Project Activities for Entire Period of Funding:** Tasks 1-3, as well as the “Summer of Sustainability” education and outreach program, were supported with funds from this grant; Tasks 4-6 were supported with matching state funds.

Task 1.0 Enhancement of Recycling Efforts.

Under this task we proposed to increase our university’s diversion rate and expand the capability of the recycling program.

*SubTask 1.1 Assess Recycling Program.* Through a series of assessments, determine the current use of the recycling program by the campus.

*SubTask 1.2 Identify Barriers to Increased Recycling.* By using a series of interviews and assessment identify the key barriers to use of the existing program on campus

*SubTask 1.3 Expanding capacity and usability.* Using the information gained via the first two subtasks, focus efforts on expanding the capability and usability of UNR’s recycling program. This could include expansion of operational capability by adding space and a vehicle for pick-ups and adding student labor.

Fall 2010-Pilot projects in preparation for the proposed program expansion showed some weakness which is being addressed. One “dumpster dive” was conducted this period to assess opportunities for better capture, the result was approximately 20% of the material was recyclable. Significant steps were taken this reporting period with work toward expanding our capability. Specifically we ordered and received a specialized compactor designed for plastic bottle and cans. This was installed in November and has expanded our capability by reducing time spent on material handling and reduced our stored volume of material. We also ordered two fiber balers (one each for paper and cardboard) to be installed in Q1 2011.

Spring 2011-Continued efforts to begin full operation of new fiber balers. This was delayed because the building where they were installed had a loading dock that was insufficient to handle the bales and forklift. This had to be expanded and a smaller door was installed to handle the paper totes. The beverage containers program is working well and continues to expand its service area.

Spring 2012-During this quarter’s efforts we completed the Recyclemania competition which yielded very useful data. We expanded our list of materials the university can recycle. We completed multi-day “Earth Week” outreach and education events; one day was focused on recycling. Expansion of the social media outreach continued. We also initiated a broad-based campus outreach program explaining the campus recycling program.



Recycling demonstration during Earth Week 2013.

Spring 2013-Recycling efforts have continued to focus on expanding the range of materials we can accept and the number of recycling bins on campus. At the present time, we have over 300 bins, not counting the residence halls where every room is supplied with a bin. With the start of the fall semester we stepped up our outreach efforts to communicate the range of materials we can now recycle. The fall semester also began the football season and we have been providing recycling within the stadium, following up on our very successful program from last year. This year our opening game provided the most material we have ever collected at a game, at over 600lb of just beverage bottles. We plan to extend and grow the recycling at athletics events this fall.

Fall 2014-This fall marks the full implementation of the single stream recycling program. The entire campus is now using this, and our outreach and education efforts are continuing. This education has been made easier because the same program is being implemented throughout the local area, so much outreach has already been done. We are still maintaining a separate cardboard stream which takes advantage of the advances through this grant period and helps us generate some revenue. With the implementation of this single stream program, we see the campus moving much more progressively in addressing its solid waste challenges and we will continue to advance this.

#### Task 2.0 Re-Lamping Parking Garage and Pedestrian Walkways.

Under this task, we demonstrated to the campus community the energy and cost savings that can be achieved through the use of new lighting technologies. Using signage and online

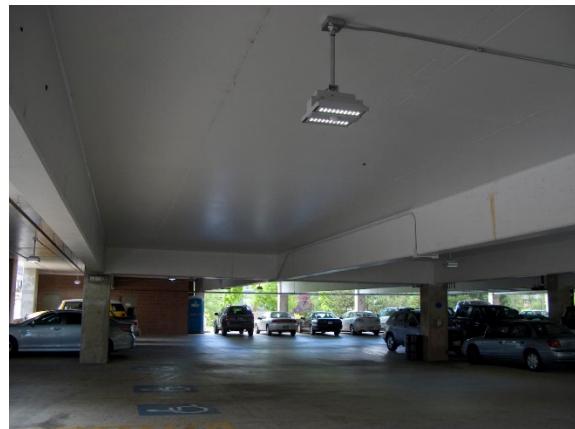
communication provided educational and research opportunities to students and faculty as the savings in cost and energy are monitored. Specifically, we proposed to re-lamp pedestrian areas with LED lighting and re-lamp the main parking garage. Both of these efforts were considered high-visibility projects with rapid paybacks.

Instead of lamping pedestrian walkways, we decided to re-lamp all our parking garages, as the university determined that safety and energy usage concerns were determined to be higher priority (and they identified additional funds to contribute). We have recently completed all re-lamping projects. We used the same fixtures for each thus saving on spare parts needed. These fixtures combine daylight sensors and occupancy sensors with three-levels of light output. What this means is that during the daytime hours, the lamps near the outside will dim or turn off depending on the ambient light available. All lamps will dim to the lowest level when no activity is detected by its sensor for 30 min. The advantage of these LED lamps is when called for the light comes on nearly immediately.

The first garage we re-lamped was the Sierra Street garage and in this case, we had to both raise the light level in the garage to meet new security standards and at the same time we were able to cut the electricity use. This garage mainly serves the residence halls and sees a lot of use. The “main” campus garage (Brian Whalen Parking Garage) was done next and was a simple change out of fixtures. The last garage to be changed was the West Stadium Garage that serves campus but also Athletics. In this case, we were able to significantly cut the light use as this garage was overlit when it was built. Pictures of the Sierra Street Parking garage with new lighting are below:



Sierra Street Parking Garage



New light fixture inside parking garage

The current estimate is that these lights will collectively save the University about \$125,000 per year in electricity costs alone. These likely conservative estimates since they were prepared with the assumption that the dimming functions would never be used. Since we know this dimming function will be used we are confident that additional savings will be achieved, we are not yet sure how much. In addition, we hope that there will be savings in maintenance and lamp replacements given the very long expected life of these bulbs.

This project was the subject of one of the videos linked below.

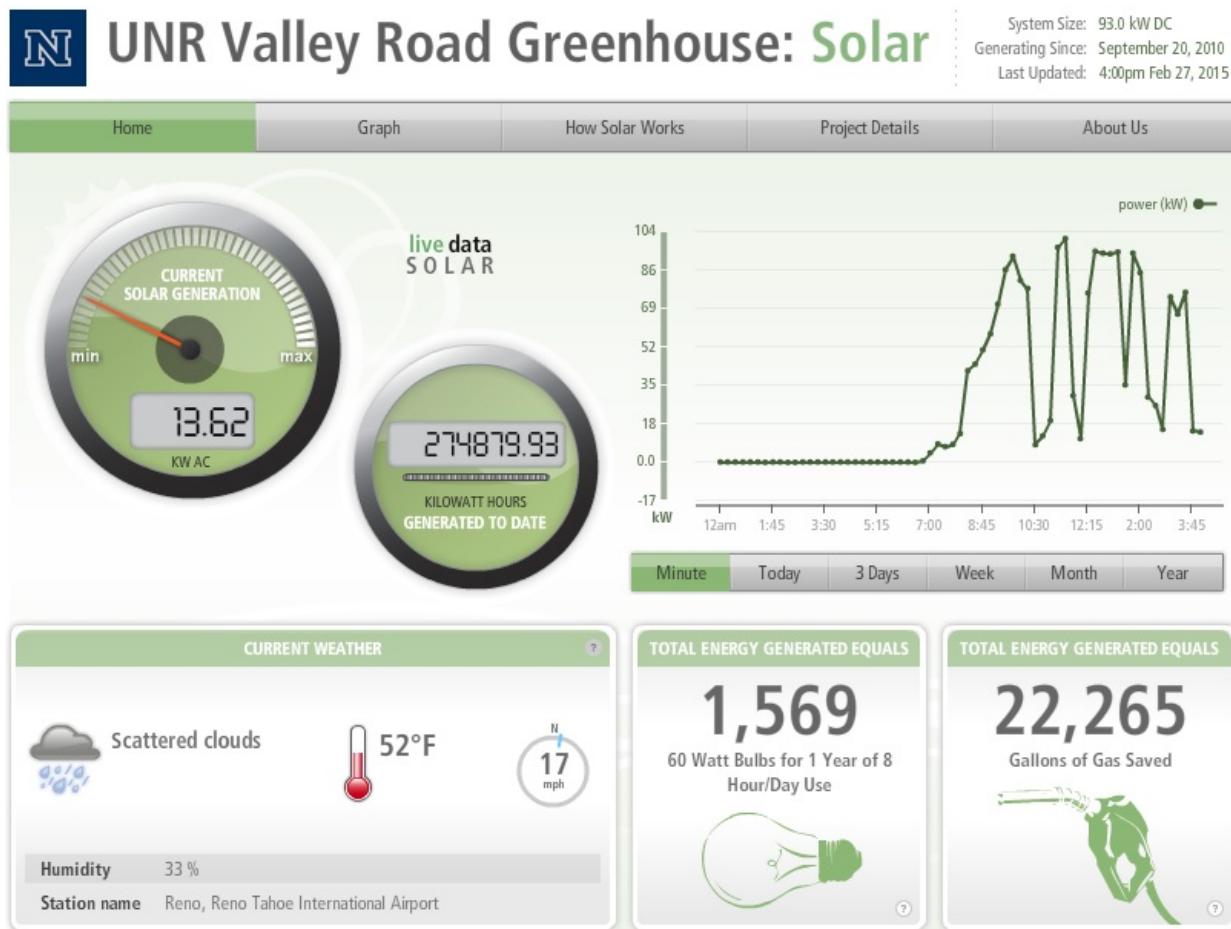
### Task 3.0 Installing Solar Panels on the Parking Garage.

Under this task we will seek to emphasize high visibility projects that will provide opportunity for educational opportunities as well. We propose to put solar panels on the campus's main parking garage as a way to provide renewable energy to the campus.

Early during the grant period, we obtained approval to implement a small change (approved via email on 1/19/10) to move the location of the solar panels to be installed under Task 3.0 from a parking garage to the head house of the newly-constructed university greenhouses. This modification did not change the cost or schedule, and improved the project by allowing us to leverage other funds to create a larger array and increase educational opportunities due to its high visibility (adjacent to freeway).

This 30KW solar panel project was completed and activated on September 1, 2010. This solar panel project was bid and a contract was awarded to Reliant Electric. The value of the contract was \$168,790. The project was completed in October 2010 and is fully operational. Real-time data from the system can be seen at:

[http://live.deckmonitoring.com/?id=unr\\_valley\\_road\\_greenhouse](http://live.deckmonitoring.com/?id=unr_valley_road_greenhouse)



Screen shot of real time monitoring website

As part of the initial installation, we upgraded the electrical switchgear and other infrastructure to allow for not just this installation, but future expansion. Approximately two years after installation additional State and rebate funds allowed us to expand this project by an additional 50KW. The initial project goal of demonstrating the value of the solar arrays was clearly met in this case where the University saw that value and continued to build on it with the system expansion. Pictures of the initial installation below:



Head house and Greenhouses before installation



Monitoring system inside the head house



Solar panels after installation

#### Task 4.0 Chemistry Building Cooling Tower Replacement.

This work was contracted out, but managed by UNR. The scope involved replacement of the cooling towers for the Chemistry Building. The existing towers are on the roof of the building, which while space-efficient is not thermally efficient, plus it expends a lot of energy pumping water to the roof. This is what qualified this project as a high priority for an efficiency upgrade.

The new system was mounted on the ground, on the east side of the building. This has two advantages: First, the pumping costs will be lower and the building itself will shade the towers in the afternoon, further improving its performance. This project supports the Sustainability Initiative in that it is part of UNR's overall energy efficiency program, wherein the university is replacing and upgrading much equipment on campus, and carefully documenting savings in energy, costs and greenhouse gas emissions.

This project will result in very significant savings since the new system will be installed at ground level not the roof as the old one is. This will save in pumping costs, plus the high-efficiency equipment will save in electricity and water.

This project was formally re-bid in June 2011, after some earlier delays. Bids came in on budget and a contract was issued at \$849,000. We combined the chilled waterline modifications into this project to take advantage of general contractor and subcontractors on site for the cooling tower project. Separate funding (state) is being provided for the additional chilled water line components sufficient to cover the increased estimated cost. Project completion was delayed until the end of April 2012, due to equipment delivery delays, weather being too cold to place asphalt, and construction change orders.

#### Task 5.0 Jot Travis Building Boiler and Heat Exchanger Replacement.

This work was contracted out, but managed by UNR. The scope involved replacing and upgrading boiler and heat exchanger systems for this building. This is the only building on the central campus heating loop that still uses a steam system, not a hot water system. As a result, the loop temperature must be maintained much higher than would be needed if this building were removed from the loop. By upgrading and changing these systems, we were able to provide all the steam the building needs from the new system that will feed this building alone. This project supports the Sustainability Initiative in that it is part of UNR's overall energy efficiency project wherein we are replacing and upgrading much equipment on campus and carefully documenting savings in energy, costs and greenhouse gas emissions. In this case, the project will have both direct and indirect savings. Direct savings will come from improved efficiency in this 1954 building; indirect savings will come from removing this building from the campus central heat plant, allowing us to lower the temperature in that loop resulting in very large savings.

This construction project has been completed. The final construction contract was for \$231,040.

#### Task 6.0 Computing Center Cooling Tower Replacement.

This work was contracted out, but managed by UNR. This involves a replacement and upgrade of the cooling towers for the computing center. This replaced an older system that has been overworked due to the added load from newer server systems. This project supports the Sustainability Initiative in that it is part of UNR's overall energy efficiency project wherein we are replacing and upgrading much equipment on campus and carefully documenting savings in energy, costs and greenhouse gas emissions. New high-efficiency equipment will save in both electricity and water. This project has been completed. The final cost of that project was \$114,008.

#### Summer of Sustainability Education and Outreach Activities.

The Summer of Sustainability was an extensive three-month educational outreach program and series of events that ran from July – September 2014. It was developed and implemented in partnership with the Mathewson-IGT Knowledge Center <http://knowledgecenter.unr.edu>, the University of Nevada, Reno's large academic library on campus. This partnership allowed us to reach out to both campus and community audiences more broadly through a variety of venues to

spread the message of sustainability and to showcase the work done on campus through the Sustainability Initiative. This was the first time a program of this magnitude on issues of sustainability had been done on the University campus.

Within the Reno-Sparks community we collaborated with the City of Reno <http://www.reno.gov/> , Regional Transportation Commission <http://www rtcwashoe com/> , Keep Truckee Meadows <http://ktmb org/> Beautiful and Great Basin Community Food Co-op <http://www greatbasin food coop/>.

### **Reused + Recycled = Art**

The signature event of the Summer of Sustainability was a major art exhibit on four floors of the Knowledge Center that featured original art made of 80% repurposed materials. Members of the planning committee participated in campus and community Earth Day activities to encourage University students and regional artists to submit their artworks. However, an effort to engage a younger audience was also vigorously pursued, and the planning committee reached out to high school art teachers and their students. Nearly 250 submissions were received which included many pieces from six local high schools. A jury of artists selected 100 of the most imaginative pieces to display. Each of the artworks displayed can be viewed at this link:

<https://summerofsustainabilitynv.wordpress.com/photo-gallery/>

The exhibit opened July 1, 2014, and ran through September. The opening reception featured a presentation by Bonnie Monteleone, a plastic marine debris research scientist and artist from the University of North Carolina Wilmington. Her award-winning traveling art show, which included plastics she collected from her many ocean research voyages, was the centerpiece of the exhibit.

As part of the effort to reduce single-use plastic bottles, a ribbon cutting was held at the opening reception to feature the two new water bottle refilling stations at the Knowledge Center, both of which were the result of the Sustainability Initiative.



Water Refill Station

In cooperation with Great Basin Community Food Co-op, participants were given large reusable shopping bags to encourage them to reduce their use of plastic bags.

Both the exhibit and featured speaker were part of Reno's long-standing and highly successful Artown, a community-wide arts festival that runs through the entire month of July each year. As an Artown event, publicity for the exhibit and the presentation were greatly enhanced through Artown's own marketing efforts.

Photographs of the exhibit opening reception, video of Bonnie Monteleone's presentation and photographs and video of the high school art students working on their projects can be viewed on the Summer of Sustainability blog: <http://summerofsustainabilitynv.wordpress.com/>.

### **Truckee River Cleanup**

Also in July 2014, a cleanup of the Truckee River and Rock Park in Sparks was held in conjunction with a local organization, Keep Truckee Meadows Beautiful. Volunteers from the University, Truckee Meadows Community College and the community participated. Plastics research scientist Bonnie Monteleone was also present to lend a hand.

### **Sustainability Bus Tour**

In August 2014, officials from the University, City of Reno, the Governor's Office of Energy, Regional Transportation Commission and select media representatives were invited to participate

in a tour of the *Reused + Recycled = Art* exhibit followed by a bus tour to showcase key sustainability activities on campus and in Reno.

University Executive Vice President and Provost Kevin Carman, who holds a doctorate degree in biological oceanography, welcomed the officials and expressed his support for the Summer of Sustainability. He stressed the importance of greater education about sustainability issues and shared some of his own personal experiences with ocean debris and plastics.

During the bus tour, participants saw the new LED lights in the parking garages and the solar panels at the greenhouse complex in addition to other projects on campus aimed at sustainability.

For this event, we partnered with the City of Reno and used an electric bus from the Regional Transportation Commission. Tour leaders were John Sagebiel, Assistant Director of Environmental Programs at the University and co-principal investigator for the Sustainability Initiative, and Jason Geddes, Reno's environmental services administrator and member of the Nevada System of High Education Board of Regents.

Photographs of the bus tour can be viewed on the Summer of Sustainability blog:  
<http://summerofsustainabilitynv.wordpress.com/>.

Here is the list of bus tour participants:

#### ***University of Nevada, Reno***

1. Kevin Carman, Executive Vice President and Provost
2. Mike Collopy, Assistant Vice President for Research and Director, Office of Undergraduate and Interdisciplinary Research
3. Patricia Richard, President's Chief of Staff
4. Kathy Ray, Dean, University Libraries and Teaching & Learning Technologies
5. Mark Walker, Dean, University of Nevada Cooperative Extension
6. Bill Payne, Dean, College of Agriculture, Biotechnology & Natural Resources
7. Al Stavitsky, Dean, Donald W. Reynolds School of Journalism and Center for Advanced Media Studies
8. Tammy Valentine, Director, Honors Program
9. John Sagebiel, Assistant Director of Environmental Programs, Environmental Health & Safety Department
10. Millie Mitchell, Director of Development, University Libraries
11. Mark Gandolfo, Director, @One Digital Media Technology, University Libraries
12. Nicole Shearer, Communications Officer
13. Deanna Hearn, Marketing & Communications, University Libraries
14. Kaitlin Bryson, Curator for *Reused + Recycled = Art* Exhibit, University Libraries

#### ***City of Reno***

15. Jason Geddes, Environmental Services Administrator & member of Nevada System of Higher Education Board of Regents
16. Oscar Delgado, Reno City Council
17. Hillary Schieve, Reno City Council
18. Sharon Zadra, Reno City Council and Vice Chair Regional Transportation Commission
19. Andrew Clinger, Reno City Manager

20. Cadence Matijevich, Reno Assistant City Manager
21. Monica Thompson, Digital Engagement Program Manager

***Governor's Office of Energy***

22. Kevin Hill, Energy Program Manager
23. David Gibson, Energy Efficiency Specialist
24. Scott Kelley, Public Information Officer

***Regional Transportation Commission***

25. David Carr, Facilities and Fleet Manager

***Keep Truckee Meadows Beautiful***

26. J. Merriman, Communications Manager

***Invited News Media***

27. John Seelmeyer, Northern Nevada Business Weekly
28. Michelle Bliss, KUNR Public Radio

***Showing of *Bag-It: Is your life too plastic?****

The award-winning, thought-provoking documentary from 2011, *Bag-It*, was shown twice over the summer of 2014 in the auditorium at the Knowledge Center for students and the community.

***Presentation by Beth Terry, Plastics Activist and Author, and Panel Discussion***

The final major event in September was a presentation by Beth Terry, author of *How I Kicked the Plastic Habit and How You Can Too*. Scientist Bonnie Monteleone previously had provided solid research on the global problem of plastic at our opening reception; Beth Terry concluded with a discussion of the practical ways people can reduce their own plastic footprint.

A panel discussion on local efforts to support sustainability followed the presentation. In addition to Beth Terry, panelists included:

- Jason Geddes, City of Reno Environmental Services Administrator and Nevada System of Higher Education Board of Regents
- John Sagebiel, University of Nevada, Reno Assistant Director of Environmental Programs and co-principal investigator of the Sustainability Initiative Grant
- J. Merriman, Keep Truckee Meadows Beautiful Communications Manager

Photographs of the Beth Terry presentation and community panel discussion that followed can be viewed on the Summer of Sustainability blog:

<http://summerofsustainabilitynv.wordpress.com/>

***Presentations about the Sustainability Initiative***

At each public event, presentations were made about the work done on campus through the Sustainability Initiative grant. Michael Collopy, Assistant Vice President for Research and Director, Office of Undergraduate and Interdisciplinary Research, and co-principal investigator on this grant, spoke at the art exhibit opening reception and the bus tour for local and campus

officials. He also spoke at the opening reception ribbon cutting for the new water bottle refilling stations and stressed the importance of minimizing single use disposable plastics.

Kathy Ray, Dean, University Libraries and Teaching & Learning Technologies, spoke about the grant and the collaboration between the Office of Undergraduate and Interdisciplinary Research: Academy for the Environment and the Mathewson-IGT Knowledge Center at the presentation by Beth Terry.

Michael Collopy (PI), John Sagebiel (co-PI) and Dean Kathy Ray were also interviewed for a local 30-minute public television show about the entire Summer of Sustainability.

### **Marketing Activities**

Extensive marketing efforts were made to inform the general public and University students, faculty and staff about the events being held on campus as part of the Summer of Sustainability. We used direct mail effectively on two occasions to reach thousands of people within the Truckee Meadows. News releases and media advisories were sent and many news stories were generated, a list of which is included later in this report. There were also many social media posts during the opening of the exhibit and the bus tour.

On campus, we created signs for each key event to use on the large electronic signage board outside Lawlor Events Center as well as on the electronic signs in the Knowledge Center and the Joe Crowley Student Union. Different stories about the Summer of Sustainability activities and issues surrounding sustainability were included in the internal Knowledge Center newsletter for the three months of the program and two months prior.

We made good use of posters inside the Knowledge Center that showcased each specific event as it happened, created buttons for the art exhibit with the slogan “Big Art, Little Waste,” and developed a self-guided tour so exhibit viewers would know the name of each art piece and the artist as well as the reused and recycled materials that were used to create the work.

## **6. Products:**

### **a) Publications**

#### **Summer of Sustainability marketing products included:**

- *Reused + Recycled = Art* exhibit and opening reception and presentation with ocean plastic debris research scientist and artist Bonnie Monteleone from the University of North Carolina Wilmington. Included here are a self-guided tour of the exhibit, postcard mailing, call for art submissions handbill, event posters, samples of electronic signage, exhibit buttons and a poster for the new water bottle refilling station at the Knowledge Center. View them [here](#).
- Presentation by Beth Terry, plastics activist and author, and community panel discussion. Included are a postcard mailing, event poster and sample of the electronic signage. View them here <http://guides.library.unr.edu/c.php?g=51341&p=1177276> .
- *Bag It* film materials include samples of the electronic signage and event poster.

- Sustainability information posters with facts about sustainability in beautiful nature scenes were designed to be part of the art exhibit. View them here <http://guides.library.unr.edu/c.php?g=51341&p=1177276>.
- Posters showcasing the five “Rs” of sustainability: Rethink, Reduce, Reuse, Recycle, Rebuy. These were also part of the art exhibit. View them here <http://guides.library.unr.edu/c.php?g=51341&p=1177276>.

#### **Summer of Sustainability news stories and media coverage:**

- Reno Gazette-Journal: <http://www.rgj.com/story/life/arts/2014/07/20/recycled-art-show-shines-light-plastic-plight/12864631/>
- Reno News & Review: <http://www.newsreview.com/reno/one-mans-trash/content?oid=14009601>
- KTVN TV, CBS affiliate:  
<http://www.ktvn.com/story/25959704/sustainable-art-exhibit-opens-at-university-of-nevada> and  
<http://mediacenter.tveyes.com/downloadgateway.aspx?UserID=57211&MDID=3763533&MDSeed=3473&Type=Media>
- KRNV TV, NBC affiliate:  
<http://mediacenter.tveyes.com/downloadgateway.aspx?UserID=57211&MDID=3728315&MDSeed=1547&Type=Media>
- KOLO TV, ABC affiliate:  
<http://mediacenter.tveyes.com/downloadgateway.aspx?UserID=57211&MDID=3731697&MDSeed=3407&Type=Media>
- KNPB Public Television – 30 minute show:  
<http://watch.knpb.org/video/2365364812/>
- Public News Service: <http://www.publicnewsservice.org/2014-07-14/environment/unr-art-exhibit-blends-creativity-and-sustainability/a40382-1#sthash.uDSwGo6S.dpuf>
- University of Nevada, Reno website: <http://www.unr.edu/nevada-today/news/2014/summer-of-sustainability> and <http://www.unr.edu/nevada-today/news/2014/summer-of-sustainability-bus-tour>

#### **Summer of Sustainability blog, Facebook and Twitter posts:**

- Plastic Ocean Project: <http://theplasticocean.blogspot.com/2014/08/create-ideas-into-art.html>
- City of Reno: <http://aroundtheearch.com/blog/2014/07/29/celebrate-a-greener-reno-with-summer-of-sustainability-events/>
- Keep Truckee Meadows Beautiful: <http://ktmb.org/blog/unr-summer-sustainability/> and <http://ktmb.org/events/unr-summer-sustainability-panel/>
- Mathewson-IGT Knowledge Center:  
<https://knowledgecenter.blogs.unr.edu/2014/08/28/living-plastic-free-with-beth-terry/>

- Summer of Sustainability: <http://summerofsustainabilitynv.wordpress.com/>
- Samples of the many Facebook, Twitter and Instagram posts that were made over the three months:
   
<https://twitter.com/unevadareno/status/501787838761799680/photo/1>
  
<https://twitter.com/CityofReno/status/501807083134533632/photo/1>
  
<https://www.facebook.com/UniversityofNevada/photos/pb.10152476879240860/10152476865315860/?type=1&theater>

b) Website or other Internet Site:

Several webpages have been developed as a result of the Sustainability Initiative. These are listed below:

- <http://environment.unr.edu/sustainability/index.html>
- <http://environment.unr.edu/sustainability/energy/>
- <http://environment.unr.edu/sustainability/transportation/>
- <http://environment.unr.edu/sustainability/curriculum/>
- <http://environment.unr.edu/sustainability/campus-life/>
- <http://environment.unr.edu/sustainability/recycling/index.html>
- <http://environment.unr.edu/sustainability/campus-life/food.html>
- <http://environment.unr.edu/sustainability/campus-life/water.html>
- <http://environment.unr.edu/sustainability/resources/>
- <http://summerofsustainabilitynv.wordpress.com/>
- <http://summerofsustainabilitynv.wordpress.com/2014/08/28/sustainability-bus-tour-photos/>

A website and blog were created specifically for the Summer of Sustainability activities:

<http://guides.library.unr.edu/friendly.php?action=82&s=sos>

<http://summerofsustainabilitynv.wordpress.com/>

c) Networks or collaborations fostered:

During the course of developing and implementing the Sustainability Initiative, we developed numerous networks and collaborations with both UNR-based and community-based organizations. Specifically, these partners included the following:

- UNR: Office of Undergraduate & Interdisciplinary Research; Environmental Health & Safety; Facilities Services; IGT-Mathewson Knowledge Center; and College of Agriculture, Biotechnology and Natural Resources
- Off-Campus: City of Reno; Regional Transportation Commission; Keep Truckee Meadow Beautiful; and Great Basin Community Food Co-op

d) Technologies/Techniques: None

e) Inventions/Patent Applications: None

f) Other Products (e.g., data or databases, audio, video, etc.):

As part of the education and outreach effort, we produced several videos that explained various elements of the program, as well as other sustainability efforts on campus. Links to these videos are listed below:

- Re-lamping of Parking Garages - <https://www.youtube.com/watch?v=WdbPa-1oJpo>
- University Heat Plant - [https://www.youtube.com/watch?v=\\_D4WDt9AgTg](https://www.youtube.com/watch?v=_D4WDt9AgTg)
- Solar Energy - <https://www.youtube.com/watch?v=rUcJelUB1ng>
- Solar Panel Installation - <https://www.youtube.com/watch?v=z4fR8Qd7gvc>
- Joe Crowley Student Union 30KW Photovoltaic System - <https://www.mypvpower.com/dashboard/515>
- UNR Valley Road Greenhouse Solar Panel - [http://live.deckmonitoring.com/?id=unr\\_valley\\_road\\_greenhouse](http://live.deckmonitoring.com/?id=unr_valley_road_greenhouse)

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