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Southern Nevada Agency Partnership Conservation Education and Interpretation Strategy

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EDUCATION ABOUT **THE ENVIRONMENT**

Southern Nevada Agency Partnership Conservation Education and Interpretation Strategy

May, 2007

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Introduction and Context

Four federal agencies manage seven million acres of federal lands in Southern Nevada. Increasing demands for use of these public lands has created the need for those agencies to form a unique interagency partnership and to work cooperatively in support of agency missions, protection of natural resources, and public service.

The Bureau of Land Management (BLM) Las Vegas Field Office, National Park Service (NPS) Lake Mead National Recreation Area, the Fish and Wildlife Service (FWS) Desert National Wildlife Refuge Complex, and the U.S. Forest Service (USFS) Spring Mountains National Recreation Area formed the Southern Nevada Agency Partnership (SNAP) in 1997 to address 14 initiatives and issues, including outdoor recreation education, science and research, resource protection, law enforcement, volunteerism, and litter clean-up.

A 2002 amendment to the Southern Nevada Public Land Management Act of 1998 (SNPLMA) created a category of expenditures called “Conservation Initiatives.” It stipulates that up to 10 percent of the proceeds of BLM land sales within the disposal boundary of Clark County can be used for Conservation Initiative projects administered by the U.S. Department of Interior and the U.S. Department of Agriculture in Clark County.

An interagency SNPLMA Round 4 Conservation Initiative project, originally titled *Education in the Environment*, was approved by the Secretary of the Interior and initiated in 2004 through a cooperative agreement between the NPS, as lead agency, and the Public Lands Institute at the University of Nevada, Las Vegas (UNLV). This project envisioned the planning of a strategic approach to CE&I, including an assessment of existing outdoor environmental education programs in Southern Nevada, the development of a comprehensive area-wide CE&I Strategy, and the development of a five-year work plan for agency educators involved with CE&I.

This document provides recommendations for the best ways to achieve strategic goals and provide desired educational experiences through CE&I products and services such as programs, interpretive media, activities, facilities, and curricula.

SNAP has established five important areas to focus its work: science and research, community connection, protection, restoration, and complementary public use. CE&I services and programs are an important means by which SNAP can meet goals in the areas of community connection, resource protection, and complementary public use.

In 2006, the SNAP Board described its collaborative and cooperative effort as “the forum for the four land management agencies to address common issues. Through collaborative management each agency achieves greater operational efficiency, enhances resource conservation, and more effectively serves the public.”

The four federal agencies benefit from a relatively diverse array of CE&I programs that include visitor centers and wayside exhibits, formal and informal education efforts, and community education partnerships. However, these efforts can be further strengthened and coordinated. Improvement hinges on providing community leadership, a strategic focus, being able to connect with diverse audiences, and measuring success with well-articulated standards of quality. The following is a summary of recommendations included in this document:

1. Compare agency CE&I efforts to the documents “Matrix of Desired Future Programs” and “Universal Themes with Experiential Goals” to identify gaps and needs, and to focus agency priorities and point to appropriate desired outcomes.
2. Develop successful procedures to systematically identify, create, manage, communicate, and share messages about public lands across (and beyond) agency boundaries.
3. Maintain and participate in area-wide cooperative CE&I efforts to leverage resources, share messages, and improve learner-centered Education about the Environment. Coordinate and implement area-wide trainings, including the Our Places Tell Stories conference.
4. Prioritize the creation of CE&I products, services, and messages to Business and Ethnic audiences.
5. Assess CE&I programs for effectiveness in achieving desired outcomes; continuing relevance of objectives and delivery methods; value; and overall impact on resource protection.
6. Adopt the Standards of Best Practices for Nevada EE&I Professionals established by the Nevada Certification Program for Environmental Education and Interpretation. Establish and support processes, such as the Nevada Certification Program for Environmental Education and Interpretation, for assessing, tracking, and maintaining skill levels of internal agency CE&I staff (above and beyond initial training).
7. Establish and support processes, such as the Nevada Certification Program for Environmental Education and Interpretation, for managing external contractors/CE&I providers.

With the support of the SNAP Board and agency CE&I staff, this *Southern Nevada Agency Partnership Conservation Education and Interpretation Strategy* was developed. Following the recommendations and the strategic actions listed in this document will help CE&I practitioners achieve the vision that every resident and visitor will understand, appreciate, and care for Southern Nevada's environment.

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*“In the end, we will conserve only what we love.
We will love only what we understand.
We will understand only what we are taught.”*

Baba Dioum, Senegalese Conservationist

Conservation Education and Interpretation Defined

The overall goal of Conservation Education and Interpretation is to influence the way people interact with Southern Nevada's environment. Baba Dioum, a Senegal conservationist, wrote in 1968, "In the end, we will conserve only what we love. We will love only what we understand. We will understand only what we are taught."

It is surprisingly difficult to provide common definitions for the programs and other educational experiences created by informal education providers throughout Southern Nevada. There are significant perceived differences among these providers, especially as they pertain to "interpretation" vs. "environmental education."

This document uses the term "CE&I" to refer to all interpretive and environmental education efforts, including those in Personal Services, Non-Personal Services, and Interpretive Media. What ties these efforts together is their approach to communication. The CE&I approach "stresses the transfer of ideas and relationships rather than isolated facts and figures" (Ham, 1992). Using this approach allows educators to accomplish the difficult task of communicating an environmental concept in a way that someone *learns* it and is motivated to apply this knowledge to their personal lives. The CE&I approach connects audiences to their subjects at hand in ways that foster commitment to change how they feel or act. A fitting description of this communication process is that it:

" . . . increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action"
(UNESCO, Tbilisi Declaration, 1978).

By taking the correct approach, each of the efforts listed below can help us achieve all of the above. This is why they are all considered CE&I. These efforts include (but are not limited to):

- Audio and audiovisual media
- Curriculum-based programs
- Demonstrations
- Evening programs
- Informal contacts
- Junior Ranger programs
- Outreach programs
- Maps
- Publications
- Ranger-led walks and talks
- Special events
- Teacher training
- Visitor centers
- Way-side exhibits
- Way-side signage
- Web sites and other electronic media

In general, the federal agencies differentiate between environmental education and interpretive services according to the audiences they serve. Interpretive services tend to be geared toward a non-captive audience in a recreational setting, while environmental education efforts are geared to school-based audiences tied to structured learning goals.

Background and Rationale

Located in Clark County, Las Vegas metropolitan area has been the fastest growing urban area in the country for the past decade. Clark County has a resident population exceeding 1.9 million and a tourist population of more than 39 million per year (Clark County Assessor). This rapid growth is shown in Fig. 1 below. Unfortunately, many Las Vegas residents do not have an understanding of the natural environment that surrounds their city or a sense of responsibility for its condition. The dramatic increase in litter, desert dumping, graffiti, and the destruction of cultural and natural resources illustrate this situation.

Figure 1

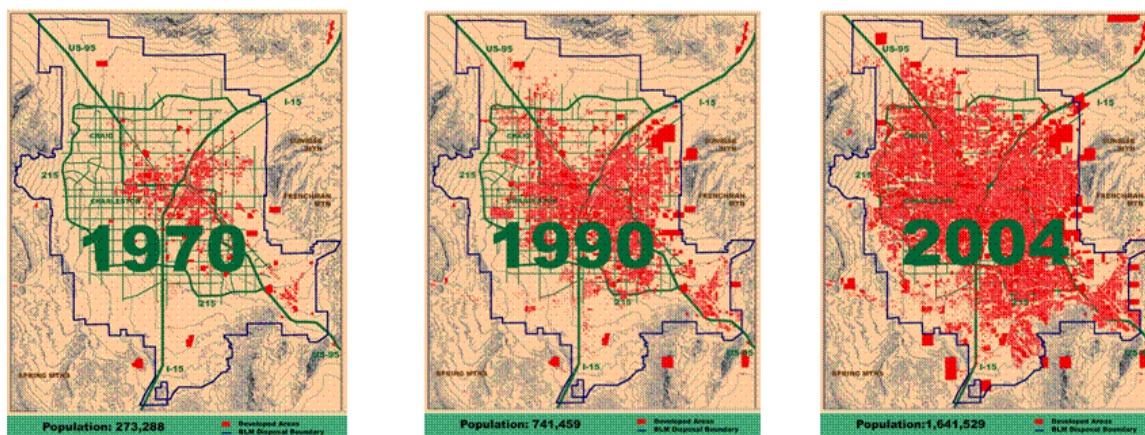


Fig. 1. Population growth in Clark County, 1970-2004

CE&I is one of the highest priority focus areas identified by the four federal land management agencies. The need for CE&I is particularly acute in Clark County. Such education efforts are intended to engage residents and visitors; greater understanding and appreciation of Southern Nevada's environment will result in valuable stewardship behaviors.

How these education efforts occur is critical. For example, Matthews and Riley (1995) conclude that the following have **not** brought about environmental behavioral change – even when they occur in outdoor or place-based settings:

- Lectures
- Externally derived codes of ethics/conduct
- Non-peers setting the ethics agenda
- Teachers/leaders as authority figures

*“Dry words and facts
will not fire hearts.”*

John Muir

Rather, there is support for the claim that environmental responsibility is best developed through effectively practiced, learner-centered CE&I. For example, Howe and Disinger (1998), following a study of environmental issue investigation, environmental action training, and outdoor educational experiences on students in Grade 7, found significantly greater changes in environmental behavior and knowledge when compared to a control group. S. Ham and co-authors created a guide in 2007 to help public land managers use successful communication techniques to influence visitor behavior. The authors demonstrate that persuasive communication messages based on social norms, the theory of planned behavior, and elaboration likelihood model of persuasion reduce undesirable behaviors such as littering, letting pets off-leash, and going off-trail.

In 2002, the American Zoo and Aquarium Association conducted a study on visitor learning in informal settings. The study found both short-term impacts and long-term impacts to visiting informal learning institutions, such as zoos, museums, and visitor centers. The study also found evidence that visitors to these institutions had increased awareness, knowledge, and a “heightened enthusiasm for making behavioral changes.” The same study found that people who actively participate in “nature-sensitive” outdoor activities demonstrated more knowledge of conservation issues and behaved in more environmentally responsible ways as consumers.

CE&I that occurs in outdoor learning situations can also have a positive impact on formal education. For example, Gerber and colleagues (2001) documented that informal learning environments positively impact students’ scientific reasoning abilities. The same study showed that students involved with inquiry-based learning experiences, as practiced by CE&I, showed higher scientific reasoning abilities compared to those in non-inquiry science classrooms. Additionally, since 1997 an educational research organization called the State Education and Environment Roundtable has found that environment-based education improves academic performance and learning across the board. It also results in decreased discipline problems, increased problem-solving abilities, increased science knowledge, and increased levels of engagement.

As well, Matthews and Riley (1995) wrote that educational experiences most likely to change behavior involve concrete, environmentally positive, action-oriented experiences. Importantly, successful programs also need a relevant context, implying the need for informal education experiences that take place on local public lands. Louv (2006) cites several studies that support the claim that exposure to nature, among other benefits, reduces symptoms of Attention Deficit Disorder and improves cognitive abilities and resistance to negative stresses and depression.

There is also indication that regular contact with and play in the natural world as a child is critical to establishing an ethic of environmental stewardship as an adult (Bunting and Cousins 1985, Wells and Lekies 2006). As Sobel (1996, p. 10) observes, “what’s important is that children have an opportunity to bond with the natural world, to learn to love it and feel comfortable in it, before being asked to heal its

wounds. John Burroughs remarked that ‘Knowledge without love will not stick. But if love comes first, knowledge is soon to follow.’ Our problem is that we are trying to invoke knowledge and responsibility, before we have allowed a loving relationship to flourish.” The profession of CE&I strives to do both.

The Issue

Las Vegas has experienced explosive growth in the past 25 years, growing by 83.5% between 1990 and 2000 (Justice & Democracy forum on the Leading Social Indicators in Nevada, UNLV, 2004). As well, the Las Vegas population exhibits more ethnic and cultural diversity than the nation as a whole. These factors can hinder personal connections with nature and our public lands, result in a “disconnect” between the urban and natural environment. Louv (2006) describes that “in the space of a century, the American experience has gone from direct utilitarianism to romantic attachment to electronic detachment.” He terms this phenomenon “nature deficit disorder.”

The rapidly changing population of the Las Vegas metropolitan area challenges CE&I efforts throughout Clark County. Using CE&I to connect Southern Nevadans to their public lands is difficult because of different ethnicities, different languages, different learning styles, different values about public lands, and different preferences in recreation.

These observations illustrate both the potential for and the challenges facing CE&I in Clark County. On the one hand, effective education programs have been demonstrated to increase environmental awareness and shape stewardship behaviors, such as reduced littering and more responsible recreational use of public lands. But to be effective, such programs must adhere to standards of best practices *and* meet the diverse needs of audiences – including differences in age, ethnicities, and the expectations they hold. This document provides recommendations for overcoming these challenges and achieving positive stewardship behaviors.

This document also takes into consideration the fact that the four federal agencies share audiences with other informal education providers, such as the Las Vegas Springs Preserve and the Nevada State Museum and Historical Society. Because learning is cumulative over time and space, strategic collaborations among these providers can help audiences build on and reinforce their learning experiences. Experiences that are multi-dimensional rather than single-agency, one-time experiences are more likely to result in positive and desired behavior changes.

Agency Initiatives and Mandates

Agency CE&I staff represent four federal agencies, each directed by individual mandates, missions, and approaches to CE&I. Examining these mandates gives the context in which these staffs create and deliver CE&I efforts, and allows a comparison among agencies. As pointed out by Bryson (2004, p. 94):

“together, mandates, mission, and values indicate the *public value* the organization will create and provide the social justification and legitimacy on which the organization’s existence depends.”

Bureau of Land Management

The Bureau of Land Management (BLM) “strives to realize healthier and more productive public lands through better informed citizens who are willing to participate and assist in solving complex environmental problems.” BLM Director Kathleen Clarke states that:

“Public participation in BLM environmental education programs—particularly by young people—results in better-educated citizens who are eager to assist BLM in addressing complex multiple-use issues on public lands. Citizen stewardship is key to the success of both resource management and conservation undertakings” (2006 BLM Environmental Education Update).

The overall focus of BLM resource programs include:

- **ENERGY EDUCATION.** National initiatives include a draft teacher module on energy and the public lands created in collaboration with the National Energy Education Development (NEED) Project.
- **FIRE EDUCATION.** National initiatives include teacher training, electronic field trips, and interactive kiosks.
- **BIOLOGICAL RESOURCES EDUCATION.** National initiatives include presentations, exhibits, and on-site signs.
- **CULTURAL RESOURCES EDUCATION.** National initiatives include BLM heritage resource Web sites and Project Archaeology” professional development workshops.
- **RECREATION & OUTDOOR ETHICS EDUCATION.** National initiatives include interpretation, training Master Educators to use “Leave No Trace” and “Tread Lightly!” outdoor ethics curricula, and interpretive programs and materials consisting of interactive presentations, exhibits, and on-site signs.

Although the Red Rock Canyon National Conservation Area (Red Rock Canyon NCA) does not currently have a formal education plan, it works closely with the Southern Nevada Conservancy, Friends of Red Rock, and the Clark County Multiple Species Habitat Conservation Plan (MSHCP) to provide CE&I services and resources. These include visitor center exhibits, wayside exhibits, publications, books and other sales items, and the Mojave Max program. It is an expectation that each of these partners will incorporate “Leave No Trace” and “Tread Lightly!” principles and that CE&I programs will be sustainable.

In 2006, both Red Rock Canyon NCA and Sloan Canyon National Conservation Area were in the process of developing interpretive plans for visitor centers planned for these sites. Planning was also underway in 2006 for the Red Rock Desert Learning Center, a proposed fifth grade residential science school.

National Park Service

As directed by the Organic Act of 1916, the overall purpose of the National Park Service (NPS) is to preserve and protect resources while providing for the enjoyment of the present and the future. NPS has embraced education and interpretive services, recognizing that “connecting with the people we serve” is essential to achieving their resource protection vision. Lake Mead (Lake Mead NRA) is a unit of the NPS.

As described in its Long-Range Interpretive Plan (2006), the purpose of Lake Mead NRA is to:

- Provide public recreation, benefit, and use in a manner that will preserve, develop, and enhance, so far as practicable the recreation potential, and
- Preserve the scenic, historic, scientific, and important features of the area.

Lake Mead NRA has an established education and interpretive program that includes interpretive facilities with exhibits, the Desert Princess tour boat, audiovisual programs, wayside exhibits, publications, books and other sale items, and a Web site. In 2006, Lake Mead NRA completed a Long-Range Interpretive Plan in the context of pertinent federal Management Goals, including:

- The Government Performance and Results Act (GRPA), which requires agencies to establish standards for measuring performance and effectiveness;
- Visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities; and
- Visitors and the public understand and appreciate the preservation of parks and their resources for this and future generations.

Core services provided by the Lake Mead NRA interpretive and education personnel include staffing visitor centers, providing curriculum-based education, and communicating the significance of the NPS to the public. The Interpretive Plan lists nine visitor experience goals that should be attained by participating in the Lake Mead NRA’s interpretive and education programs:

- Recreate safely.
- Appreciate the importance of the park’s natural and cultural resources to quality of life.
- Recognize impacts of activities and practice stewardship of the park’s resources, and maintain good relationships with other park visitors.
- Understand and support efforts to protect and manage the park’s cultural and natural resources.
- Recognize that Lake Mead is part of the National Park System; it consists of two lakes, and is within the Mojave Desert ecosystem.
- Understand that Hoover Dam and Davis Dam create recreation opportunities while preventing floods and providing irrigation water and hydro-electricity.

- Identify how natural resources have sustained cultures for 10,000 years, producing a rich cultural heritage.
- Access park information where and when it is needed, while appreciating the customer service provided by park rangers.
- Have an “enjoyable” and “fun” visit that improves their feelings and lifts their spirits.

U.S. Fish and Wildlife Service

The mission of the U.S. Fish and Wildlife Service (USFWS) is “to work with others to conserve, protect, and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people.” The 1997 National Wildlife System Refuge Improvement Act establishes that the first purpose of refuge management is to protect biodiversity. Of significance to this document is the sixth goal of the National Refuge System, which is:

To foster understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high quality, and compatible wildlife-dependent public use. Such use includes hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

Some of the national education initiatives of the FWS include the National Conservation Training Center and the coordination of International Migratory Bird Day. FWS also maintains an extensive Web site containing curriculum resources and activities, community service projects, professional development opportunities, and background information, especially pertaining to endangered species. Many refuges also feature visitor centers, wayside signs, and informational brochures.

Local education projects include the construction of the Moapa Dace Viewing Chamber, and planning is underway for a new visitor center and public use facilities and environmental education at the Corn Creek Field Station. It is an expectation that the FWS personnel will participate in partnerships and provide volunteer programs and opportunities for community engagement.

U.S. Forest Service

The mission of the Forest Service (USFS) is to sustain the health, diversity, and productivity of the nation’s forests and grasslands to meet the needs of present and future generations. The FS Conservation Education Task Force Report and Recommendations (1998) document envisions that:

- USFS conservation education will be an effective, dynamic means for the agency to connect the American people with their environment.
- USFS will provide the tools Americans need to participate effectively in the critical task of sustaining our nation’s natural and cultural resources. This undertaking shall be a coordinated, USFS-wide effort that will affect all aspects of the agency’s operations.

The strategy also identifies two core themes that help direct agency conservation education work:

- Sustainability of natural and cultural resources in forest, grasslands, and aquatic ecosystems.
- Awareness and understanding of interrelationships in natural systems and between people and the land.

Although the Spring Mountains National Recreation Area (Spring Mountains NRA) does not currently have a formal education program, in 2005, it completed a Master Plan for Interpretation, Environmental Education, and Visitor Information. The overall goal outlined in this plan is to “increase visitors’ awareness, understanding, and appreciation of the Spring Mountains NRA and thereby instill a sense of stewardship in all those who live, recreate, and work here.” The specific goals listed in the document are:

- Encourage a sense of familiarity and appreciation for the natural aspects of the Spring Mountains NRA’s rich biological diversity.
- Enhance visitor’s experience by providing an understanding of the dynamic cultural history of the area.
- Increase awareness and understanding of the dynamic relationship between humans and the environment, and the impacts of increasing human activity on highly sensitive and easily damaged lands of the Spring Mountains NRA.
- Gain support for the management of the Spring Mountains NRA.
- Improve stewardship ethics through increased understanding of the concept of carrying capacity and adaptations for living in a desert environment.
- Protect water quality and promote water conservation.
- Promote learning and scientific discovery to further sustainability into the future.
- Improve visitor’s access to information about the Spring Mountains NRA’s opportunities, regulations, and safety concerns.
- Reduce impact on highly sensitive areas.

This plan meets responsibilities laid out by the Conservation Agreement, the Spring Mountains NRA Amendment to the Land and Resource Management Plan, and the Clark County MSHCP. These responsibilities include:

- **ENDEMIC SPECIES AND BIODIVERSITY HOTSPOTS.** Staff, permittees, and partners must be familiar with species requirements and avoid adverse impacts to them and their habitats.
- **VISITOR INFORMATION AND EDUCATION.** General visitors and specific user groups should receive information about biodiversity protection and ecosystem management, especially of riparian habitats, alpine zones, and other sensitive areas. Utilize resources such as “Leave No Trace.” Develop a driving tour program and wayside signs. Have brochures and other information placed at trailheads to highlight unique resources and biodiversity.

- **ENVIRONMENTAL EDUCATION PROGRAMS.** Programs should be developed for a variety of audiences, especially highlighting biodiversity and sensitive resources.
- **SPECIFIC SPECIES INFORMATION.** Information for residents on Palmers chipmunk and rough angelica conservation.

Spring Mountains NRA is currently in the planning stages for the Middle Kyle Canyon complex, including an interpretive plan. Options for this complex include elements that will create a destination experience and sense of adventure for visitors.

Service First –Working Together Partnership

“Service First,” a working partnership, crosses agency (BLM, NPS, USFWS, and USFS) boundaries. The purpose of this initiative is to integrate services and to provide quality service to their publics. According to its MOU, signed in Nov. 2006, desired outcomes include:

“improved customer service (such as one-stop shopping for permits, maps, etc.); increased operational efficiency (such as reduced costs where two field units collocate under one roof and share costs of rent, utilities and equipment); and improved stewardship of the land (which can come when the two agencies’ staff work in an integrated unit, learn together, and deal with the land on a landscape basis.”

Audience Profiles

To be effective, CE&I efforts must be audience-specific. This means tailoring each program to include appropriate learning styles, recognize prior knowledge, meet expectations of the audience, and use effective delivery methods for each audience. It is therefore important to examine some of the audience profiles for Southern Nevada.

According to the Las Vegas Chamber of Commerce, more than 5,000 people were moving to Las Vegas each month, making it one of the country's fastest growing cities. Table 1 below shows population figures within Clark County.

Boulder City	15,342
Henderson	234,320
Las Vegas	559,824
North Las Vegas	168,081
Mesquite	16,180
Unincorporated rural areas	30,306
Unincorporated urban areas	722,972
Total Clark County	1,747,025

***Table 1 above shows 2004 population statistics for Clark County by city
(Source: Las Vegas Perspective 2005)***

Because of this fast growth rate, more than a quarter of Clark County residents have been here fewer than five years. Table 2 below shows how long residents have lived in Clark County, in years.

Less than one	8.8%
One to five	23.8%
Six to 10	19.6%
11 to 20	20.7%
More than 20	27.1%

**Table 2 above shows how many years residents have lived in Clark County
(Source: Las Vegas Perspective 2005)**

According to figures provided by the Las Vegas Convention and Visitors Authority, in addition to the 1.9 million people living in the Las Vegas Valley, nearly 39 million people visited here in 2005 for gaming, conventions, and other activities. Interestingly, nearly half said they spent less than two hours gambling per day. 21% of these visitors said they visited nearby places during their stay. Of these, 69% visited Hoover Dam, 45% visited the Grand Canyon, and 31% visited Lake Mead. Most visitors were adults and did not bring children (90% were over the age of 21 in immediate party) – in fact, the average age of a visitor was 49 years. Of these visitors, 93% stayed two or more nights (the average was 3.6 nights). Among those that went sightseeing, visitors spent an average of \$96 on their chosen activity.

Effectively reaching this diverse, changing population with CE&I efforts is a huge challenge. To help meet this challenge, a cooperative group of Southern Nevada CE&I providers in 2002 identified four key audiences: recreational visitors; business; curriculum-based, and ethnic.

Recreational Visitor Audiences

More than 10.3 million people visit the 7 million acres of public lands in Southern Nevada. There are literally dozens of opportunities to reach these recreational visitors with key interpretive messages. Some messages are appropriate for the pre-trip planning stage, while many others should be communicated to visitors during their trips. Still other interpretive messages should help recreational visitors connect their experiences to their personal lives in meaningful ways.

According to the National Visitor Use Profile for the Humboldt-Toiyabe National Forest (2000), the top five recreation activities of visitors were:

- Hiking/walking (52%)
- Viewing wildlife (51%)
- Viewing natural scenery (46%)
- Relaxation, escaping noise and desert heat (39%)
- Hunting (26%)

Other recreational activities include off-highway vehicle (OHV) recreation, which is an activity enjoyed by some 360,000 people in Nevada.

Business Audiences

One audience suggested by the high growth rate characterizing Las Vegas consists of Realtors and contractors associated with housing developments that abut public lands. The vistas and open spaces afforded by the public lands add to the value of the housing. Thus, realty-based audiences are potential partners that can incorporate stewardship messages as a way of doing business. The Outside Las Vegas Foundation has made important inroads with this audience by establishing a conservation partnership with the Lake Las Vegas Resort complex. It is important for agency educators to establish these partnerships to share key stewardship messages.

Concierges working at casinos and hotels have a huge potential influence over recreational audiences, as do established tour companies such as the Pink Jeep Tours and Gray Line bus tours. These companies not only help direct where tourists go, but also shape the type of learning experiences and stewardship messages offered, or not offered.

Because of the nature of the SNPLMA funding received, another important group of stakeholders are local and state politicians and other representatives. These stakeholders are in a position to embrace and promote key messages and influence the way people perceive and interact with their public lands. They are also in a position to provide important support to CE&I efforts.

Curriculum-Based Audiences

Clark County School District is the sixth largest district in the nation. Between 1993 and 2004, enrollment skyrocketed from 45,327 students to 280,834 (CCSD figures). The district currently operates some 300 schools:

- 186 elementary schools (69 year-round, 24 modified nine-month, 93 nine-month)
- 48 middle schools
- 38 high schools
- 23 alternative schools
- 6 special schools

Several factors affect who can and will partake in field trips and other place-based learning experiences. One challenge is trying to keep pace with enrollment. There is a chronic shortage of teachers; teacher to student ratios (30:1) are higher than the nation as a whole; and the district must operate one of the nation's largest school construction programs, adding some 25 schools in the past two years alone, according to CCSD figures from 2005.

Complicating this challenge is the fact that the number of school buses available is limited, and for the most part, the buses are restricted to a few hours during the middle of the day. Buses are available after dropping students off in the morning, and must be returned early in the afternoon to be available to pick up students after school.

The No Child Left Behind Act creates a second challenge. One by-product of this legislation is the emphasis that schools place on testing, especially in the subjects of English and Math. This affects how teachers and administrators make choices about field trips and other informal learning experiences.

A third challenge is the growing enrollment of non-English speaking students. According to the Justice & Democracy forum on the Leading Social Indicators in Nevada, held at UNLV in 2004: “between the 1992-94 and the 2000-2001 school years, the number of students enrolled in the English Language Learner program increased 245%, to 35,296, while total district enrollment grew 59%. In the 1999-2000 school year, of the 1200 new students entering the district monthly, 700 did not speak English. The same year, Clark County drew students from 110 foreign countries. The following year, minorities became the majority of students enrolled, reaching 50.1%.” This challenges agencies’ ability to communicate complex concepts to ESL students and their teachers. As shown in Table 3 below, the percentages of race/ethnicities reflect diversity in the county and in the schools.

Race/Ethnicity	Clark County (2004)* *Source: Las Vegas Perspective 2005	Clark County School District (2004-2005)* *Source: CCSD
Anglo	55%	41%
African American	9%	14%
Hispanic	24%	35%
Asian/Pacific Islander	7%	8%
Native American	1%	1%
Other	4%	--

Table 3 shows ethnic populations in Clark County and Clark County School District

Ethnic Audiences

Clark County is more diverse than the nation as a whole. The national average of people that are born in a foreign country is 11%; Nevada’s percentage of foreign-born is 17%. Significantly, this population increased by more than 200% during the 1990’s, and accounts for 27% of the state’s overall population growth during this decade. In fact, Nevada had the fastest growing Asian population and the second-fastest growing Hispanic population in the nation (Justice & Democracy forum on the Leading Social Indicators in Nevada, UNLV, 2004)

Learning to reach diverse audiences effectively is of great importance for agency educators. Much evidence exists that many different ethnic and cultural groups frequent public lands. Anecdotal evidence

suggests that there are many cultural differences in how people enjoy their recreational experiences. Making positive and effective connections with all our audiences will take much more than merely translating a brochure or sign from the English language to Spanish.

Resources and Programs

The following section is an overview of the existing conditions and resources for area-wide CE&I efforts, toward an understanding of the context in which agency CE&I staff operate.

Partners for Education about the Environment

Research indicates that learning is cumulative through time and space. Knowledge is not gained through the memorization of facts, and people are not inspired to adopt new behavior patterns or change their attitudes based on a single phrase or image. So how does each group work to achieve the vision that every resident and visitor will understand, appreciate, and take care of Southern Nevada's environment?

If each organization pursues its own CE&I mission, funding sources, marketing, and program design with little effort to coordinate program offerings to avoid overlap, cover gaps, or provide sequence, then there is little hope of making a difference or influencing the way people interact with the environment. Instead, CE&I efforts will be hit-or-miss, unfocused, and perhaps even give conflicting messages. The reality is that agency CE&I educators share audiences with other informal education providers, such as the Las Vegas Springs Preserve, the Nevada State Museum, Historical Society, and others. Strategic collaborations among providers can help audiences build on and reinforce their learning experiences. Experiences that are multi-dimensional rather than single-agency, one-shot contacts are more likely to result in positive and desired behavior changes.

It is therefore recommended that the agency CE&I staff work closely with the Partners for Education about the Environment (Partners for EAE), an area-wide cooperative partnership of informal educators. A cooperative partnership focused on strategic actions and effective methodologies will allow every agency to better connect with diverse audiences. This cooperative partnership will also help in understanding the relationship among educational offerings and the messages they give, while avoiding unnecessary duplication of programs and messages, and capitalizing on opportunities to reinforce and build on others. This partnership will therefore become an avenue for distribution of important agency messages, as indicated by SNAP Conservation Initiative teams.

Table 4 on the next page indicates the scope of these programs for a single audience, the Clark County School District (CSSD).

Organization Name	Number of CSSD field trip participants served annually	Number of CSSD Buses Used annually	Total dollar value of program annually when CCSD students are served
Las Vegas Natural History Museum	30,000	428	\$151,200.00
Lake Mead Recreational Area	3,110	52	\$127,080.00
Las Vegas Art Museum	5,600	68	\$244,420.00
Nevada State Museum and Historical Society	7,400	125	\$42,000.00
Red Rock Canyon	15,000	214	\$140,000.00
Clark County Museum	10,000	142	\$40,000.00
Dolphin Habitat	8,000	107	\$75,000.00
Old Mormon Fort	1,800	25	\$9,840.00
Atomic Testing Museum	3,384	Private	Unknown
Wetlands Park	2,556 (1 day per week)	36	\$32,100.00
Shark Reef	unknown	unknown	unknown
Lied's Discovery Children's Museum	unknown	unknown	unknown
Atlantis Aquarium	unknown	unknown	unknown
Totals	96,850	1197	\$821,640.00

Table 4 shows Clark County School District impact statistics for Area-Wide Place-Based Education Institutions prepared April 12, 2006 by CHOLLA (Connecting Hands: Offering Lifelong Learning Adventures), a consortium of area-wide informal and formal educators.

There is clear potential for sequencing programs and wielding significant influence using tactics such as common messages. Clearly, the same is true for other audiences as well. To systematically affect the way CE&I is provided, this collaborative network should be supported for the long-term so that participation becomes embedded within agency operational structures. By working together, agencies more effectively work toward the shared vision, gain more recognition, have more success obtaining funding, identify and address barriers to participation, help with training, and share knowledge of best practices to improve learner-centered Education about the Environment, as seen in Fig. 2 on the next page.

*“To accomplish great things,
we must not only act, but also dream;
not only plan, but also believe.”*

Anatole France

Figure 2

**Conservation
Education Strategy --
A Coordinated
Network of Place-
based Educators**

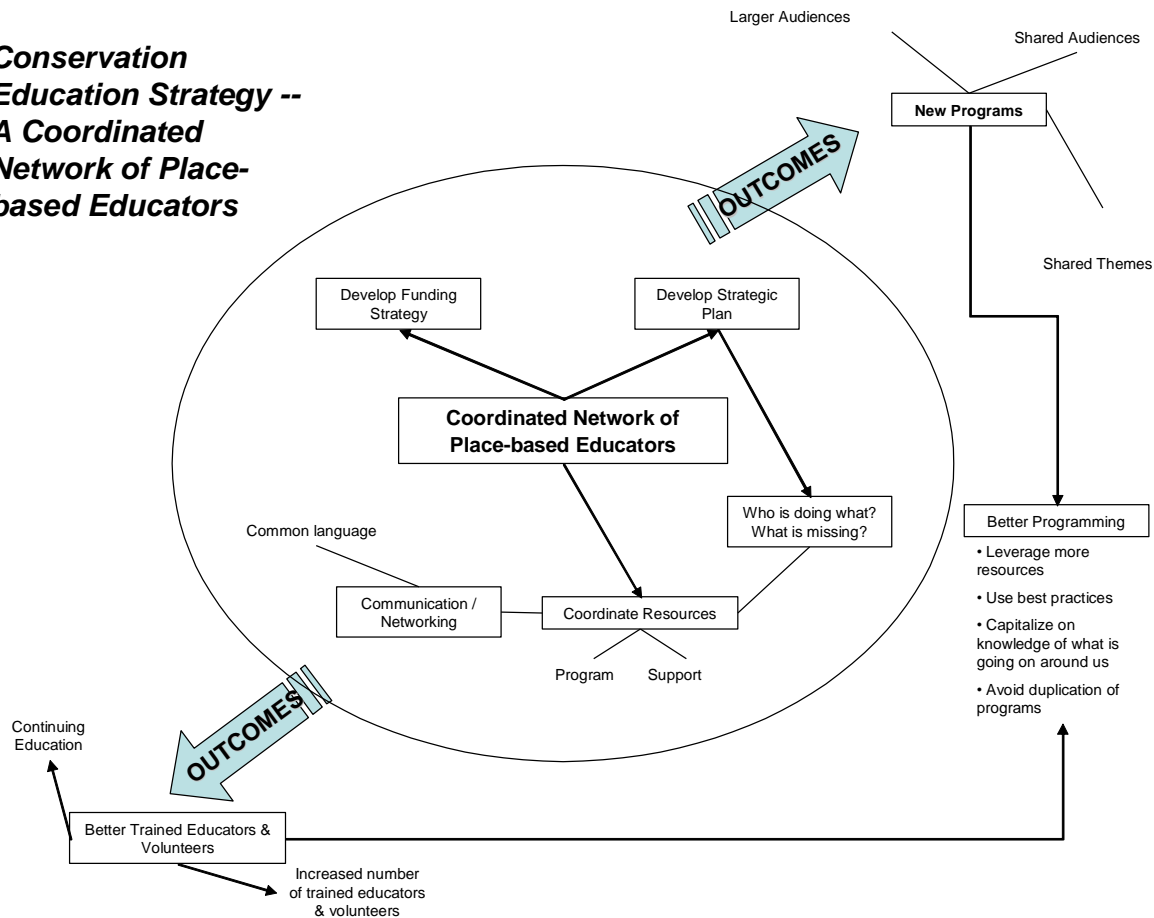


Fig. 2 shows process and outcomes through collaboration and sharing resources

It is significant to note that messages must be delivered in effective ways. Without agreeing upon and adopting best practices for CE&I program delivery, educational efforts are unlikely to be successful.

Achieving this cooperative partnership can only occur through regularly scheduled, facilitated meetings to implement the Partners for EAE strategic action plan (see Overview of Project Components, below, and Appendix III). Some outcomes of this plan include:

- a Web-based Field Trip Resource Guide for teachers;
- an educator's listserv and Web site;
- production of Best Practices Review sheets that identify best practices in program delivery and evaluation;

- trainings and workshops, including the *Our Places Tell Stories* conference in January 2006 that addressed building skills, knowledge, and collaborative efforts and;
- development of standards for Nevada EE&I professionals.

Interpretive Associations

Interpretive associations are another important resource for agency CE&I staff. The Southern Nevada Conservancy, previously known as the Southern Nevada Interpretive Association, operates a store at the Visitor Center at Red Rock Canyon; the Western National Parks Association operates a store at the Alan Bible Visitor Center at Lake Mead. Both establishments generate substantial revenues through sales of books and gifts. A percentage of the proceeds from sales are available for CE&I efforts according to specific agreements made with the BLM and NPS.

In addition to funding, the S.N. Conservancy also provides interpretive services, including guided hikes, interpretive exhibits, wayside signs, and other CE&I efforts. The S. N. Conservancy has a long-standing agreement with BLM, but also works with FWS and SMNRA. Because of its non-profit status and streamlined contract process, the S. N. Conservancy is able to plan and implement projects relatively quickly. Agreements should include accountability to both agency mission *and* to identified program standards.

Facilities, Exhibits and Interpretive Trails

Together, the four federal agencies are responsible for some seven million acres in Southern Nevada. Resources include facilities – such as buildings, exhibits, visitor centers, and boats – as well as trails, boardwalks, and numerous other interpretive opportunities.

Web sites

Each agency administers a local Web site; these Web sites vary in their design, accessibility, and functionality. For the most part, they provide solid information about area-specific resources, natural and cultural history, and recreational opportunities. Each agency also has a nationally administered Web site, each of which provides information and resources, and activities for educators. An overarching SNAP Web site is in the planning stages.

Enviroedexchange.org Web site, an on-line field trip resource guide

Enviroedexchange.org is a Web site for teachers and CE&I providers, which was launched in August 2006. For teachers, the Web site offers a searchable Field Trip Resource Guide to help find the best field trip program for a specific grade level or to meet specific standards and/or subject. Cost, services available, and other criteria are also included. This easily accessible information helps teachers provide well-planned, structured field trips that can result in rich authentic learning experiences that excite and motivate students. The Web site includes information on fourteen CE&I organizations offering some thirty-four different learning adventures. For community CE&I providers, the Web site provides information from

current and past EAEInterchange Listserv postings (see below). There have been 29,197 successful server requests and 5,401 successful page requests through May 15, 2007.

Education About the Environment Interchange (EAE Interchange) Listserv

A listserv is an electronic mailing list similar to, but with more functionality than the traditional e-mailing list. It typically includes a list of e-mail addresses, names of people ("subscribers") receiving mail at those addresses, the publications (e-mail messages) sent to those addresses, and a "reflector," which is a single e-mail address that, when designated as the recipient of a message, will send a copy of that message to all of the subscribers. The EAE Interchange Listserv addresses CE&I efforts in Southern Nevada. Subscribers include area educators. Each posting provides content in the following areas:

- Updates (e.g., upcoming trainings, meetings, events)
- Grant and funding opportunities
- Links to Web sites, resources
- Information on stakeholders, management, resources, programs, etc.
- Professional development, including literature reviews, training opportunities, Best Practices review series
- Employment and volunteer opportunities

Southern Nevada Agency Partnership Interagency Teams

Southern Nevada Agency Partnership (SNAP) Interagency teams are a significant resource to agency CE&I staff. SNAP teams can provide professional expertise on such stewardship issues as responsible recreation. Additionally, they can help agency educators identify the most pertinent and important messages and issues. This type of input will allow educators to prioritize programs and efforts, and to shape how the cooperative partnership positions itself with common messages and collaborative efforts. For example, SNAP teams will be more successful at effectively connecting with Off-Highway Vehicle recreationists by working together than by tackling the issue in separate and unfocused ways. There are many opportunities for integration and project cross-pollination in aspects of practically all SNAP focus-area projects.

Existing CE&I Staffing

Each SNAP agency has committed to some level of CE&I services. Since 2004, approximately \$8.5 million has been dedicated to education through SNPLMA Rounds 4 through 6. This particular Conservation Initiative has supported efforts that include Discover Mojave Outdoor World programs, Forever Earth, 12 additional Conservation E&I personnel, strategic planning, and project implementation. UNLV's Public Lands Institute administers many of these functions, which are facilitated and/or implemented by two program managers hired with this funding.

*“...the teacher’s task is not to implant facts
but...through sympathy, emotion, imagination, and
patience, to awaken in the learner the restless drive for
answers and insights, which enlarge the personal life
and give it meaning.”*

Nathan Marsh Pusey

Strategy Components

The Matrix and Interpretive Themes

CE&I experiences are structured thematically. The term “theme” describes the central idea of the experience. It explicitly states what it is the audience will *know* or *understand* as a result of the CE&I experience – be it a brochure, exhibit, or program. It is “the principal message about the subject that you want to get across to your audience” and it “always answers the question, ‘So what?’ with respect to the topic” (Ham, 1992, p. 35).

In 2002, the Chief Interpreter of Lake Mead National Recreation area, Kay Rohde, and the Executive Director of the Outside Las Vegas Foundation, Alan O'Neill, spearheaded an interpretive planning retreat to create four universal themes (Appendix I) and a matrix of desired future programming for southern Nevada place-based educators (Appendix 2). Many of the place-based educators that participated in this retreat continue to be involved in Partners for EAE. This matrix also includes four target audiences identified as critical to achieving the EAE vision (Recreational Visitors; Business; Curriculum-based; and Ethnic).

To clarify and communicate these broad key themes to this diverse group of educators, “Experience Goals” were also created. These describe the physical, intellectual, and emotional experiences that each theme should address for residents and visitors of southern Nevada.

The Matrix Themes and Audience Experience Goals are one tool by which to evaluate and prioritize programs. Comparing current CE&I efforts against the matrix allows the identification of gaps and overlaps in programs, as well as future program – and potential funding – needs. Examining programs in this way also ensures that program offerings meet agency mandates and missions.

Criteria should be established to decide what concepts are best interpreted at what sites. As well, a process should be created and implemented to ensure that programs use common messages, as prescribed by agency mandates and Conservation Initiative needs.

Gap Analysis

In spring and summer of 2005, a survey was delivered to federal agencies, museums, zoos, aquariums, state parks, and others to give insights about the educational programs being offered in the Las Vegas Valley – and to correlate these programs with the matrix components. In all, 31 education institutions were contacted and asked to analyze their programs using a program analysis sheet; 24 of these organizations participated.

The information from these surveys was entered into a database and analyzed by comparing all programs by venue, program type, audience, materials/resources given, program goals, delivery methods, and themes. Analysis of this database has provided insights into gaps and overlaps in programs being delivered in 2005 as well as areas of the matrix that have not been addressed. Appendix V includes the graphical results of this program analysis.

The program analysis yielded the following information:

- The lack of a common language emerged as an issue as different organizations interpreted questions in different ways.
- Many programs have multiple goals and use multiple themes.
- Programs identified by the matrix that are not currently being offered include: Welcome Wagon, placemats, television programs, training for tour industry staffs, targeted media to reach various ethnic groups, slides/shows at movie theaters, traveling exhibits to shopping malls, traveling trailer/bus/van for school visits, partnership programs with businesses to-do projects, workshops for county/city/state-elected officials, media “campouts,” and others.
- The most significant gaps are to two of the four priority audiences, “ethnic populations” and “business/agency staff.” There are no programs specifically geared toward ethnic audiences; only 5% reach businesses audiences.

Assessment of Program Delivery

Survey respondents also answered questions as to who is creating and delivering CE&I experiences for their organization.

- Volunteers created about 11% of Southern Nevada’s CE&I programs; federal staff created about 32%; and non-federal staff created about 57% of these programs.
- Volunteers delivered about 24% of all CE&I programs, while federal staff delivered about 28% and non-federal staff delivered about 49%.

There are advantages and disadvantages of having volunteers create a program – the obvious advantage is savings in salary and overhead. However, these savings only are realized if the CE&I program that is created effectively meets both the needs of the organization and the audience. Among other things, the accuracy and interpretive value of a program is affected by the way it is developed or created. As well, the quality and effectiveness of a program is influenced by the person delivering the program. Without a well-trained volunteer that has extensive support, continuous feedback, and positive oversight, these savings may or may not be realized. Table 6 on the next page represents an analysis of alternative workforce opportunities.

Assessment of program delivery should be based on agreed-upon standards of best practices. Therefore, before a program delivery assessment could take place, these standards for best practices had to be established (Appendix V). A team of CE&I professionals from across Nevada was assembled to create these standards. These standards also form the basis of the Nevada Certificate Program for Environmental Education and Interpretation.

	Advantages	Challenges
Federal Staff	Direct control over qualifications and training. Direct support and integration of agency goals and mission. Streamlined procedures for training and evaluation. Positive public perception of “park rangers.”	Federal hiring procedures. Agency must absorb time needed for personnel training, program development and evaluation.
Contract Organization	Ease of hiring procedures (and other human resource management matters). Can be economical. Contractor absorbs the time needed for personnel training, program development and evaluation.	Indirect or little influence over personnel qualifications and training. Indirect or lack of support for agency goals/mission. Procedures needed for effective communication and program assessment. Loss of agency representation/identification.
Volunteers	Economical. Creates good community relations. Expands educational outreach. The Las Vegas metropolitan area provides a large pool of potential volunteers.	Long-term volunteers needed to deliver consistent, quality programs. Volunteers must be sufficiently trained and have necessary knowledge and skills. Volunteer recruitment, training, scheduling, and evaluation require full-time position(s).

Table 5: comparing alternative work force opportunities

*“Unless someone like you, cares a whole awful lot,
nothing’s going to get better. It’s not.”*

Dr. Seuss, The Lorax

Strategic Priorities

The strategies and desired future conditions suggested below represent the core of the SNAP Conservation Education and Interpretation Strategy. These recommendations provide overarching direction for agency CE&I staff and the programs they are responsible for. They identify steps critical to the group's future effectiveness – a framework for providing meaning and public value to SNAP's CE&I efforts. This strategy is a living, dynamic document. Desired future conditions should be regularly reviewed, modified, and updated.

Mission

Through a cooperative effort and a world-class approach to interpretation and environmental education, we influence the way people interact with the environment.

Vision

Every resident and visitor will understand, appreciate, and take care of Southern Nevada's environment.

Five Year Goals

-
- GOAL 1. Foster environmental stewardship in Southern Nevada
 - GOAL 2. Develop and maintain a workforce with exemplary skills and knowledge of Conservation Education & Interpretive (CE&I) practices, as well as knowledge about natural, historical, and cultural resources
 - GOAL 3. Develop and implement assessment and evaluation of program effectiveness
 - GOAL 4. Ensure that CE&I efforts have mutual benefits for SNAP and individual federal agencies
 - GOAL 5. Maintain and participate in an area-wide cooperative CE&I effort
-

Expanded Five Year Goals

GOAL 1. Foster environmental stewardship in Southern Nevada.

CURRENT CONDITIONS: Unsure if meeting the needs of visitors or local audiences; lack of efforts specifically designed for ethnic and business audiences. No agreed-upon method for creating or prioritizing CE&I messages.

DESIRED FUTURE CONDITION: Agency CE&I educators successfully connect residents and visitors to Southern Nevada public lands through messages directed knowledgeably to specific audiences.

STRATEGIES:

1. Develop standardized procedures to systematically create and manage shared messages.
 - a. Conduct an in-depth audience analysis resulting in specific knowledge of audience characteristics and motivations to determine which messages and programs to deliver, and best delivery methods.
 - b. Design appropriate methods and options for creating and successfully marketing messages to these audiences.
 - c. Identify relationships between messages and other products and services.
 - d. Monitor effectiveness and communicate across organizations.
2. Launch media campaign to educate residents and visitors about the natural and cultural wonders of Southern Nevada.
 - a. Design, staff, and implement mobile exhibits featuring SNAP messages.
 - b. Obtain a trailer that will house rotating exhibits to be displayed at events, shopping centers, trail-heads, etc.
 - c. Design and produce exhibits (with Public Affairs Office, Recreation, Wilderness, Anti-Litter teams).
 - d. Train volunteers and other personnel to travel with exhibit.
 - e. Administer traveling exhibit (with Volunteer team).
3. Create Standard Operating Procedures/Recommendations for connecting with different ethnic groups in culturally inclusive ways.
 - a. Conduct workshops, trainings, and meetings to result in an Environmental Cultural Connectedness action plan.

- b. Create dialogue through appropriate community involvement in program planning, including focus groups with community centers, churches, youth organizations, Hispanic businesses, Clark County School District, libraries, and other venues.
- c. Define and create project(s).
- d. Hire and train Hispanic/Latino/Spanish-speaking interns for project implementation.
- e. Assess effectiveness of programs to program participants/contacts.

RECOMMENDATIONS FOR ROLE OF NEW AGENCY CE&I STAFF

- Administer and staff mobile exhibit
- Participate in defining, creating, and administering culturally inclusive CE&I projects and services.

GOAL 2. Develop and maintain a workforce with exemplary skills and knowledge of CE&I practices, as well as knowledge about natural, historical, and cultural resources.

CURRENT CONDITIONS: Initial agency-specific training is offered to most CE&I providers. There is room for improvement of learner-centered EAE above and beyond this initial training. There also is a perceived need to more clearly identify roles and responsibilities and better manage CE&I efforts offered by all providers (including volunteers and interpretive associations).

DESIRED FUTURE CONDITION: Managers, agency CE&I educators, and other providers adhere to agreed upon standards in CE&I program delivery, with clearly assigned roles and responsibilities for all stages of CE&I planning and delivery, and are held accountable to these roles and responsibilities. CE&I providers agree upon and utilize best practices, ensuring CE&I efforts successfully influence visitor behavior.

STRATEGIES

1. Outsource services only when the agency will receive a clear and defined benefit in expertise, quality, and efficiency. Managers recognize the value of a well-trained and dedicated in-house staff to create, deliver, and/or provide oversight for CE&I services. Agencies should retain control of defining CE&I program objectives, developing CE&I programs, and evaluating the success of each program. Roles and responsibilities for all stages of CE&I should be clearly defined and captured in Performance Review plans.
2. Agency CE&I educators should participate in and support the development of the Nevada Environmental Education and Interpretation Certificate (NEEIC) program. The restricted market of viable providers of CE&I limits choice.

3. Review, provide feedback for, and agree to abide by Standards of Best Practices for Nevada CE&I Professionals.
4. Develop a standards manual for customer service and educational quality for tour operators on public lands. Standards might include: environmental responsibility; effective programming; accurate information.
5. Become mentors for NEEIC program enrollees.
6. Provide internship experiences for NEEIC program enrollees.
7. Support and utilize courses offered through the NEEIC program.
8. Help develop, coordinate, support, and/or participate in workshops and trainings offered for Southern Nevada CE&I providers, including the semi-annual Our Places Tell Stories conference.

RECOMMENDATIONS FOR ROLE OF NEW AGENCY CE&I STAFF

- Become mentors for NEEIC program enrollees.
- Continually review and assess existing interpretive plans and programs, and assist in the creation of others with an eye to incorporating universal themes, understanding relationships, and opportunities for common messages.
- Acquire funding for Our Places Tell Stories conference, other trainings.

GOAL 3. Develop and implement assessment and evaluation methods and tools to measure program effectiveness.

CURRENT CONDITIONS: No established standard of quality or evaluation methods to show whether CE&I efforts are meeting goals and are effective.

DESIRED FUTURE CONDITION: CE&I educators define, measure, and share success of CE&I efforts, providing legitimacy and increasing support and sustainability to these efforts.

STRATEGIES:

1. Assess the effectiveness of a variety of CE&I programs and services.
 - a. Determine appropriate outcome measurements and data collection protocols.
 - b. Collect and analyze data.
 - c. Communicate the results and effects to managers, the SNAP Board, and other stakeholders.
 - d. Ensure that all future submissions for CE&I efforts include assessment strategies.

- e. Regularly share program successes among SNAP teams, the SNAP Board, Partners for EAE, and other stakeholders.

RECOMMENDATIONS FOR ROLE OF NEW AGENCY CE&I STAFF:

- Use professional resources, such as available at UNLV, to define and document specific, measurable outcomes.
- Continually assess programs to ensure that products and services are high quality, reflect priorities and key messages, and meet the needs and expectations of targeted audiences.
- Communicate results and successes using a variety of media, including video, presentations, and interviews with participants.

GOAL 4. CE&I efforts have mutual benefits for SNAP and individual federal agencies.

CURRENT CONDITIONS: SNAP teams have unfocused approach to CE&I projects; appropriate channels and procedures not established.

DESIRED FUTURE CONDITION: SNAP Conservation Initiative teams are engaged in a tactical approach to develop and implement CE&I products of strategic importance to SNAP: litter prevention, responsible OHV recreation, wilderness, and restoration.

STRATEGIES:

1. Assist CE&I Project Manager to conduct a needs assessment with SNAP teams and create implementation plan for CE&I efforts (see Figure 3, next page).
 - a. CE&I educators meet with individual SNAP teams to identify and understand the team's educational issues, desired messages, and desired audiences.
 - b. CE&I educators help determine the appropriate messages to reach each audience.
 - c. CE&I educators propose a solution, and the SNAP team determines best way to implement the solution, securing needed resources such as funding, etc.
2. Give presentations on CE&I projects and successes; provide training on effective techniques for connecting with diverse audiences (e.g., Our Places Tell Stories conference).

RECOMMENDATIONS FOR ROLE OF NEW AGENCY CE&I STAFF

- Meet regularly with SNAP teams to establish and maintain channels of communication.
- Assist with the creation, development, and implementation of SNAP products.

Figure 3

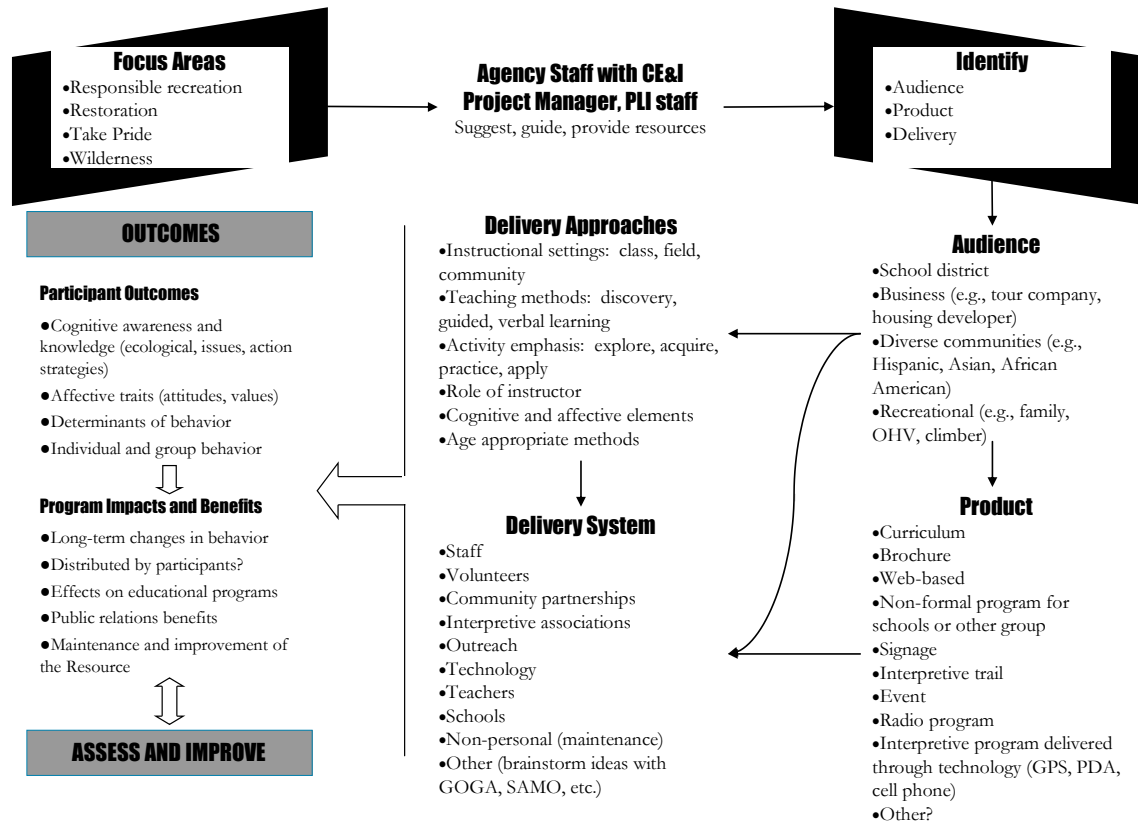


Fig. 3 Organizing graphic depicting the SNAP CE&I product development and delivery process.

GOAL 5. Agency CE&I educators influence and support the Partners for EAE to achieve common and effective messages.

CURRENT CONDITIONS: Partners for EAE meetings have resulted in creation of an action plan; several projects have been successfully implemented (Website, listserv, Best Practices Reviews, Diversity Initiatives).

DESIRED FUTURE CONDITION: area-wide CE&I programs and messages are collaborative, focused, and effective; the relationships among CE&I efforts are understood, ensuring that messages are neither conflicting nor unnecessarily duplicated; and organizations capitalize on opportunities to reinforce and build on common messages.

STRATEGIES:

1. Actively participate in, maintain, and build relationships via Partners for EAE meetings.

- a. Facilitate meetings to ensure implementation of Partners for EAE action plan (Appendix IV).
 - b. Administer education listserv (EAE Interchange postings found on www.enviroedexchange.org).
2. Understand programs that are being offered and identify opportunities for common messages.
 - a. Share and update gap analysis.
 - b. Periodically update Teacher Field Trip Resource Guide database (www.enviroedexchange.org).
3. Share resources that will ultimately help achieve common and effective messages.
 - a. Administer and update www.enviroedexchange.org and Teacher Field Trip Resource Guide.
 - b. Administer education listserv (EAE Interchange postings found on www.enviroedexchange.org).
4. Identify and adopt best practices and share training.
 - a. Use and help produce Best Practices Review sheets.
 - b. Coordinate and support trainings and workshops, especially as it pertains to effective techniques for English Language Learners.
 - c. Produce Our Places Tell Stories conference.
5. Leverage relationships to identify and take advantage of alternate funding sources.
 - a. Participate in Environmental Education Training and Partnership (EETAP) grant (Principal Investigator is Nevada Natural Resource Education Council) to shape structure for a program to build capacity for Environmental Literacy in Nevada.
 - b. Seek other fundraising opportunities.

RECOMMENDATIONS FOR / ROLE OF SNAP CE&I TEAM

- Influence meeting agendas for Partners for EAE and associated subcommittees, and ensure meetings are held and formally facilitated on a regular basis.
- Acquire funding for Our Places Tell Stories conference, workshops, and other trainings.
- Take leadership role and ensure communication is pertinent, abundant, and timely.

Implementation Plan

In October 2006, the SNAP Board set a new priority for inter-agency CE&I efforts. The Board prioritized products; it de-prioritized planning. SNAP CE&I is to occur in four focus areas:

- Don't Trash Nevada
- Appropriate Off-Highway Vehicle (OHV) Use
- Restoration
- Wilderness

UNLV Public Land Institute CE&I Program will create the appropriate products with assistance provided by appropriate agency staff. The specific, three-year CE&I Strategy project objectives are as follows:

1. Assist SNAP teams in the implementation of at least three educational projects addressing the highest priority focus areas identified by the SNAP Board of Directors.
2. Produce assessment reports for at least two CE&I products or services.
3. Document number of people reached by CE&I programs and services of the four federal agencies and cooperating partners.
4. Work with at least one private sector group to implement at least two educational projects.
5. Work with the Hispanic community to implement at least two educational projects.
6. Maintain and participate in area-wide cooperative CE&I effort.

Task 1. Assist CI teams in the implementation of at least three educational projects.

- a. One project each year will be identified to focus on litter prevention, responsible OHV recreation, wilderness, and/or restoration. Agency personnel, including SNAP teams, will assist in the identification of these educational projects, providing necessary information and guidance. Project identification will be completed by August 31 of each year.
- b. Focus areas and delivery mechanisms will be determined by working with appropriate agency staff. Possible delivery systems include brochures, kiosks, multi-media products, billboards, electronic devices such as MP3 players etc.
- c. Key user groups and best educational methodologies will be identified for each project, drawing upon the expertise of university faculty and staff.
- d. Create, produce and/or implement identified CE&I products and services for the focus project. Examples of possible projects include brochures, interpretive signs, Web site content, multi-media products, curricula, and/or programs delivered by CE&I staff. Each project will be completed by May 31 of each year.

Task 2. Produce assessment proposals for at least two CE&I products or services.

- a. Data collection protocols will be identified for assessment of CE&I projects in priority focus areas: litter prevention, responsible OHV recreation, wilderness, and/or restoration.
- b. Assessment proposals will be written to human-subject standards specified by UNLV's Internal Review Board. These proposals will be completed by February 28 of each year.
- c. Data will be collected and analyzed, and a written report produced.

Task 3. Document number of people reached by CE&I programs and services of the four federal agencies and cooperating partners.

- a. The number of educational contacts made and number of programs offered by each of the four federal agencies will be documented for a complete fiscal year.
- b. Data will be collected and summarized, with a written report completed by May 31, 2008.

Task 4. Work with at least one private sector group to implement at least two educational projects.

- a. Two or more projects will be identified for delivering SNAP priority focus area messages to at least one private sector group. Examples of private sector groups interfacing with public lands include tour companies, concierge associations, and housing developers. Examples of projects that incorporate SNAP messages could be the development of a training program for a tour company or an interpretive plan for a trail system through a housing development. At least one project will be identified by August 31, 2008, and an additional project will be identified by August 31, 2009.
- b. CE&I products and services for the focus project will be created and implemented by May 31 of each year (2008 and 2009, respectively).

Task 5. Work with the Hispanic community to implement at least two educational projects.

- a. At least one project will be identified to deliver SNAP priority focus area messages to the Hispanic community by convening one or more stakeholder meetings, identifying potential projects by January 31, 2009.
- b. CE&I products and services for the focus project will be created and implemented by May 31, 2009.
- c. An additional CE&I program or service will be identified, created and implemented for the Hispanic community in 2010. Success will be evaluated and documented in a written report by May 31, 2010.

Task 6. Maintain and participate in area-wide cooperative CE&I effort.

- a. Educators' listserv will be administered on a monthly basis.
- b. Bi-monthly meetings will be facilitated for Partners for EAE, a collaborative group of informal educators from more than 20 informal education organizations in the Las Vegas area, including representatives from each of the four federal agencies.
- c. Appropriate agency staff will attend Partners for EAE meetings and work to collaboratively identify regional education focus and efforts.
- d. Annual work plan for Partners for EAE will be created and implemented.

*"In our every deliberation we must consider the
impact of our decisions on the next seven generations"*

Six Nations Iroquois Confederacy

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Appendices

Appendix I: Four Universal Themes

Theme: Natural History of the Mojave and Resolutions

Increasing human activity on highly sensitive and easily damaged lands has profoundly altered the natural environment of Southern Nevada, affecting native biota including threatened and endangered species and requiring active management of native and non-native species.

The interaction of climate, soils, and geology create a variety of habitats in the public lands surrounding the Las Vegas valley. These habitats provide homes to a rich diversity of plants and animals, which display an amazing array of adaptations for survival in sometimes-harsh conditions.

However, the Las Vegas metropolitan area has been the fastest growing urban area in the country for the past decade, with a resident population now exceeding 1.7 million and a tourist population of over 39 million per year. This rapid population growth has had an impact on the 7 million acres of public lands surrounding Las Vegas. Some of these impacts are obvious, such as encroaching development leading to loss of habitat and increased pollution. Other impacts include the introduction of invasive non-native species, such as tamarisk. Plants and animals subjected to these human impacts can suffer population loss, to the point of becoming threatened or endangered. While restoring native populations requires resource management practices, educational programs are critical to impart behavioral changes necessary to reduce or eliminate human impact.

The intriguing stories of Southern Nevada's natural world is part of this "place" and they are part of the inherent value of the public land we share. By connecting people to the natural world and increasing awareness and understanding of human impact to sensitive systems, we provide a reason for people to "tread lightly" on the land.

This theme appears to include two sub-themes:

1. Human activity profoundly alters the ecosystems of southern Nevada. We and our partners care about the protection and preservation of these sensitive lands.
2. We share the intriguing stories of Southern Nevada's diverse, interconnected natural world.

Experience Goals:

To make meaning from sub-theme #1, audiences (all) should:

Know

- Impacts to native species, including habitat destruction; invasive species; pollution; and population growth
- Threatened and endangered species
- Characteristics of southern Nevada ecosystems; what makes them sensitive to impacts; how these characteristics affect recovery and mitigation efforts
- Effective restoration practices
- Natural processes occur in our own back yard

Feel

- A personal connection to the resources
- A sense of responsibility and respect
- A sense of ownership and stewardship to public lands
- A sense of wonder
- Less afraid; rather, feel comfortable and a sense of security
- Excitement, enjoyment, and a sense of adventure
- A sense of mystery and discovery

Do

- Adopt “Leave No Trace” and “Tread Lightly” practices, especially related to litter and use of trails/approved roads
- Adopt practices to limit spread of invasive species
- Participate in stewardship activities – planting vegetation; restoring trails; clean-ups
- Be motivated to use observation skills, all 5 senses to discover the natural world
- Participate in recreation activities
- Share their experience with someone else
- Practice ethical nature viewing

Experience Goals: To make meaning from sub-theme #2, audiences (all) should:

Know

- Mojave Desert ecology
- plant and animal adaptations
- Life cycles, biology, physiology, ethology
- Identification of plants and animals
- Predator-prey interactions; plant-animal interactions; food web
- Biodiversity
- Soil ecology
- Geology, climate

Feel

- A personal connection to the resources
- A sense of responsibility and respect
- A sense of ownership and stewardship to public lands
- A sense of wonder
- Excitement, enjoyment, and a sense of adventure
- Instill a sense of mystery and discovery

Do

- Adopt “Leave No Trace” and “Tread Lightly” practices, especially related to litter and use of trails/approved roads
- Be motivated to use observation skills, all 5 senses to discover the natural world
- Participate in recreation activities
- Share their experience with someone else
- Practice ethical nature viewing
- Stewardship activities, including restoring trails, clean-ups, and native plant restoration

Theme: Water and its Management

Maintaining growth and quality of life, and protecting watershed, water quality, and adequate water supplies for all life in both developed and natural communities challenges people to resolve the issue of long-term sustainability.

Life in Southern Nevada relies on water, which is limited in supply. Protecting water resources and the watersheds that feed them is necessary to sustain ecosystems and population growth. Water is a hugely significant issue to Southern Nevada – compelling enough to require its own theme. Water supply, quality, and distribution are the limiting factors to living here – for humans as well as for the biodiversity supported by natural springs. It is also a political issue. Water enabled the growth of Las Vegas, but it may also limit future growth – especially if the citizenry doesn't start limiting its use through such water conservation measures as xeriscaping and other stewardship practices.

Experience Goals:

To make meaning from this theme, audiences (all) should:

Know

- Environmental and political perspectives of water issues
- Biodiversity of Southern Nevada is supported by natural springs
- The quality and distribution of water; urban run-off; hydrology
- Stewardship actions, including xeriscaping
- Water enabled the growth of Las Vegas and will ultimately limit this growth
- Consequences of actions

Feel

- A sense of responsibility and respect to water resources in Southern Nevada
- A sense of ownership and stewardship to public lands
- A balanced viewpoint toward the costs and benefits of population growth in Southern Nevada

Do

- Adopt practices to limit spread of invasive species along the Colorado River watershed
- Participate in stewardship activities, including clean-ups, sustainable watering practices, and xeriscaping
- Participate in safe water recreation activities
- Share their experience with someone else
- Practice ethical nature viewing

Theme: The Cultural and Social History Continuum

The study of intact cultural and sacred sites tell the stories of how humans have sustained their cultures in arid environments over the last 12,000 years, and provide lessons in adaptation to this environment for people today.

The interaction of climate, soils, and geology creates a variety of conditions that have fundamentally influenced the entire cultural history of Southern Nevada, from pre-history to today. This has affected cultural beliefs about the earth held by native peoples. As well, could the glitz that identified with this city actually be a reaction to the perception that this sparse, arid landscape is unwelcoming and harsh?

In any case, Las Vegas exists in its present form because of these natural resources. Even so, the large population growth of the past decade has only been possible with technological fixes such as the advent of air conditioning, the construction of dams, and the importation of resources. Thus, the study of modern social needs gives a lesson of adaptation and contrast to this environment and the adaptations seen in the plants and animals that live here.

Experience Goals:

To make meaning from this theme, audiences (all) should:

Know

- The rich cultural history of Southern Nevada, including native peoples
- How people have used and manipulated their environment to survive in southern Nevada
- Mining history
- Ranching and grazing history
- Armed services
- Diversity of cultural and social attitudes and feelings about the southern Nevada environment that are often in conflict – and have changed over time
- Mormon settlement
- River exploration and the history of the Colorado River
- Introduced species as a result of settlement
- Consequences of actions

Feel

- A sense of respect for other people's cultural and social points of view
- A sense of ownership and responsibility for the past
- A sense of wonder
- An appreciation of the area's human history

Do

- Practice Leave No Trace and Tread Lightly! as it pertains to cultural resources; practice respect
- Speak up for their own points of view on cultural and social issues
- Learn more
- Teacher: integrate local examples of cultural history into curriculum

Theme: Making Connections with our Settings; Sense of Place

Our visionary protection and transformation of the rich treasures of Southern Nevada has created opportunities for meaningful experiences, revitalization, and an enhanced quality of life for visitor or resident, and contributes to a stronger economy.

While the other three themes primarily deal with cognitive or content-related subjects, this theme is concerned with the affective, or emotional, domain. Open spaces provide visitors and residents with nature-based experiences that contribute positively to their quality of life. The natural world has value, and part of that value is aesthetic. Public lands offer experiences; direct experience with nature is not the same as reading about it in a book or seeing it on television/Internet. Southern Nevada public lands are beautiful, interesting, and unique resources.

This theme is about meaning making. Meaningful experiences at local natural areas can be a stepping-stone to appreciating the value of public lands. This theme helps visitors and residents to understand, appreciate, and experience the natural and cultural environment of Southern Nevada in ways that increase their stewardship of it. While land management agencies clearly recognize the biological, economic, spiritual, historical, geological, or aesthetic value of the public lands, CE&I efforts can give the public the information it needs to make a personal decision about why the land is valuable.

Experience Goals:

To make meaning from this theme, audiences (all) should:

Know

- The balance between economic development and protection of open spaces
- The economic impact of recreation
- Healthy environments provide ecological “services” that can be measured economically

Feel

- A personal connection to the resources
- A sense of responsibility and respect
- A sense of ownership and stewardship to public lands
- A sense of wonder
- Less afraid and more comfortable; a sense of security
- Excitement, enjoyment; a sense of adventure
- A sense of mystery and discovery

Do

- Adopt “Leave No Trace” and “Tread Lightly!” practices, especially related to litter and use of trails/approved roads
- Adopt practices to limit spread of invasive species
- Participate in stewardship activities, including planting native vegetation, restoring trails, and clean-ups
- Be motivated to use observation skills, all 5 senses to discover the natural world
- Participate in recreation activities
- Share their experience with someone else
- Practice ethical nature viewing

Appendix II: Matrix of Desired Future Programs and Experiences

Matrix of Desired Future Programs and Experiences

Theme: Making connections with our settings; sense of place



Our visionary protection and transformation of the rich treasures of Southern Nevada has created opportunities for meaningful experiences, revitalization and an enhanced quality of life for visitor or resident and contributes to a stronger economy

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business / Agency Staff	4. Ethnic Populations
Develop a Welcome Wagon Program that emphasizes the environment, includes developers and realtors/give new homeowners a pass to Red Rock, etc. (6)	Curriculum-based classroom presentations (8)	Provide training for tour industry staff (10)	Target specific media to reach various ethnic groups (8)
Stewardship activities Saturdays litter cleanups, etc. (6)	Field trips to sites (8)	Site steward programs/adopt sites (9)	Develop family-based activists (7)
Sales items at site with message and at local valley outlets (6)	Develop Project Mojave (7)	Corporate day at sites (9)	Program at churches (7)
TV program - ie. Jr. Outdoor Nevada (4)	Teacher workshops (7)	Training for staffs (8)	Point of sales and displays at ethnic markets (6)
Celebrity Spokesperson to speak for special places (4)	Providing bussing for field trips/provide subs (7)	Certification for concessions who use lands (certain information) (7)	Family focused programs at community centers, Y's, schools (6)
Web page (4)	Traveling trailer/bus/van for school visits (7)	Workshops for county, city, state elected officials (7)	Spanish version of webpage (6)

Matrix of Desired Future Programs and Experiences

Theme: Making connections
with our settings; sense of place
(continued)



Our visionary protection and transformation of the rich treasures of Southern Nevada has created opportunities for meaningful experiences, revitalization and an enhanced quality of life for visitor or resident and contributes to a stronger economy

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business / Agency Staff	4. Ethnic Populations
Maps for recreation users with resource information (3)	Present programs that connect ecosystem concepts (6)	Activity for staff/employees of selected business/corp/elected (7)	Clark County Parks "festivals" Native American, Heritage, etc. (6)
Coloring place mats at restaurants (3)	Tighten up existing programs to correlate w / state standards (6)	Partnership programs with business to do projects, learn by doing (7)	Newspaper ads and articles (6)
Slides/show at movie theaters (3)	Web pages (6)	Handouts that could be included in employee pay check envelopes (6)	Traveling trailer/bus/van for school visits (7)
Traveling exhibits to shopping malls (3)	Hands on exhibits (6)	Media "campouts" (6)	Outreach to cultural community events-food festivals, etc. (6)
Training for concierges (3)	Participate in writing state standards (6)	Programs/information on ethics of using recreation equipment (6)	Promote site visits/programs to cultural groups (4)
Create sales items for multiple agency distribution (3)	Mojave Max (6)	Presentations to Chambers of Commerce, leadership Las Vegas, etc. (6)	Participate in cultural events (4)
Brochures and handouts (3)	Newspaper insert highlighting regional resources (like Living Desert) (6)	Develop certification program for business who are educated and committed/endorsed by OLVF (6)	Library programs (3)

Matrix of Desired Future Programs and Experiences

Theme: Making connections
with our settings; sense of place
(continued)



Our visionary protection and transformation of the rich treasures of Southern Nevada has created opportunities for meaningful experiences, revitalization and an enhanced quality of life for visitor or resident and contributes to a stronger economy

EDUCATION AUDIENCES

Advertising (3)	Develop relationships with high/middle schools, develop lists of experts to work with (4)	Develop or coordinate with corporate volunteer programs (5)	Take home material for students (3)
TV programs for adults (3)	Children's book of local stories (4)	Information to homeowners association for new owners (5)	Feed cultural message/information and programs to NV Dept. or Tour
Programs at churches (3)	Teacher Field School (4)		After school program for parents, tool for teaching English (3)
			Develop "jingles" easily learned (3)
			Stewardship activities, stewardship Saturdays, etc. (3)
			Series of children's books to take home (environmental topics) learn English (3)

Numbers in parenthesis indicate degree of support of group members during 2002 planning session

Matrix of Desired Future Programs and Experiences

Theme: Natural History of the Mojave and Resolutions



Increasing human activity on high sensitive and easily damaged lands has profoundly altered the natural environment of Southern Nevada, affecting native biota including threatened and endangered species and requiring active management of native and non-native species

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
Guided hikes (9)	Field trips to sites (13)	Partnership programs with business to do projects, learn by doing (13)	Target specific media to reach various ethnic groups (12)
Visitor Center exhibits (9)	Residential field school (13)	Provide training for "tour industry" staffs (12)	Family focused programs at community centers, Y's, schools (10)
Stewardship activities, Stewardship Saturdays (9)	Teacher workshops (12)	Site stewards programs/adopt a site (11)	Presentation to Chambers of Commerce, other Lat in community groups (10)
Workshops, Bird ID, plants, etc. (8)	Curriculum based classroom presentations (11)	Develop, or coordinate with corporate volunteer programs (9)	Exhibits at libraries and community centers (10)
Maps for recreation users with resource information (9)	Project based learning -student driven (12)	Corporate business licenses, inserts for mailing (11)	Develop family based activities (9)
Biology programs (6)	Curriculum-based support materials for Natural/management (Lesson plans)	Activities of congressional delegations/ staffs (8)	After school programs for parents, tool for teaching English (8)
Programs that connect ecosystem concepts (6)	Cleaninghouse for information to teachers (11)	Develop certificate program for business educated/endorsed by OLVF (7)	Outreach to cultural community events, food festivals, etc. (8)
Wayside exhibits (5)	Develop a "Project Mojave" (like Project Wild) (10)	Partnerships between sites, schools, businesses (Tule Springs) (7)	Use consultants for various communities to develop outreach (8)

Matrix of Desired Future Programs and Experiences

Theme: Natural History of the Mojave and Resolutions
(continued)



Increasing human activity on high sensitive and easily damaged lands has profoundly altered the natural environment of Southern Nevada, affecting native biota including threatened and endangered species and requiring active management of native and non-native species

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
Web page (4)	Kids create exhibits, radio shows through partnerships (10)	Guest speakers at <i>Brown Bag</i> lunches at agency, businesses (6)	Promote site visits/programs to cultural groups (6)
Campfire or other formal programs on site (5)	high/middle/elementary, lists of "experts" (10)	Stewardship activities, i.e., litter cleanups, graffiti removal (6)	Programs at churches (6)
WOW (5)	Traveling exhibit for schools (9)	Workshops for County, city and elected officials (6)	Clark County Parks, "festivals" like Native American Heritage (6)
Guidebook with information about resources (5)	Partnership between sites and schools (Tule springs/magnet) (8)	Brochure on ethics/behavior at sites (5)	Participate in literacy programs, provide materials (5)
Nevada Naturalist program (5)	After school program for parents, tool to teach English (8)	Training for staff (5)	Stewardship activities for groups/litter cleanups, etc. (5)
Develop "standard" training for volunteers (5)	Develop student intern programs (8)	Media "campouts" (5)	Advertising (4)
Geology programs (4)	Guided hikes to natural sites (6)	Develop messages for those seeking office, educate on issues (4)	Series of children's books to take home (environ. Topics) learn English (4)
Traveling exhibits to shopping malls (4)	Web page (6)	Activities for corporate clubs/groups, (i.e. SW GAS hiking club) (4)	Field trips to sites (4)
Activities for corporate clubs/groups (i.e., SW Gas hiking) (4)	Traveling trunks or packs to check out to scout groups, etc. (6)	Newspaper ads, articles (4)	Site steward programs, adopt a site (3)

Matrix of Desired Future Programs and Experiences

Theme: Natural History of the Mojave and Resolutions (continued)



Increasing human activity on high sensitive and easily damaged lands has profoundly altered the natural environment of Southern Nevada, affecting native biota including threatened and endangered species and requiring active management of native and non-native species

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
Jr. Ranger program /expanded to regional Jr. Naturalist program (4)	Material/programs for teachers in training at college level (6)	Newspaper ads, articles (4)	WOW - part of program (3)
Museum exhibits (4)	Set up liaisons in CCSD to advise as programs are developed (6)	Traveling trailer/bus/van/ for school visits (3)	
	Participate/present in staff development days (6)	Newspaper ads, articles (3)	
	Provide bussing for field trips and provide substitutes (6)		
	Stewardship activities, i.e. litter clean ups, remove graffiti (6)		
	Mojave Max (6)		

Numbers in parenthesis indicate degree of support of group members during 2002 planning session

Matrix of Desired Future Programs and Experiences

Theme: The cultural and social history continuum



The study of intact cultural and sacred sites tell the stories of how humans have sustained their cultures in arid environments over the last 12,000 years and provide lessons in adaptation to this environments for people today.

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
Guided hikes to cultural sites (9)	Teacher workshops (12)	Activity for staff/employees of select business/elected officials (10)	Target specific media to reach various ethnic groups (9)
Brochures and handouts (9)	Web page (10)	Develop or coordinate with corporate volunteer programs (10)	Develop info for distribution at apartment complexes (9)
Web pages (9)	Field trips to sites (10)	Provide training for tour industry staffs (9)	Recruit and train mentors (8)
Information to homeowners associations for new owners (8)	Provide bussing for field trips/provide substitutes (10)	Suggested stipulations for "cultural messages" for permittees (8)	Develop family-based activities (8)
Roving interpreters at sites (8)	Develop cultural PDE (9)	Guided hikes to cultural sites (8)	groups in local history (8)
Clark County Parks, "festivals", Native American Heritage (7)	Teacher Field School (9)	Certification for concessionaires who use public lands (that they are trained and use for certain information) (7)	Guided hikes to cultural sites (6)
Interpretive exhibit at Moapa Smoke Shop (6)	Traveling trunks or packs to check out (7)	Handouts for inclusion in employees' paychecks (7)	After school program for parents, tool for teaching English
Site steward program Adopt a site (6)	Participate in writing state standards (7)	Web page (6)	Programs at churches (6)

Matrix of Desired Future Programs and Experiences

Theme: The cultural and social history continuum (continued)



The study of intact cultural and sacred sites tell the stories of how humans have sustained their cultures in arid environments over the last 12,000 years and provide lessons in adaptation to this environments for people today.

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
Photography exhibits at libraries, airports, centers (6)	Take archaeological dig (6)	Feed cultural messages and program information to NV Dept. of Tourism	Develop easily learned "jingles" (4)
Seminars with local experts on history (6)	Residential Field School (6)	Workshops for county, city, state elected officials (4)	Participate in cultural events (3)
Scouts/ badge work on cultural/ archeology (6)	Regional Chautauqua promoted in educational system (6)	Guest speakers at <i>Brown Bag</i> lunches at agencies /businesses (4)	Partner with Native American groups to help pass on their culture (3)
Workshops in quilting, crafts, etc. at parks/rec. and museums (6)	Set up liaisons in CCSD to advise as programs are developed (6)	Guide book for local histories (3)	Outreach to cultural community events - food festivals, etc. (3)
Jr. Ranger program - expand (6)	Host staff development day (6)	Newspaper ads, articles (3)	
Create sales items for multiple agency distribution (6)	Develop friends group for support of teachers who like to teach cultural topics		
Museum exhibit (4)	Senior citizen experts to teach crafts that support state standards (6)		

Matrix of Desired Future Programs and Experiences

Theme: The cultural and social history continuum (continued)



The study of intact cultural and sacred sites tell the stories of how humans have sustained their cultures in arid environments over the last 12,000 years and provide lessons in adaptation to this environments for people today.

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
TV programs - i.e. Jr. Outdoor Nevada (4)	Project Archeology workshop (4)		
Programs in Summerlin Education program (4)			
Festivals for Archeology month (4)			
Feed cultural message/info. programs to NV Department of Tourism (4)			
Train volunteers and encourage formation for friends groups/give programs (4)			
Regional film, video on cultural story (4)			

Numbers in parenthesis indicate degree of support of group members during 2002 planning session

Matrix of Desired Future Programs and Experiences

Theme: Water and its management



Maintaining growth and quality of life, and protecting watershed, water quality and adequate water supplies for all life developed and natural communities challenges people to resolve the issue of long-term sustainability

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
Take along s like CDs and tapes (11)	Field trips to sites (12)	Activity for staff/of selected business/corporate/elected officials (like) (9)	Participate in cultural events (8)
Brochures and handouts (10)	Water research opportunities on Forever Earth (12)	Guest speakers at <i>Brown Bag</i> lunches at agency/business (9)	Programs at churches (6)
Visitor Center Exhibits (9)	Internship for high school students (11)	Partnership programs with business to do projects, learn by doing (9)	Create FSAs and programming for radio (6)
Visiting consultants to homeowners (9)	Revise local curriculum standards/assessment to include issues like water (11)	Work with casinos to develop message and programs (8)	Point of sales and displays at ethnic markets (6)
Neighborhood-based exercise/gardening (9)	Advocate for certificate requirements that teachers know Southern NV issues like water (11)	Develop certification program for businesses who are educated and committed/endorsed by OLVF (8)	Create special music/songs (4)
Slide shows at movie theaters (9)	Curriculum-based classroom presentation (10)	Training for staffs (8)	Develop special exhibits on role of ethnic groups in local history (4)
Inform when getting fishing license (8)	Teacher Field School (10)	Brochures and handouts (7)	Develop information for distribution in apartment complexes (4)
Certify businesses for water conservation (7)	Teacher workshops (9)	State elected officials (7)	Develop "in your yard" activity guide (4)

Matrix of Desired Future Programs and Experiences

Theme: Water and its management
(continued)



Maintaining growth and quality of life, and protecting watershed, water quality and adequate water supplies for all life developed and natural communities challenges people to resolve the issue of long-term sustainability

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
Coloring place mats at restaurants (7)	Develop cultural science Olympics/fair (9)	Certify businesses for water conservation (7)	Use consultant from various community centers (3)
TV programs for adults (6)	Extended programs like H2O University (9)	Stewardship activities, i.e. litter clean ups, etc (6)	Clark County Parks "festivals", Native American, Heritage (3)
Billboard messages (6)	Traveling trunks or packs to check out and scout groups, etc (8)	Web page (4)	Lectures in community centers or parks (3)
Stewardship activities, litter clean ups (6)	Visitor Center Exhibits (7)	TV programs for adults (4)	Present cultural festivals, include target culture and role in history (3)
Maps for recreation users with resource information	Discovery Box or pack for use at site (7)	Newspaper ads, articles (4)	Present cultural festivals, include target culture and role in history (3)
TV programs - i.e. Jr. Outdoor Nevada (6)	Partnerships between site and school (Tule Springs/magnets high schools) (7)	Certification for concessionaires who use lands (certification) (4)	Visiting consultants to homeowners (3)
WOW - part of program on water (6)	Materials/programs for teacher in training at college level (7)	Corporate business license inserts for mailings (4)	Celebrity spokesperson for water (3)
Traveling trailer for use at special events (mobile VC) (6)	Participate in Staff Development Day (7)		Presentations to Chamber or Commerce, Leadership LV and citizen advisory committees (2)
Family focused programs at community centers, Y's, schools (6)	Clearinghouse for information to teachers (6)	Flowing "water interpreter" (3)	Neighborhood-based xeriscape/gardening (2)

Matrix of Desired Future Programs and Experiences

Theme: Water and its management
(continued)



Maintaining growth and quality of life, and protecting watershed, water quality and adequate water supplies for all life developed and natural communities challenges people to resolve the issue of long-term sustainability

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
Baseball - signs on outfield wall Marquees (5)	Site specific teacher workshops (5)	Community watch system (3)	Promote site visits / programs to cultural groups (2)
Museums exhibit (4)	Residential Field School (5)	Extended programs like H@ university (3)	Target specific media to reach various ethnic groups (2)
Site steward programs / adopt a site (4)	Site steward programs / adopt a site (5)	Community watch system (3)	Promote site visits / programs to cultural groups (2)
Information at RV shows (booths) (4)	Residential Field School (5)	Information at RV shows (booth) (2)	Outreach to cultural community events - food festivals, etc. (2)
Articles in magazines (Cerca) (4)	Take home materials for students (5)	Kid's page in RJ, that kids write (2)	Stewardship activities, litter clean ups, (2)
Web page (4)	Outreach to charter/home schools (5)	Create a distribution system for resources (2)	Handout that could be included in employee pay check envelopes (2)
Exhibits at libraries and community centers (4)	Provide bussing for field trips / provide subs (5)	Provide training for "experts" in working with kids (2)	Wayside exhibits (2)
Elder Hostel (4)	Develop certification program for businesses who are educated / committed and endorsed by OLVF	Provide training for tour industry staffs (2)	Articles in magazines i.e. Cerca (2)
Brochure on ethics, behavior at the site (4)	Mojave Max (4)	Activities for corporate clubs / groups, i.e. SE Gas hiking groups (2)	
Newspaper ads, articles (4)	Project-based learning (student driven) (4)	"Media campouts" (2)	

Matrix of Desired Future Programs and Experiences

Theme: Water and
its management
(continued)



Maintaining growth and quality of life, and protecting watershed, water quality and adequate water supplies for all life developed and natural communities challenges people to resolve the issue of long-term sustainability

EDUCATION AUDIENCES

1. Recreational User	2. Curriculum Based Education	3. Business/ Agency Staff	4. Ethnic Populations
	Traveling trailer/bus/van for school visits (4)	Articles for trade journals (2)	
	Set up liaisons in CCSD to advise as programs are developed (4)	Develop information for distribution in apartment complexes (2)	
	Participate in writing state standards (4)	Adopt a species (2)	
	Guided hikes to cultural sites (4)		

Numbers in parenthesis indicate degree of support of group members during 2002 planning session

Appendix III: Matrix of Current Programs and Experiences

The following tables present CE&I experiences currently offered and that could be offered to specific audiences for each theme. Comparison of current offerings to the original matrix revealed gaps in programming efforts.

Human activity profoundly alters the ecosystems of Southern Nevada. We and our partners care about the protection and preservation of these sensitive lands.

CE&I is currently occurring as follows:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> Guided hikes, tours Stewardship activities/Interagency Volunteer program Discover Mojave OW programs Web pages Visitor Center exhibits Roving interpreters Information campaign for OHV Information circulars, maps for visitors Wayside exhibits 	<ul style="list-style-type: none"> Field trips Forever Earth programs Red Rock Desert Learning Center (in planning) Student internship program (cancelled in 2006) Responsible OHV recreation for high school driver's education Discover Mojave Outdoor World programs 	<ul style="list-style-type: none"> Stewardship activity and training for Red Rock Casino staff "Conservation Commitment" partnership with Lake Las Vegas Resort Invasive weed training (for staff) 	<ul style="list-style-type: none"> Roving interpreters Discover Mojave Outdoor World programs

GAPS • CE&I efforts that could be occurring:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> Sales items tagged with effective messages Traveling exhibits Standardized training for volunteers Activities for corporate clubs/groups Podcasts/cellphones/ other types of technologies 	<ul style="list-style-type: none"> Develop a "Project Mojave" based on Project WILD model Students create exhibits, radio shows through partnerships Teacher field school 	<ul style="list-style-type: none"> Information, training, and/or activities for tour industry staffs, developers, new home owners; elected officials Certification programs for businesses Site Stewardship program Media "campouts" 	<ul style="list-style-type: none"> Activities, programs, and media targeting specific ethnic audiences Exhibits, family-focused programs at libraries and community centers Presentation to Chambers of Commerce, other ethnic community groups Participation and outreach at cultural events Diversity training for staff Programs at churches Bilingual wayside exhibits/other materials

We share the intriguing stories of Southern Nevada's diverse, interconnected natural world.

CE&I is currently occurring as follows:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> • Guided hikes, tours, roving interpreters • Visitor Center exhibits • Information circulars, maps for visitors • Wayside exhibits • Web sites • Campfire programs • Discover Mojave programs • Gift store sales items (e.g., books) 	<ul style="list-style-type: none"> • Field trips • Red Rock Desert Learning Center (in planning) • Teacher workshops • Curriculum-based classroom presentations (e.g., Mojave Max) • Forever Earth programs • Programs for pre-service teachers • Transportation study • Field Trip Resource Guide http://enviroedexchange.org • Discover Mojave Outdoor World programs 	<ul style="list-style-type: none"> • Stewardship activity and training for Red Rock Casino staff • “Conservation Commitment” partnership with Lake Las Vegas Resort • Invasive weed training (for staff) 	<ul style="list-style-type: none"> • Roving interpreters

GAPS • CE&I efforts that could be occurring:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> • Workshops (e.g., bird and plant ID) and other Biology programs • Programs that connect ecosystems/concepts • Guide book with resource info • Nevada Naturalist program • Standardized training for volunteers • Traveling exhibits • Regional Jr. Naturalist program 	<ul style="list-style-type: none"> • Project-based learning, student-driven learning • Clearinghouse for teacher information • Develop “Project Mojave” (based on Project WILD model) • After-school program for parents • Student intern programs • Discovery packs; traveling trunk • Teacher field school • Web page • Traveling trailer for school visits 	<ul style="list-style-type: none"> • Information, training, and/or activities for tour industry staffs, developers, new homeowners, elected officials • Certification programs • Site Stewardship program • Media “campouts” • Brochure on ethical behavior • Presentations to Chambers of Commerce, Leadership LV, etc. • Corporate Day at sites • Messages for those seeking office • Partnerships among sites, schools, businesses • Brown bag lunches 	<ul style="list-style-type: none"> • Activities, programs, and media targeting specific ethnic audiences • Exhibits, family-focused programs at libraries and community centers • Presentations to Chambers of Commerce, other ethnic community groups • Family-based activities • Participation and outreach at cultural events • Diversity training for staffs • Programs at churches • Bilingual wayside exhibits/other materials

Life in Southern Nevada relies on water, which is limited in supply; protecting water resources and the watersheds that produce them is necessary to sustain ecosystems and population growth.

CE&I is currently occurring as follows:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> • Information circulars, brochures • Visitor Center exhibits • Xeriscaping workshops • Stewardship activities • Discover Mojave programs • Wayside exhibits • Gift store sales items • Water safety training • Desert Princess programs • Raft tours • Guided hikes, roving interpreter 	<ul style="list-style-type: none"> • Visitor Center and museum exhibits • Field trips • Teacher workshops • Forever Earth programs • Desert Princess programs • Internships for HS students • Curriculum-based classroom presentations • Red Rock Desert Learning Center (in planning) • Web sites 	<ul style="list-style-type: none"> • Southern Nevada Water Authority programs • Las Vegas Springs Preserve programs • Xeriscaping programs offered through UNR Extension 	<ul style="list-style-type: none"> • Roving interpreters

GAPS • CE&I efforts that could be occurring:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> • Take-alongs (CDs, Tapes) • Visiting consultants to homeowners • Slideshows at movie theaters • Information when obtaining fishing license • Certify businesses for H2O use • Restaurant coloring placemats • TV programs for adults • Billboard messages • TV- adult + Jr. Ranger • Traveling trailer-special events • Family-focused programs at community centers, Y's • Museum exhibit • Site Steward programs 	<ul style="list-style-type: none"> • Extend programs like H2O University • Traveling trunks or packs • Partnerships between site and school (Tule Springs) • Pre-service teacher training • Staff Development Day • Clearinghouse for info to teachers • Site Steward programs • Take home materials for students • Outreach to charter/home schools • Curriculum-based support for lesson plans • Participate in writing standards 	<ul style="list-style-type: none"> • Information, training and activities for tour industry staffs, developers, new homeowners, and elected officials • Guest speakers at brown bag lunches • Stewardship activities; partnership programs • Work with casinos to develop messages and programs • Certification program • Newspaper ads, articles • Corporate business license inserts for mailing • Roving "water" interpreter • Corporate volunteer programs 	<ul style="list-style-type: none"> • Participate in cultural events • Programs at churches • PSAs and radio programming • Point of sales and displays at ethnic markets • Special music/songs • Exhibits on role of ethnic groups in local history • Info at apt. buildings • "In your yard" activity guide • Outreach development • Community center lectures/exhibits • Traveling trailer • Visiting consultants to homeowner • Celebrity spokesperson for H2O • Bilingual waysides/other materials

The entire cultural history of Southern Nevada, from pre-history to today, has been influenced by the interaction of climate, soils, and geology.

CE&I is currently occurring as follows:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> • Guided hikes to cultural sites • Brochures and handouts • Web page • Roving interpreters • Heritage festivals • Site steward program • Seminars with local experts • Scouts/badge work on cultural history/archeology 	<ul style="list-style-type: none"> • Teacher workshops • Web sites • Field trips to sites • Transportation study • Traveling trunks or packs • Red Rock Desert Learning Center (in planning) 		<ul style="list-style-type: none"> • Partner with Native American groups

GAPS • CE&I efforts that could be occurring:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> • Info to homeowners' associations • Interpretive exhibit at Moapa • Photography exhibits at libraries, airports, centers • Workshops on quilting, crafts • Jr. Ranger/Archeologist program • Create sales items for multiple agency distribution 	<ul style="list-style-type: none"> • Cultural PDE • Teacher field school • Participate in writing state standards • Interpretive archeological dig • Regional Chatauqua promoted in Ed. System • Liaisons in CCSD to advise as programs are developed • Host staff development day • Friends group to support teachers 	<ul style="list-style-type: none"> • Activity or workshops for staff/elected officials • Corporate volunteer program • Training for tour industry staff • Suggested stipulations for "cultural messages" for permittees • Guided hikes to cultural sites • Certification for concessionaires • Handouts for paychecks • Cultural messages and program info to NV Commission of Tourism • Guest speakers at brown bag lunches • Local history guide books • Newspaper ads, articles 	<ul style="list-style-type: none"> • Specific targeted media • Info distributed to apt. complexes • Recruit and train mentors • Family-based activities • Exhibits on role of ethnic groups in local history • Guided hikes to cultural sites • After school program for parents, tool for teaching English • Programs at churches • Easily learned "jingles" • Participate in cultural events • Outreach to cultural community events

Open spaces provide visitors and residents with nature-based experiences that contribute positively to their quality of life and the economy.

CE&I is currently occurring as follows:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> • Stewardship activities • Web sites • Maps for recreation users with resource information • Visitor Center exhibits • Brochures and handouts • Discover Mojave 	<ul style="list-style-type: none"> • Curriculum-based classroom presentations • Field trips • Transportation study • Visitor Center exhibits • Red Rock Desert Learning Center (in planning) 	<ul style="list-style-type: none"> • Stewardship activity and training for Red Rock Casino staff • "Conservation Commitment" partnership with Lake Las Vegas Resort • Invasive weed training (for staff) • Partnerships between sites, schools, businesses • Guest speakers at brown bag lunches 	<ul style="list-style-type: none"> • Specific targeted media • Info distributed to apt. complexes • Family-based activities • Guided hikes to cultural sites • After school program for parents, tool for teaching English • Programs at churches • Easily learned "jingles" • Outreach at community events

GAPS • CE&I efforts that could be occurring:

Recreational Audiences	Curriculum-based Audiences	Business Audiences	Ethnic Audiences
<ul style="list-style-type: none"> • Welcome Wagon program • Sales items at sites and local outlets with messages • Jr. Outdoor NV TV program • Celebrity spokesperson to speak for special places • Coloring placemats at restaurants • Slideshows at movie theaters • Traveling exhibits to shopping malls • Training for concierges • Create sales items for multiple agency distribution • Programs at churches 	<ul style="list-style-type: none"> • Develop Project Mojave • Teacher workshops • Traveling trailer • Participate in writing standards • Clearinghouse for info to teachers • Newspaper insert highlighting regional resources • Children's books of local stories • Teacher field school 	<ul style="list-style-type: none"> • Information, training and activities for tour industry staffs, developers, new home owners; elected officials • Stewardship activities; partnership programs • Corporate Day at sites • Media "campouts" • Programs/info on ethics of using recreation equipment • Presentations to Chambers of Commerce/Leadership LV • Certification program • Corporate volunteer program 	<ul style="list-style-type: none"> • Target specific media • Family-based activities • Programs at churches • Point of sales and displays at ethnic markets • Family programs at community centers, Y's, schools • Spanish version of Web sites • Participate in cultural events • Traveling trailer • PSAs and radio programming • Promote site visits • Library programs

Appendix IV: Action Plan for Partners for Education about the Environment 2006/2007

Mission: To strengthen collaborations and support integrated, effective environmental and heritage education efforts.

Vision: Every resident and visitor will understand, appreciate and take care of Southern Nevada's environment.

Goals:

1. Develop and implement a strategy for sustainable EAE in Southern Nevada.
2. Foster environmental stewardship in Southern Nevada.
3. Maximize effectiveness of EAE efforts by coordinating support resources.
4. Improve skill and knowledge of providers of EAE.
5. Celebrate our successes with the Southern Nevada community.

Goals, Objectives, and Actions:

1. Develop and implement a strategy for sustainable education about the environment in Southern Nevada.

- a. Complete the SNAP Conservation Education and Interpretation (CE&I) strategy.

- **Action:** Matrix completed
- **Action:** Inventory of existing programs completed
- Document will be completed May 2007

- b. Define and sustain a Partners Committee to guide implementation of the CE&I strategy.
- c. Create additional working committees as needed.

- **Action:** Diversity Subcommittee established and calendar of events created and approved.
- **Action:** Best Practices Subcommittee established and producing Best Practices Review series.

- d. Develop a funding strategy to implement priority recommendations identified by the EAE strategy.
- e. Develop monitoring and assessment processes to measure implementation progress and success of the strategy.

- **Action suggested:** Describe the baseline of people's attitudes, awareness and stewardship behaviors.

2. Foster environmental stewardship in Southern Nevada.

- a. Identify, support, and disseminate programs and/or efforts that provide opportunities to build awareness of and emotional connections to natural and cultural environments and interrelationships with these environments.

- **Action:** Proposal submitted to Focus properties by Partners business subcommittee.

- b. Increase understanding of these interrelationships and stewardship responsibilities through coordination of common or uniform messages.

- **Action:** Diversity subcommittee developing common message for Hispanic audience.
- **Action:** Media outreach campaign proposed for SNPLMA funding.

- c. Provide opportunities to demonstrate stewardship actions and communicate the results of these actions.

- **Action:** Listserv and partnership to disseminate information about events.

- **Action suggested:** Communicate common messages at these events.

3. Maximize effectiveness of education about the environment efforts by coordinating resources (support and program).

- a. Identify available support resources such as personnel or staff expertise, training, written interpretive and educational materials, and grant or funding opportunities.

- **Action:** Listserv for EAE professionals (50 subscribers) providing resources, calendar, news/updates, grant and funding opportunities, and articles/best practices.
- **Action suggested:** Listserv for EAE also lists personnel or staff expertise for mentoring opportunities.

- b. Create a user-friendly data base of existing program resources.

- **Action:** Teacher Field Trip database.

- c. Coordinate and facilitate the dissemination of interpretation/educational materials to assist in different focus areas.

- **Suggested Action:** Survey existing programs to identify those that support overall messages.
- **Action:** Diversity subcommittee to coordinate and improve education about the environment for Hispanic audiences.

- d. Monitor and communicate the effectiveness of these coordination efforts.

- **Action:** Web site hits recorded and communicated through listserv.
- **Actions suggested:** Send out surveys; monitor number of visitors to sites; develop formal assessment (quantitative and qualitative measurements).
- **Action suggested:** Questionnaire about usefulness of listserv.

4. Improve skill and knowledge of providers of education about the environment.

- a. Review best practices for interpretation and education.

- **Action:** Best Practices review – schedule: age appropriate programs (1/07); experiential learning (3/07); multiple intelligences (5/07); evaluation (7/07 and 9/07); working with ELL (11/07).

- b. Establish standards for providers.

- **Action:** Certification Development Team
- **Action:** Partner with NNREC in capacity-building initiatives

- c. Increase the number of teachers that are using the Southern Nevada environment as a teaching resource in appropriate and relevant ways.

- **Action:** Teacher Field Trip data base and Website.
- **Action:** Partner with CHOLLA for presentations at teacher professional development venues.
- **Action:** Survey completed to understand barriers to taking field trips.
- **Action suggested:** Standardize field trip planning process.

- d. Create continuing education and training opportunities for providers.

- **Action:** Diversity workshops held (January 2007).
- **Action:** Certification program will offer professional development courses beginning 2007/2008.
- **Action Suggested:** Establish mentoring program bureau – mentors available as needed to provide peer review.
- **Action Suggested:** Training coordination subcommittee identify training needs, costs and funding sources, and create training calendar.

- e. Conduct an annual conference for providers.

- **Action:** Our Places Tell Stories conference (January 2006)
- **Action:** Funding sought for 2007 conference

5. Celebrate our successes with the Southern Nevada community.

- a. Develop monitoring and assessment tools to determine the successes of educational efforts.
- b. Create a marketing strategy for disseminating information about the accomplishments using a wide range of appropriate media and methods.

▪ Action: Media outreach campaign proposed for SNPLMA funding.

- c. Communicate our accomplishments to internal audiences such as co-workers, administrators, and decision-makers.

Appendix IV: Graphical Results of Program Analysis

The first step in the Phase I strategy was to determine what types of programs are being offered by area-wide CE&I organizations – including the federal agencies, museums, zoos, aquariums, state parks, and others -- and to correlate these programs with the matrix components. In Year One, 31 education institutions were contacted and asked to analyze their programs using a program analysis sheet. Program Manager Allison Brody met with several educators individually and helped them complete the analysis sheets. Seven institutions chose not to participate in this process.

The information from the 24 participating place-based education organizations was entered into a database and analyzed by comparing all programs by venue, program type, audience, materials/resources given, program goals, delivery methods, and themes. Analysis of this database reveals gaps and overlaps in existing programs, as well as areas of the matrix that are not being addressed. Results were shared with agency staff and Partners for EAE.

The database consists of 218 different “educational programs” conducted by the 24 institutions. An “educational program” is defined as any means by which an environmental or cultural message is given to an audience. These educational programs include formal programs as well as other interpretive services such as ranger-led talks, publications, and other informational media. Thus, a program can refer to an organized tour, a teacher kit, a Web site, an exhibit, an interpretive sign, or a brochure as seen on Table 1 on the next page.

Each educational program may contain several parts. That is, when comparing programs by category, a program can fall into more than one category. For example, there could be a Web-based component to a tour or curricular material associated with a Grade 3 program. The result is that the total number of programs analyzed varies from graph to graph.

Database Analysis

An analysis of the data received from the survey of local organizations is provided in the following tables:

- Table 1: Program Type
- Table 2: Program Goals
- Table 3: Program Themes
- Table 4: Venue
- Table 5: Audience
- Table 6: Program Production and Delivery

Program Type

There were 342 different types of programs offered by the 24 inventoried organizations. Nineteen percent of these programs consisted of small (< 25 people) organized groups. Small tours and passive exhibits each made up 9% of the inventoried programs. Forty-eight different types of curricular materials were made available to teachers (14%). The majority of the “other materials” (11% of the programs) consisted of brochures.

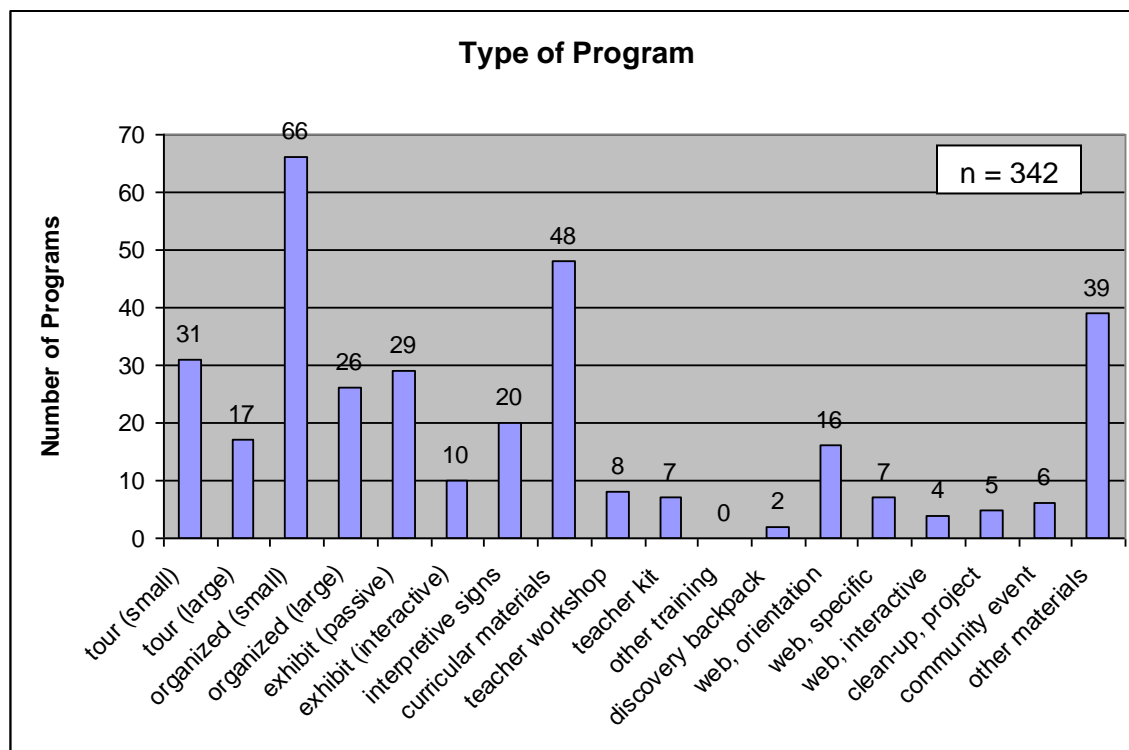


Table 1

Program Goals

The defined goals of the inventoried programs are widespread, as shown below in Table 2. One-third of the 218 programs either taught about animals (22%) or did not have a defined goal other than to explore the natural world (12%). An additional 12% had the goal of either providing the audience with general information or an orientation to the resource. The remaining programs dealt with subjects such as natural history, plants, geology, habitat, adaptations, careers, cultural themes, and art.

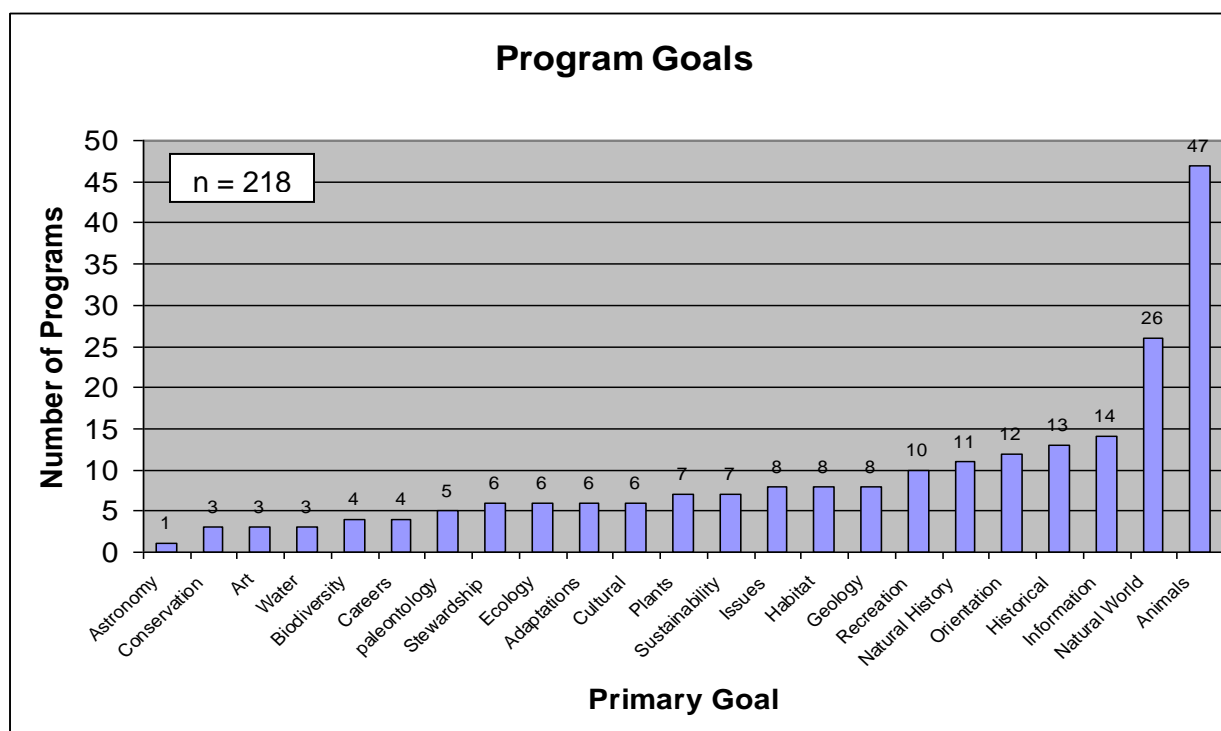


Table 2

Program Themes

The area-wide Environmental Education Committee has identified four overarching themes as critical to achieving our vision that *every resident and visitor will understand, appreciate, and take care of Southern Nevada's environment*. These four "big picture" ideas have served as the basis for the matrix of desired future interagency educational programming:

1. **MEANINGFUL EXPERIENCES:** Our visionary protection and transformation of the rich treasures of Southern Nevada has created opportunities for meaningful experiences, revitalization and an enhanced quality of life for visitor or resident, and contributes to a stronger economy.
2. **ECOLOGY/PLANTS AND ANIMALS/ HUMAN IMPACT:** Increasing human activity on highly sensitive and easily damaged lands has profoundly altered the natural environment of Southern Nevada, affecting native biota including threatened and endangered species and requiring active management of native and non-native species.

3. **CULTURAL CONNECTIONS:** The study of intact cultural and sacred sites tell the stories of how humans have sustained their cultures in arid environments over the last 12,000 years, and provide lessons in adaptation to this environment for people today.
4. **SUSTAINABILITY:** Maintaining growth and quality of life, and protecting watershed, water quality and adequate water supplies for all life in both developed and natural communities challenges people to resolve the issue of long-term sustainability.

More than half of the 218 programs (57%) meet the “Ecology/Human Impact” theme (Table 3), while 52 programs, or 24%, can not be categorized under any of the four defined themes. Eleven percent of the programs meet the theme of “Cultural Connections,” while only 8% of the programs deal with “Meaningful Experiences” or “Sustainability.”

These findings are consistent with Table 2, which indicates the predominant goal is to teach about animals. Even for those programs that do not have a defined goal, the theme appears to be something related to animals, plants, or the desert habitat. Few programs had the primary goal of having participants walk away with an enhanced view of the natural world impacting their quality of life or contributing to some meaningful experience. Fewer still had their audience examine sustainability and/or water issues.

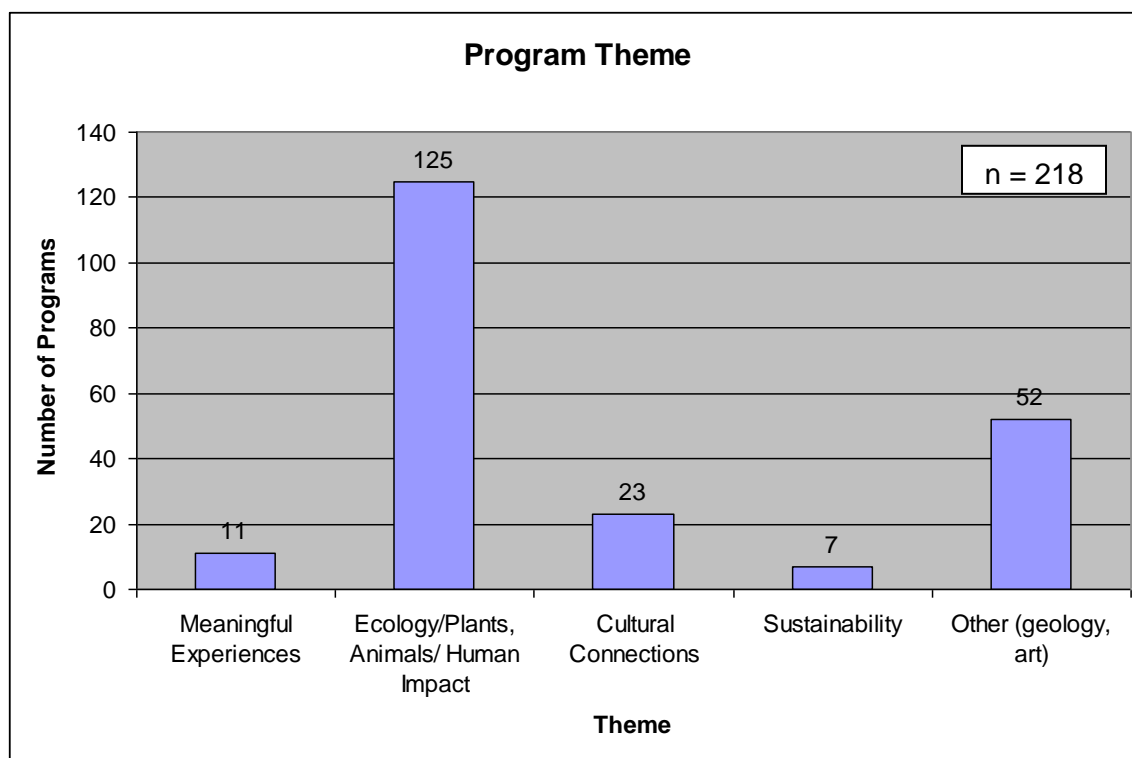


Table 3

Venue

Clearly, there is a distinction between the educational experiences typically offered in school and those that are offered by CE&I educators. This distinction has more to do with the nature of the learning experience itself, not necessarily the setting. This is illustrated by the fact that while 91 programs took place outdoors (39%), 73 (31%) took place indoors. As well, a significant number of programs reached out to their audiences off-site (19%), while 11% took the form of informational media such as a Website, brochure, newsletter or flyer.

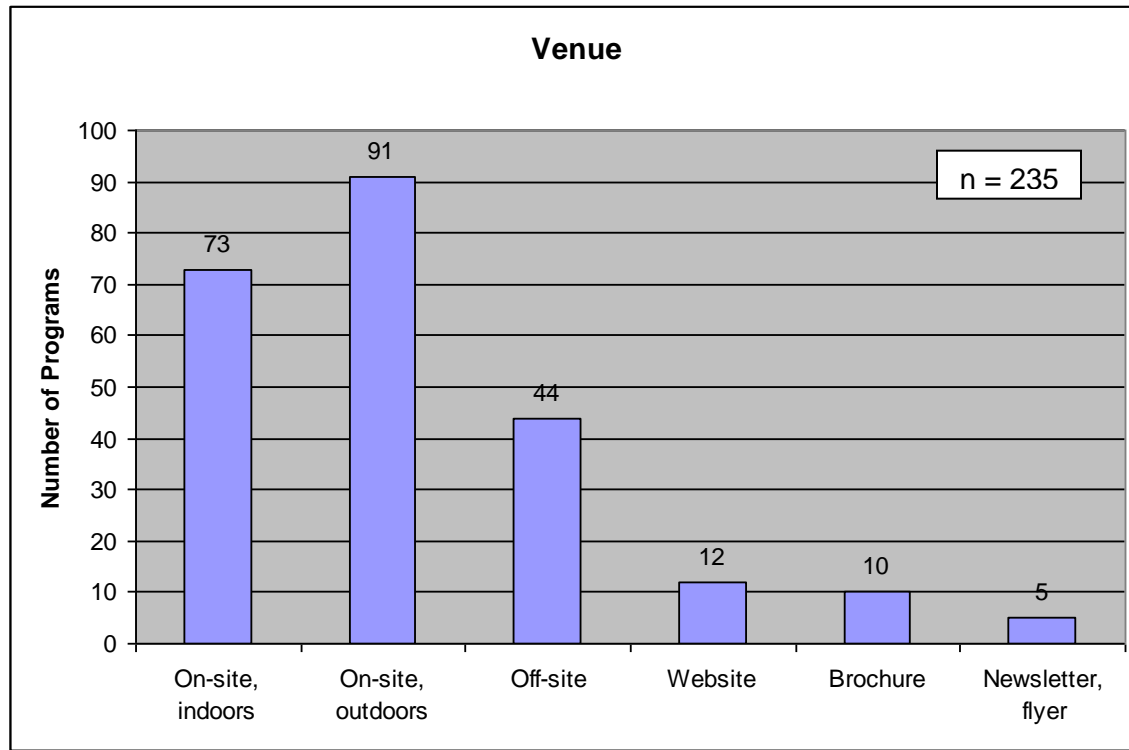
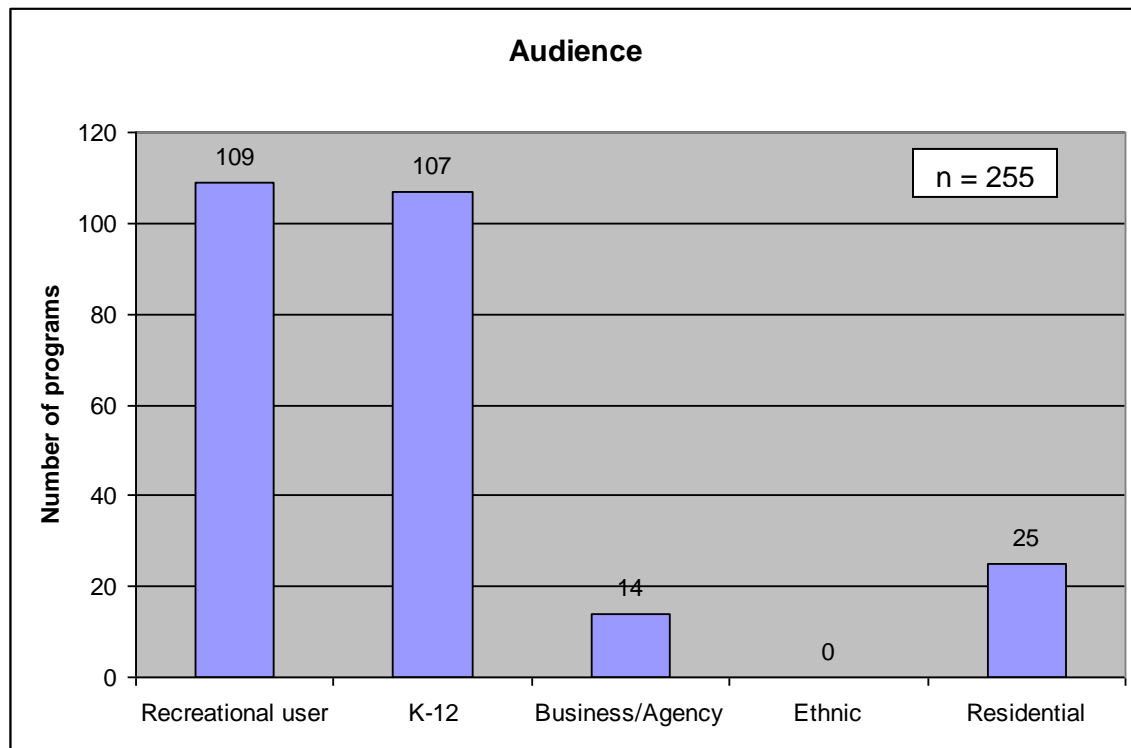


Table 4

Audience

CE&I programs tended to be delivered either to a recreational audience (43%) or to school-based audience (42%). Some xeriscape programs were targeted to business and residential users.

**Table 5**

Program Production and Delivery

As the database inventory targeted all institutions charged with delivering environmental or cultural messages, a key data component was to evaluate how many programs are actually produced by federal staff. Of perhaps more interest is the actual delivery of the program. That is, the public face of the program is associated with the person delivering it, so knowing who (federal staff, non-federal staff, or volunteer) is delivering these programs will help the strategic plan identify and target future training needs.

The survey data indicate federal staff was involved in the production of 32% of the programs, while non-federal staff (state/county/private) was involved in 57% of the production, and volunteers were involved in 11%. However, volunteers were responsible for delivering 24% of these programs, while non-federal staff were involved in delivering 52% and federal staff for delivering 24% of programs.

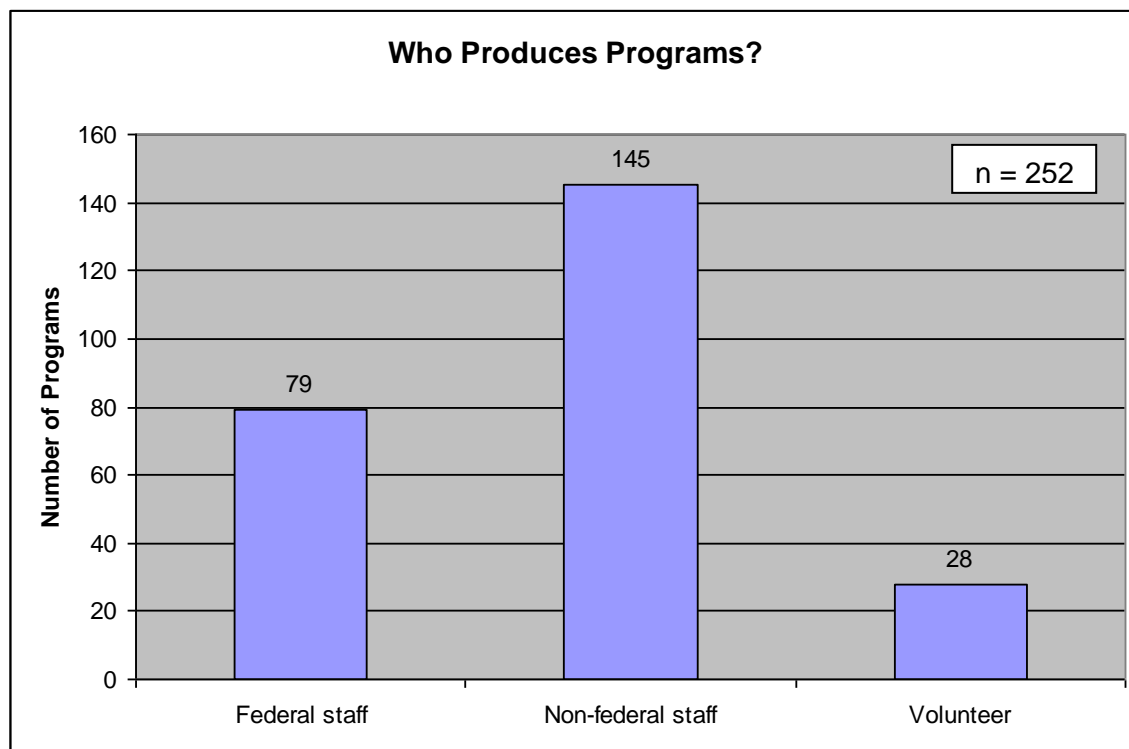


Table 6

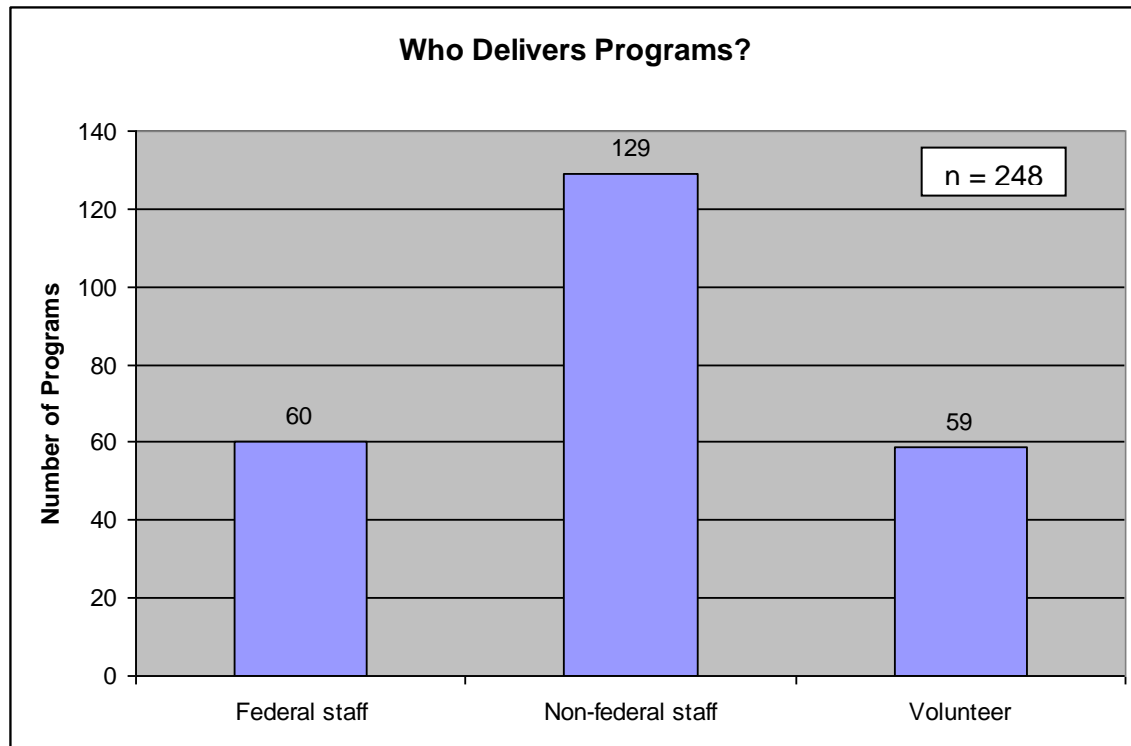


Table 7

Appendix V:

Standards of Best Practices for Nevada

Environmental Education & Interpretation Professionals

Standards of Best Practices for Nevada Environmental Education & Interpretation (NEE&I) Professionals was developed in coordination with the Nevada State Certification Program for Environmental Education & Interpretation.

Core Development Team Members:

Dan Allison • Nevada Natural Resource Education Council
Kathy August • Bureau of Land Management
Allison Brody • Public Lands Institute
Margie Klein • Nevada Department of Wildlife
Alan O'Neill • Outside Las Vegas Foundation
Linda Nations
Amy Page • Las Vegas Natural History Museum
Michelle Riter • National Park Service
Athena Sparks • Red Rock Canyon Interpretive Association
Dan Wegner • National Park Service

Other Development Team Participants:

Jan Ellis • Sierra Watershed Education Partnership
Portia Jelinek • USDA Forest Service
Sky McClain • National Park Service
Dave Messing • Nevada State Parks
Jonathan Mueller • Sierra Nevada Journeys
Heather Segale • Tahoe Environmental Research Center
Cheryl Surface • Nevada State Parks
Richard Vineyard • Nevada Department of Education

Standards of Best Practices for NEE&I Professionals is adapted from the *Guidelines for the Preparation and Professional Development of Environmental Educators* published by the North American Association for Environmental Education in 2000 and 2004.

Introduction

This document provides guidelines about the knowledge and skills needed to provide effective Environmental Education and Interpretation (EE&I) experiences in the state of Nevada. Effective experiences not only further the mission of the organization but also inspire understanding, appreciation, and stewardship of Southern Nevada's environment.

Standards of Best Practices for Nevada Environmental Education & Interpretation (NEE&I) Professionals is a guide for providers working at public lands, nature centers, museums, zoos, aquaria, schools, and all nature and heritage-rich places. It is designed to help NEE&I providers

develop and implement the highest quality experiences for all possible audiences. It is a tool for NEE&I providers to use as they develop new experiences, deliver programs, or evaluate the effectiveness of the experience. Because EE&I experiences come in many forms, not every part of this document will apply to every EE&I experience.

Best Practices are best understood in the context of an organizational hierarchy. For the purposes of this document, the categories of this hierarchy are:

Theme
 → Strands
 → Best Practices

Standards of Best Practices for NEE&I Professionals is organized into five Themes:

- ◆ Environmental Literacy
- ◆ Foundations of EE&I
- ◆ Responsibilities of an EE&I Professional
- ◆ Planning, Implementing, and Fostering Learning
- ◆ Learner Assessment

◆ Theme: Environmental Literacy

Overview

Nevada EE&I Professionals should be environmentally literate. This means having the ability to question, investigate, and analyze; knowledge of environmental processes and human systems; an understanding of environmental issues; and the ability and motivation to practice environmental decision-making.

❖ **Strand: How We Learn**

Learning and instruction are closely linked. NEE&I Professionals are competent in effective ways of gaining and applying knowledge.

Best Practices:

- ☑ Use appropriate questioning and analysis skills to gain knowledge.
- ☑ Design and carry out investigations, using appropriate tools to gather, analyze, and interpret data.
- ☑ Understand what science is, what science is not, and how this applies to the practice of EE&I.

❖ **Strand: Ecological Systems, Social Systems, and Their Influences**

NEE&I Professionals synthesize knowledge across disciplines, especially in the natural and social sciences, to understand the processes and systems that comprise the environment.

Best Practices

- ☑ Understand the interrelationships of human societies and ecosystems.
- ☑ Understand that these interrelationships happen on different scales.

❖ **Strand: Understanding and Addressing Environmental Issues**

NEE&I Professionals have the abilities to learn about, evaluate, and act on environmental issues.

Best Practices

- ☑ Address environmental issues using questioning skills, analysis skills, and content knowledge. (Environmental issues are those that are caused by anthropogenic effects on the natural environment.)
- ☑ Identify and evaluate alternate solutions and courses of action, using creativity, flexibility, and openness to other viewpoints.
- ☑ Identify and investigate environmental issues on different scales, and relate to place.
- ☑ Understand of environmental justice “do no harm” philosophy and how it applies to the equitable application of laws and benefits across socio-economic boundaries.

❖ **Strand: Personal and Civic Responsibility**

Environmental literacy is activated by individual commitment.

Best Practices

- ☑ Recognize that personal actions can have broad environmental consequences.
- ☑ Understand the role and influence of political institutions and the media.
- ☑ Analyze shared and culturally conflicting values.
- ☑ Understand EE&I's focus on environmental literacy and citizenship and how EE&I provides opportunities for learners to develop critical thinking and action skills.

◆ **Theme: Foundations of EE&I**

Overview

Having knowledge of the goals, theory, practice, and history of the fields of EE&I provides a solid foundation for developing a philosophy for individual practice.

❖ **Strand: Different Methods of Education about the Environment**

NEE&I Professionals understand EE&I as distinct fields and know their defining characteristics and goals.

Best Practices

- ☑ Define environmental education, interpretation, and other terms and practices used to describe education about the environment.
- ☑ Understand the broad outlook that EE&I takes of the “environment,” incorporating concepts such as systems, interdependence, and interactions among humans, other living organisms, the physical environment, and the built or designed environment.
- ☑ Understand the interdisciplinary nature of EE&I and how each practice draws on and integrates knowledge across academic disciplines.

❖ **Strand: Goals, Theory, and Practice of EE&I**

Knowledge of the foundations, philosophies, and varied practices of EE&I will allow NEE&I Professionals to develop a philosophy for individual practice.

Best Practices

- ☑ Identify the philosophy, conceptual foundations, and goals of EE&I by examining founding documents of the field.
- ☑ Identify major components of environmental literacy and the relationship to the practices of EE&I.
- ☑ Understand the influences that have contributed to the evolution of these concepts (e.g., work done by C. Roth, H. Hungerford, R. Ben Beyton, R. Wilke, S. Ham, E. Mills, F. Tilden, and others).

- ☑ Describe a variety of national, regional, state and local EE&I programs and support services, including funding sources and resources.
- ☑ Understand local efforts to link and enhance programs through partnerships and other collaborations.

❖ **Strand: Historical and Current Perspectives of EE&I**

The fields of EE&I have changed over time and continue to change.

Best Practices

- ☑ Understand the educational movements, including place-based education, nature study, outdoor education, conservation education, experiential education, and other programs, that have contributed to the development of EE&I and how they relate to EE&I.
- ☑ Understand how different entities, including the United Nations, schools, state and federal agencies, zoos, museums, and other professional organizations have influenced – or might influence – the manner and form of EE&I.
- ☑ Describe specific findings from EE&I research and discuss their effect on how EE&I is perceived, defined, or practiced.
- ☑ Understand current and emerging issues in the fields of EE&I.

◆ **Theme: Responsibilities of an EE&I Professional**

Overview

Practitioners of EE&I should maintain consistent and high standards for instruction and professional conduct. This includes exemplary instructional practice that does not advocate a particular point of view, and an ethic of lifelong learning.

❖ **Strand: Expectations of an EE&I Professional**

Provide EE&I that is appropriate, constructive, and aligned with the standards of the field.

Best Practices

- ☑ Identify ways in which EE&I can be used as a tool for meeting curriculum standards and addressing education reform goals.
- ☑ Understand the role of partnerships among community members, organizations, agencies, businesses, and educational systems.
- ☑ Practice responsible, respectful, and sensitive behavior during instruction.
- ☑ Model the process of inquiry, experiential learning, and the application of environmental investigations in EE&I programming.
- ☑ Make complex issues understandable and establish relativity to the audience.

❖ **Strand: Factual Accuracy and Multiple Points of View**

Provide accurate, balanced, and effective experiences while not promoting a particular view about environmental conditions, issues, or actions.

Best Practices

- ☑ Identify deliberate strategies and techniques that encourage participants to explore and discover different perspectives, form their own opinions, and explain their beliefs.
- ☑ Use deliberate techniques for presenting differing viewpoints and theories in a balanced manner.
- ☑ Identify potential sources of bias and conflict.
- ☑ Differentiate among resource materials on the basis of factual accuracy, including primary and secondary sources.
- ☑ Weigh evidence regarding environmental problems based on validity of data (e.g., from scientific societies or reputable journals or reputable websites).

❖ **Strand: Ongoing Learning and Professional Development**

NEE&I participants are aware of the need to be active learners in their professional lives.

Best Practices

- ☑ Learn and use research and analytical skills to expand existing knowledge about the environment, related issues, EE&I, and instructional methods.
- ☑ Use research and analytical skills to expand existing knowledge about the environment and EE&I.
- ☑ Build relationships with mentors, advisors, and others who will challenge NEE&I professionals to continually expand and upgrade their knowledge and skills.
- ☑ Reflect on and learn from personal practice as an EE&I professional, both individually and with other professionals and colleagues.
- ☑ Seek out opportunities to learn essential content and skills in real-world environmental settings or contexts, especially within local ecosystems.

◆ Theme: Planning, Implementing, and Fostering Learning

Overview

NEE&I Professionals must combine the fundamentals of effective communication techniques with the unique features of EE&I to design and implement effective learner-centered, experiential learning experiences.

❖ **Strand: Knowledge of Audience**

Tailor instructional approaches to meet the needs of different learners.

Best Practices

- ☑ Identify, select, adapt, and model materials and experiences for program options that are developmentally appropriate and take learning styles into consideration for a designated age or level of knowledge.

- ☒ Identify and understand possible diverse audiences and their needs, including: moral, cognitive, social and physical, perspectives, and appropriate learner outcomes.
- ☒ Recognize and acknowledge the validity of varying cultural perspectives present in the audience. Tailor instructional approaches to appropriately and respectfully respond to these perspectives and use them as a resource.

❖ **Strand: Planning and Delivery of EE&I Experiences**

Employ a range of methods that are particularly suited to EE&I. This includes planning age-appropriate experiences that meet specific goals, and creating a safe and conducive learning environments both indoors and outside. Be familiar with ways of including EE&I in the local school district curriculum.

Best Practices

- ☒ Where appropriate, understand how EE&I experiences meet relevant national, state, and local educational standards for learning performance in specific disciplines. Ability to correlate EE&I experiences with state education standards in a particular discipline or grade level.
- ☒ Demonstrate a concern for audience safety in designing, planning, and implementing instruction, especially experiences that are hands on, or that take place outside the classroom. Attend to the physical layout such that the site is used safely and effectively.

❖ **Strand: Materials, Resources, and Technology**

Access, evaluate, and use a range of materials, resources and technologies.

Best Practices

- ☒ Identify and evaluate materials and resources.
- ☒ Identify informal science and heritage institutions, local businesses, service organizations, government agencies, nonprofit organizations, and others that may participate in and support EE&I experiences.
- ☒ Identify, assess, and use a variety of professional development opportunities.
- ☒ Demonstrate use of a variety of tools of the trade for environmental observation and measurement.
- ☒ Demonstrate how to use technologies to analyze and communicate environmental information.

❖ **Strand: Create the Learning Environment**

Foster an environment that is conducive to learning, including enabling the audience to engage in open inquiry and investigation.

Best Practices

- ☒ Identify and model ways of presenting the natural world or environmental issues in engaging ways.
- ☒ Select among relevant topics and issues based on audience interests to construct knowledge and foster conceptual understanding.

- ☑ Use a variety of instructional methods and strategies appropriate for the content and context based on learning objectives, learner characteristics, time requirements, involvement of community members, community and agency dynamics and policies, available resources, and the instructional setting.
- ☑ Promote lifelong learning and engage the audience in the idea of taking responsibility for their own learning and expectations for achievement.
- ☑ Apply experiential learning techniques, inquiry-based learning techniques, and other instructional techniques that allow the audience to explore and discover the world around them.
- ☑ Understand that experiences that foster clear and independent thinking are important to the ultimate goal of developing environmentally literate citizens.
- ☑ Use instructional techniques that encourage the audience to ask questions and explore a variety of answers.
- ☑ Take into account audience preconceptions and assumptions while encouraging creativity and openness.
- ☑ Promote cooperative learning as a component of environmental literacy.
- ☑ Modify instructional plans and approaches, when appropriate, to take advantage of unexpected opportunities (e.g. new developments in community issues, recent events or phenomena that are in the news, or breakthroughs in scientific understanding) and audience questions and interests.
- ☑ Work collaboratively with others, adapting instructional approaches as needed to blend or complement instructional styles and to meet shared goals.
- ☑ Make complex issues understandable and establish relativity to audience.

◆ Theme: Learner Assessment

❖ Strand: Learner Outcomes

Link assessment to learning.

Best Practices

- ☑ Link the goals and objectives of the EE&I experience to expected audience outcomes.
- ☑ Use (when appropriate) assessment of learner outcomes to measure if outcomes meet national, state and local standards.
- ☑ Engage the audience in setting their own expectations for the experience. Understand the importance of these abilities in light of EE&I's emphasis on learner-centered education and lifelong learning.

❖ Strand: Assessment as Part of the EE&I Experience

Incorporate assessment into EE&I experiences.

Best Practices

- ☒ Make objectives and other expectations clear to the audience at the outset of an EE&I experience.
- ☒ Assess the audience's baseline understandings and skills at the beginning of an EE&I experience.
- ☒ Use a variety of assessments, including open-ended questions, projects, presentations, or other activities appropriate to the EE&I experience.
- ☒ Understand appropriate use of formative and summative assessment tools to specific EE&I activities, projects, or experiences.

❖ Strand: Improving EE&I Experiences

Use instructional experiences and assessments to improve future EE&I activities.

Best Practices

- ☒ Use results of differing kinds of assessment to help modify and improve future programming and activities.