

**Burning Man 2006-2010  
Special Recreation Permit  
NV-020-06-EA-11  
Environmental Assessment**



**June 2006**

**Prepared by**

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<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1. Background .....	1
1.2. PURPOSE AND NEED.....	2
1.3. Issues .....	2
1.4. Conformance with the Land Use Plan .....	4
1.5. Relationship to Statutes, Regulations and Other Plans .....	5
<b>2. DESCRIPTION of PROPOSED ACTION &amp; ALTERNATIVES .....</b>	<b>5</b>
2.1. Overview of Alternatives .....	5
2.2. Proposed Action .....	6
2.2.1. Event Set Up and Signing .....	8
2.2.2. Public Access .....	8
2.2.3. Traffic Control .....	9
2.2.4. Event Security and Public Safety .....	9
2.2.5. Resource Management .....	10
2.2.6. Fire Management .....	11
2.2.7. Dust Abatement.....	11
2.2.8. Runway and Aircraft .....	11
2.2.9. Sanitary Facilities .....	12
2.2.10. Event Take Down and Clean Up.....	12
2.3. Alternative 1: Remain at the Current Location .....	13
2.4. Alternative 2: Permit a Larger Event.....	13
2.5. Alternative 3: No Action/No Event .....	14
<b>3. AFFECTED ENVIRONMENT .....</b>	<b>14</b>
3.1. Background .....	15
3.2. Critical Elements.....	16
3.2.1. Air Quality.....	16
3.2.2. Cultural Resources .....	16
3.2.3. Native American Concerns .....	17
3.2.4. Waste (Solid and Hazardous).....	17
3.2.5. Water Resources and Quality.....	19
3.3. Other Resources .....	20
3.3.1. Playa Sediments and Vegetation .....	20
3.3.2. Wildlife.....	21
3.3.3. Recreation .....	22
3.3.4. Socio-Economics.....	23
3.3.5. Visual Resources.....	26
<b>4. ENVIRONMENTAL CONSEQUENCES.....</b>	<b>27</b>
4.1. Critical Resources .....	27
4.1.1. Air Quality .....	27
4.1.2. Cultural Resources .....	28
4.1.3. Native American Concerns .....	29
4.1.4. Waste (Solid and Hazardous).....	30

4.1.5.	Water Resources and Quality.....	33
4.2.	Other Resources .....	34
4.2.1.	Playa Sediments & Vegetation .....	34
4.2.2.	Wildlife.....	38
4.2.3.	Recreation .....	39
4.2.4.	Socio-Economics.....	42
4.2.5.	Visual Resources.....	44
4.3.	Potential Mitigation/Monitoring Measures .....	44
<b>5.</b>	<b>Cumulative Impacts.....</b>	<b>45</b>
5.1.	Cumulative Impacts Assessment Area .....	45
5.2.	Past and Present Actions .....	46
5.3.	Reasonable Foreseeable Future Actions.....	46
5.4.	Cumulative Impacts for the Proposed Action.....	46
5.4.1.	Air Quality .....	46
5.4.2.	Cultural Resources .....	47
5.4.3.	Wastes, Hazardous and Solid .....	47
5.4.4.	Water Quality (Surface and Ground) and Water Quantity .....	47
5.4.5.	Playa Sediments and Vegetation .....	48
5.4.6.	Recreation .....	48
5.4.7.	Socio-Economic Values.....	49
5.4.8.	Visual Resources.....	49
5.5.	Alternative 1: Remain at the Current Location .....	49
5.6.	Alternative 2: Permit a Larger Event.....	49
5.7.	The No Action Alternative .....	50
5.8.	Irreversible and Irretrievable Commitment of Resources.....	50
<b>6.</b>	<b>CONSULTATION AND COORDINATION .....</b>	<b>50</b>
6.1.	List of Preparers and Reviewers.....	50
6.2.	Agencies Contacted or Consulted .....	50
<b>7.</b>	<b>REFERENCES .....</b>	<b>51</b>

**APPENDICES**

Appendix 1: Special Stipulations

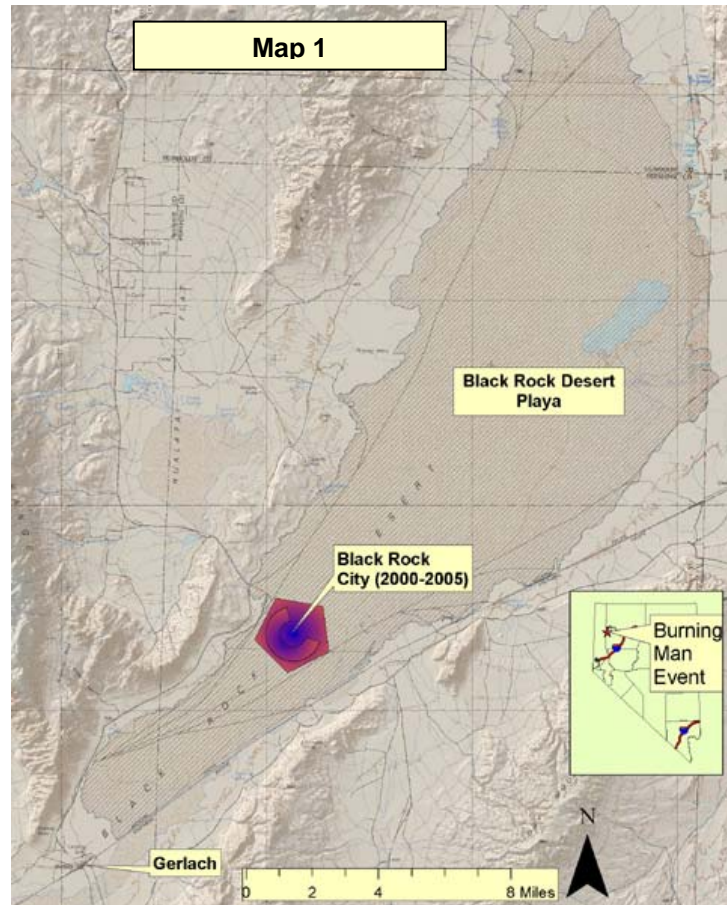
Appendix 2: Special Recreation Permit Application w/standard Stipulations

# Burning Man 2006-2010 Special Recreation Permit Environmental Assessment NV-020-06-EA-11

## 1. INTRODUCTION

### 1.1. Background

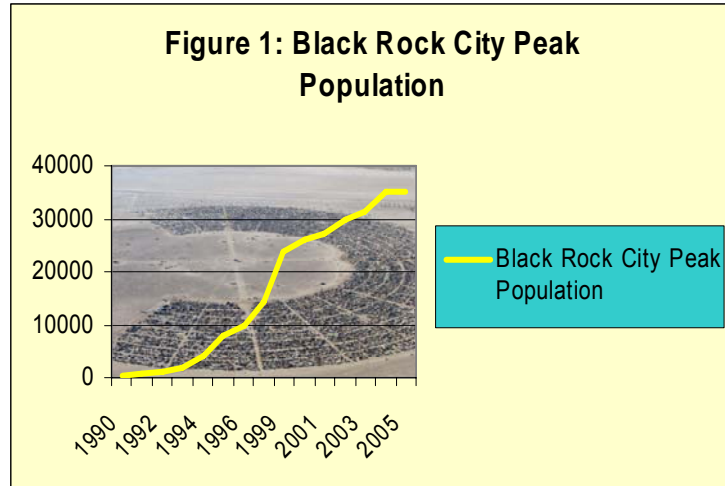
The Black Rock Desert Region (Map 1) is a favorite recreation area for thousands of people. Some visitors enjoy recreational pursuits individually or in small groups for casual or dispersed activities and others are involved in organized events as participants or spectators. Each year more and more people are discovering the Black Rock Desert and its many recreational opportunities. In December 2000, the 106th Congress passed The Black Rock Desert-High Rock Canyon Emigrant Trails National



Conservation Area (NCA) Act, (Public Law 106-554). The NCA legislation designated about 800,000 acres of public land as part of the NCA and approximately 752,000 acres as Wilderness areas. The legislation contains language that supports the permitting of large-scale events such as Burning Man: "It is expected that such permitted events will continue to be administered in accordance with the management plan for the conservation area and other applicable laws and regulations."

The Burning Man event was first held on the Black Rock Desert in 1990 and has continued on an annual basis. The event participation has increased from about 250 in 1990 to just over 35,500 in 2005 (Figure 1). Event participation has remained about the same from 2004 to 2005. Burning Man is a combination art festival, social event, and experiment in community living. The Burning Man organization, Black Rock City LLC (BRC), applied for and received a multi-year Special Recreation Permit (SRP) from BLM to

conduct the event for the years of 1992-1995. The BLM completed an environmental assessment (EA) and issued the permit. Due to the increasing size of the event and issues associated with that growth, BLM completed additional environmental analysis and BRC applied for and received a second SRP from the BLM in 1996. In 1997, Burning Man was held on private land on Hualapai Flat in Washoe County, NV. In 1998 and 1999, Burning Man was moved back onto public lands at the southern end of the Black Rock Desert playa, about four miles north of Gerlach. BLM completed an environmental assessment and issued a SRP for these years. During the 2000 to 2005 period, the event was held approximately 8.5 miles northeast of Gerlach after the preparation of three Environmental Assessments and the issuance of an SRP for each year.



## 1.2. PURPOSE AND NEED

The BLM has received a special recreation permit application from Black Rock City LLC (BRC) for the Burning Man 2006 to 2010 events (Appendix 2). BLM is required to analyze the impacts of the proposed event as part of the process of evaluation of that application.

The purpose of this environment assessment is to evaluate whether or not to approve Black Rock City LLC's application for a multi-year Special Recreation Permit to conduct the Burning Man Arts Festival on the playa of the Black Rock Desert near Gerlach, NV. The assessment will also aid in the preparation of terms and conditions appropriate to provide visitor safety and protection of resource values on public lands if the permit is approved.

## 1.3. Issues

BLM has conducted public scoping efforts over the past several years and has received extensive public comments on issues associated with the Burning Man event. Public interest and controversy surrounding the event has declined in recent years as measured by the small number of comments received during the scoping process. This document will continue to address the relevant issues that have been identified through past and current scoping efforts.

This year a 45 day public scoping period was conducted to solicit issues and other comments from the public and cooperating agencies. A news release was printed in several local and regional newspapers and letters were sent to individuals and organizations that had participated in the process in past years. A total of twelve written comments were received during the recent scoping period.

The primary issues identified in past and present scoping efforts were:

**Access** -- Impacts to public access to the playa, limits to other dispersed recreation uses, or other permitted events?

- How will public access be maintained during the event period?
- What are the impacts to other users of the playa and NCA?
- If the event location is changed, will a new entrance be constructed and what will happen to the existing playa entrance used for the event?

**Playa Conditions**--Impacts from residual debris & dust storms and impacts on biological resources.

- How much litter remains after the event?
- What contaminants are left on the playa?
- What impacts occur to biological resources on or near the playa?
- What impacts occur to air quality as a result of the loosening of the playa surface associated with the event?
- What impacts occur to the playa surface as a result of surface disturbance associated with the event?

**Public Health** –Impacts to the environment and the participants related to sanitation and public health.

- How is sewage handled?
- What is the fate of wastewater from campsites within the City?

**Management of the Event** –BLM management to ensure permit stipulations are followed.

- How will BLM determine the attendance in order to obtain the correct fees from the event?
- How will BLM monitor the conditions during and after the event?
- How will BLM enforce federal laws, State laws and other event requirements?
- How will a multi-year permit be managed to ensure continued compliance with permit stipulations throughout the duration of the permit?
- What procedures/protocols are in place to handle inclement weather, civil unrest, or other emergency situations?

**Socio-Economics** – Impact of the event on local and regional communities.

- How will event related trash along highway 447 be handled?
- How will the event affect the citizens and businesses of Gerlach and Empire?
- What are the beneficial or adverse economic impacts to northern Nevada?
- Is this event appropriate for minors?

**Issues not Considered in this Assessment**

Several comments raised the issue of the event’s morality. Morality is not an environmental issue and is “in the eye of the beholder.” Everyone within the event is a participant or is involved in administration or support operations, has chosen to be at the event, and paid for a ticket. The event site is closed to non-participants who might be offended by activities within the event.

**1.4. Conformance with the Land Use Plan**

The Proposed Action and alternatives are in conformance with the BLM land use plan for the area. The Resource Management Plan (RMP), approved July, 2004 for the Black Rock-Desert High Rock Canyon Emigrant Trails National Conservation Area and Associated Wilderness, and other Contiguous Lands in Nevada, currently guides management of the Black Rock Desert (BLM, 2004a). The plan includes an objective “to provide opportunities for a diverse range of permitted activities consistent with the NCA Act while providing public access and solitude for other users.” Recreation decisions REC-21 through REC-27 apply to the issuance of special recreation permits:

**REC-21:** All recreation permittees will be required to adhere to Tread Lightly! and Leave-No-Trace® principles. Permit stipulations will emphasize the Tread Lightly! and Leave-No-Trace® principles.

**REC-22:** Permits will be assigned to one of four classes of permitted activities (I through IV). A description of the classification system is provided in Appendix J of the RMP.

The Burning Man event is a Class IV event.

**REC-23:** SRPs will be limited to certain geographic areas based on the permit class that the proposal is given. (See Table 2-9 and Map 2-15 of the RMP).

Class IV events, which are the largest events are allowed in the Permit area of the Front Country Zone.



**REC-24:** To maintain solitude on northern portions of the playa, class III and IV permitted activities will be concentrated on or near the South Playa. Northern portions of the playa may be made available for Class III and IV permits when playa conditions are unsuitable or public safety or public access may be compromised.

**REC-25:** Special recreation permits will be authorized at times, in locations and for durations consistent with providing opportunities for solitude and full public access to the playa for at least one-half of the summer season (Memorial Day through Labor Day). The number of Special Recreation Permits issued could be limited to protect resources or the visitor experience.

**REC-26:** Two Class III and IV events may occur simultaneously, but only one may be a Class IV event.

**REC-27:** No more than two access points to the playa will be closed on the same weekend in conjunction with permitted events.

Issuance of a permit for the Burning Man event would be consistent with the RMP.

## **1.5. Relationship to Statutes, Regulations and Other Plans**

The Proposed Action and alternatives has been reviewed for compliance with BLM policies, plans, and programs. The proposal is in conformance with the Special Recreation Permit regulations at §43 CFR 2930. Section 5(C)(3) of the NCA legislation allows the Secretary “to permit large-scale events in defined, low impact areas of the Black Rock Desert playa.” There are no known conflicts with Pershing County Planning or other State of Nevada statutes, regulations or plans.

## **2. DESCRIPTION of PROPOSED ACTION & ALTERNATIVES**

### **2.1. Overview of Alternatives**

This environmental assessment analyzes four alternatives:

- The Proposed Action in which a five year permit would be issued for the event with a maximum population size of 40,000 participants and the location of the event would alternate yearly between two locations
- An alternative that is essentially the same as the proposed action except that the location of the event would continue to be held at the location used for the 2000-2005 events.
- An alternative in which a five year permit would be issued, the maximum population would be 50,000 participants and the event location would be alternated yearly between two locations.

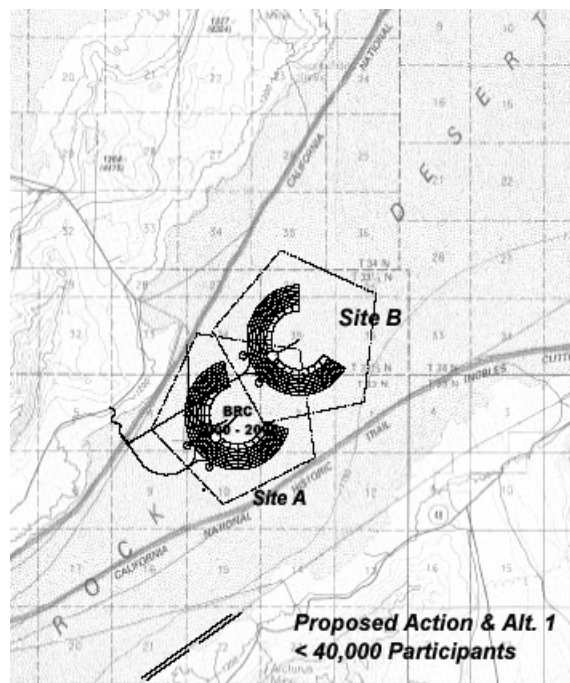
- The No Action/No Event Alternative.

A combination of two themes was used to create the action alternatives;

1. What is the maximum number of participant the event should accommodate:
  - a. **Up to 40,000 Participants**--The number of participants BLM is able to provide administrative and law enforcement support based upon the infrastructure anticipated to exist in the Gerlach-Empire area for the foreseeable future.
  - b. **Up to 50,000 Participants**—The estimated maximum number of participants that could be supported by infrastructure as estimated by BRC LLC.
2. Whether or not to use the same site each year or alternate between two sites.
  - a. **One site**—staying with one site would keep elevated levels of residual debris to the smallest possible area on one hand versus reducing rates of wind erosion and surface loss of playa sediments from a continuously used area.
  - b. **Two sites**—Rotating between two sites would potentially allow wind eroded areas additional time between uses for recovery associated with transport of playa sediments by surface waters versus creation of a second site with elevated levels of residual debris when compared to the overall playa area. The use of two sites would also facilitate the joint BLM/Desert Research Institute study to determine impacts to the playa surface from a single event. This study will begin in 2006.

## 2.2. Proposed Action

The Proposed Action would result in BLM issuing a Special Recreation Permit allowing the Burning Man event on public lands in Pershing County, Nevada for up to five years (2006 through 2010). A temporary city, Black Rock City (BRC), 8.5 miles northeast of Gerlach, would be developed on the Black Rock Desert playa (see Map 2). The city would accommodate a maximum of 40,000 participants each year for a five year period starting in 2006 and ending in 2010. The location



of BRC would alternate yearly between the site used during the 2000 through 2005 period (Site A) and a second site (Site B) approximately one mile northeast of Site A. The location of the two event sites is shown on Map 2 as Sites A and B. Site B would be used in 2006 and even numbered years. Site A would be used on odd numbered years. The location of Sites A and B are shown on Map 2. If ongoing research indicates that alternating sites on an annual, basis is less desirable for playa resources than using the same site has proven to be, then the authorized officer may discontinue the yearly movement. The permit period would extend from approximately the first week of August through the second week of September each of the five years with the actual Burning Man event occurring from the weekend before Labor Day through Labor Day each year.

Activities associated with the Burning Man event include artistic and technological displays, entertainment events, performing arts, theme camps, spontaneous social interactions, and the burning of an 80-foot tall wood and neon-light sculpture called "The Man." Participants would also camp, ride bicycles and explore within the area permitted by this event. Black Rock City would include residential areas, theme camps, art displays, and performance art areas. The city would be laid out in an arc centered on the sculpture of "The Man." The arc would have a radius of 4630 feet. The total area encompassed by Black Rock City within the perimeter fence would be about 2,200 acres or approximately 1% of the playa. The stipulations in Appendix 1 and Appendix 2 are also considered integral parts of the Proposed Action. Additionally BRC LLC submitted an operating plan with their application (BRC LLC 2006a). Portions of the operations plan not specifically mentioned in this description are also incorporated as part of the proposed action.

See Figure 2 for layout of the City. The residential portion of the City would include about 820 acres. Several hundred additional acres outside the perimeter fence would be used for access roads, a temporary airstrip, airport parking, BLM communications center, ticket booth, a greeter's station, and a 50-yard buffer area immediately

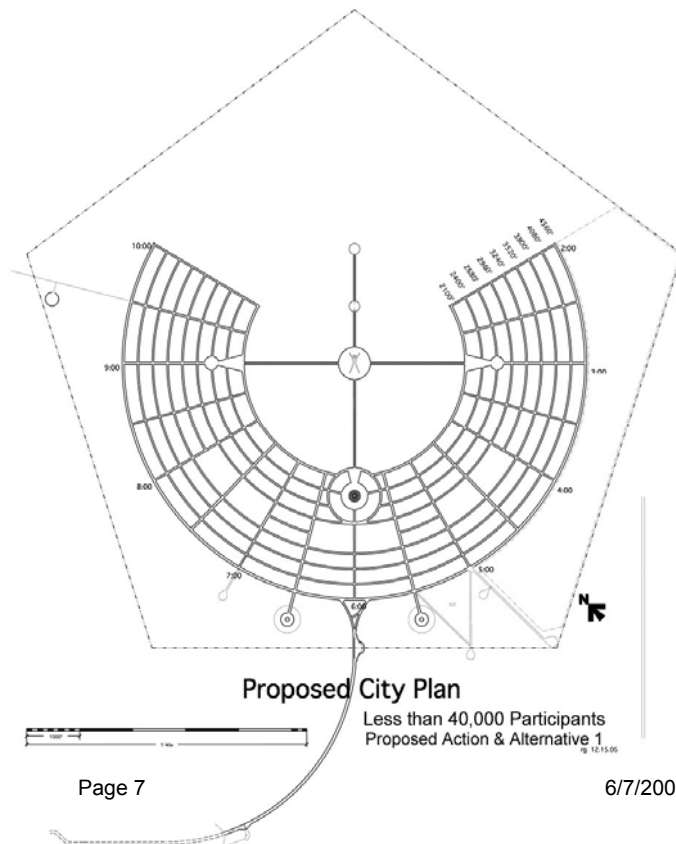


Figure 2

outside and adjacent to the perimeter fence. Closures outside the perimeter fence would restrict or prohibit motorized vehicle use including aircraft, camping, possession and discharge of firearms, possession of fireworks, and access and use by the general public. See the stipulations in Appendix 1 for descriptions of these areas and the length of the closures.

The operations of the event included in the Proposed Action are summarized below. Additional details are included in the BLM special and standard stipulations for the event (Appendices 1 & 2). The content of the appendices are considered part of the Proposed Action.

### **2.2.1. Event Set Up and Signing**

Burning Man site preparation would include preliminary surveying and construction of the perimeter fence. Surveying would begin in early August about 3 weeks before the start of the event. The fence would be approximately seven miles in length and would be completed by about two weeks before the start of the event. The fence would be designed to prevent windblown trash from blowing across the playa and to provide event security. In addition, vehicle control signs announcing the presence of the fence would be installed at sites near the City to alert drivers several days before completion of the perimeter fence.

As soon as the perimeter fence is completed, installation of additional signing for vehicle control both on and off-site, street lights, street signs, municipal structures, large sculptures, portable toilets, the Gate Area, the main entry road, and other infrastructure facilities would begin.

A small number of postholes would be dug for authorized facilities in accordance with permit stipulations. Camp infrastructure construction would be completed by the Wednesday before the event start, leaving three days before the event to complete work held up by unanticipated delays and for fine-tuning.

### **2.2.2. Public Access**

The Eight-Mile Access road to the playa would be used for the event at both Sites A and B, and would be closed to general public use. All other playa access points would remain open to the public. The City, a 50-yard buffer outside the perimeter fence, the area of the air strip and specified areas between County Road 34 and the City would be closed to the general public. Approximately 8,000 acres surrounding the City would be closed to public camping and approximately 18,000 acres would be closed to discharging of firearms.

### **2.2.3. Traffic Control**

Off-site traffic control would be provided at key road intersections during peak traffic periods. The access route to the City would be clearly marked with signs approved by the Nevada Department of Transportation along NV 447 and County Road 34. On-site traffic control would require participants to park their motorized vehicles and either walk or ride bicycles inside the City. Motorized vehicle use within the event would be allowed only if permitted by BRC or for administrative purposes.

### **2.2.4. Event Security and Public Safety**

#### **A. Law Enforcement – On-Site**

The BLM and the Pershing County Sheriff's Office (PSO) would provide law enforcement on site. These agencies would be focused on enforcement of federal, State and local laws and regulations as well as permit stipulations. The Burning Man Law Enforcement Agency Liaison (LEAL) would coordinate and work with the various law enforcement agencies and the Black Rock Rangers.

#### **B. Law Enforcement – Off-Site**

Law Enforcement Officers would patrol and control outside the perimeter of Black Rock City, enforcing closures to camping and shooting on public land beyond the perimeter fence (Map 2) and protecting other sensitive environmental and cultural resources outside the City including:

- Playa entrances
- High Road access to Winnemucca
- Union Pacific railroad tracks.
- Applegate-Lassen and Nobles Historic Trail routes, Trego Hot Springs, Black Rock Hot Springs, Soldier Meadows, and Double Hot Springs

The Washoe County Sheriff's Office, Pyramid Lake Tribal Police and the Nevada Highway Patrol would provide law enforcement support in their areas of jurisdiction including the towns of Gerlach and Empire.

#### **C. Security – On-site**

Burning Man would supply event security, using the Black Rock Rangers (BRR). The BRR would patrol the City, assist participants and coordinate with law enforcement officers and LEAL. There would be two BRR outposts situated within Black Rock City. The BRR would generally be the first point of participant contact for stipulation violations, BRC regulations and other non-crime related concern within

Black Rock City. Matters requiring Law Enforcement actions would be referred to BLM or PSO.

#### **D. Communications**

A central communication system would have separate communication channels for various functions including security, public safety and health, and infrastructure. BLM and BRC would operate independent communications systems from a common location. These two systems would operate 24 hours a day to provide security, emergency response and public safety.

#### **E. Illegal Substance Policy**

Black Rock City LLC has adopted an illegal substance policy and would use their communications networks to educate participants of applicable federal, state and local laws concerning the sale and use of illegal substances. The Burning Man "Survival Guide" specifically warn participants of the health risks associated by consuming illegal drugs or alcohol in a harsh environment. Information would be released indicating that federal, state, and local drug enforcement officials would be at the event and illegal activities would not be condoned.

#### **F. Medical**

Medical services would be contracted by BRC LLC to the Regional Emergency Medical Services Authority (REMSA). A primary health care facility would be located in the center of Black Rock City. Their facility would be staffed to provide levels of care consistent with the estimated population of BRC including ambulance service, medical equipment, doctors, and certified emergency medical technicians (EMTs). Medical services would also be located at the two BRR outposts within the City.

### **2.2.5. Resource Management**

Monitoring of public lands would be conducted by BLM and others to prevent resource damage from potential participant visits to area resources near the event. BRC would charge an "in-out" fee to people who leave and return to the event. This requirement is designed to reduce the number of participants that leave the event to explore the surrounding areas on their own thus decreasing potential disturbance to surrounding resources. BLM would enforce resource related permit stipulations during and after the event. Permit stipulations as well as information provided by Burning Man include the requirement for participants to take out whatever material they bring to the event, including wastewater and sewage if they are in a camper or camp trailer.

## **2.2.6. Fire Management**

Fire suppression equipment and personnel would be available 24 hours a day to respond to camp, vehicular or structural incidents. BRC would contract fire services, which would operate under the Incident Command System for fire-related events within the Black Rock City. Fire equipment would be stationed at each end of Black Rock City during the event. Water would be stored within the City for fire suppression associated with permitted burns or emergency response.

Open fires would only be permitted by BRC in burn platforms or barrels raised above the playa surface. Campfires directly on the playa surface would not be permitted.

Art Burns, the burning of larger art structures including "The Man", would be permitted by BRC. Permitted burns would use corrugated metal sheets or fire blankets overlain with sand under the burning objects to eliminate surface scarring.

## **2.2.7. Dust Abatement**

BRC would provide two 4,000-gallon water trucks for dust suppression. These trucks would be in operation from August 20th through cleanup as needed. Water trucks would operate to suppress dust during the event and the entire site after the event to decrease blowing dust. Dust control palliatives could be used or added to water for dust suppression activities only upon prior written approval by BLM. During the event, water trucks would be labeled to indicate that the water is non-potable and not suitable for human contact.

## **2.2.8. Runway and Aircraft**

The runway would be a Federal Aviation Administration (FAA) approved temporary runway facility and would be approximately 60 feet wide by 5,000 feet in length located southeast and outside the perimeter fence. The runway would be set up in a southwest to northwest direction taking advantage of prevailing winds. The runway would be delineated by placement of orange cones and signing, to deter vehicle traffic from entering the area. Numbers at both ends of the runway would indicate compass bearing and help define boundaries. A compass rose would also be painted. The numbers and rose would be painted on the playa surface using a calcium carbonate/water suspension that fades and breaks down in a few weeks. The painted markers would be raked or washed down following the event to obliterate them.

An area for aircraft parking would be delineated outside the perimeter fence and adjacent to the runway.

Windssocks on 20-foot steel poles would be installed adjacent to the runway. Radio communication with pilots would be provided through a Common Traffic Advisory Frequency and would inform pilots of landing pattern direction and safety information. Burning Man participants in single and twin piston engine, fixed wing aircraft would be allowed to use the runway. Black Rock City would prepare a NOTAM to the Federal Aviation Administration (FAA) and post as required.

### **2.2.9. Sanitary Facilities**

In accordance with the Burning Man 2006-2010 Initial Operating Plan, banks of portable toilets would be distributed throughout the City. Additional toilet banks would be placed near "The Man". Each toilet would be emptied and cleaned daily with all waste material being disposed appropriately off site. Toilets would be anchored to prevent winds from toppling them.

Human wastes removed from the site would be treated by the portable toilet vendor, and disposed of as provided under applicable state and local permits

### **2.2.10. Event Take Down and Clean Up**

#### ***On-Site***

Public service messages on event radio stations as well as other means would encourage participants to clean up their sites and take their garbage home or to an approved landfill. Structure and site clean up would begin on Tuesday after Labor Day. Structure disassembly and general on-site garbage removal would begin 4 days after the end of the event and would be completed within two weeks. BRC would dispose of debris in an approved landfill. Burn marks from fires would be shoveled, raked, and dragged to remove all debris and break up any hardened surface associated with baking of the playa surface. The perimeter fence would be the last structure to be removed. Dunes formed as a result of dust blowing into the perimeter fence would be dragged or graded. A detailed site inspection by BLM would occur during October each with a follow-up inspection-taking place in the spring. Post event debris could not exceed 1.0 ft<sup>2</sup>/acre.

#### ***Off-Site***

Off site clean up would include trash pickup on County Road 34 from Hualapai Valley to the town of Gerlach and on State Road 447 from the town of Wadsworth to the CA/NV border. Crews would patrol and collect all roadside trash for disposal in an approved site. If necessary, other road shoulders and sites would also be cleaned, including County Road 34 to Vya, and any other sites deemed necessary by



BLM. Off site clean up would follow event exit and continue for several days.

### 2.3. Alternative 1: Remain at the Current Location

This alternative is identical to the proposed action alternative with the exception that the event location would not be rotated between sites. The location of the event during the 2000-2005 events, identified as Site A on Map 2, would be used for the 2006-2010 events. Access to the event would use the 8 mile playa access road. Applicable sections of Appendices 1, 2 and 3 are also part of this alternative.

### 2.4. Alternative 2: Permit a Larger Event

This alternative is similar to the proposed action alternative with the following modifications:

- The maximum number of participants would be 50,000 during the 2008 to 2010 period.
- If the number of participants exceed 40,000 during the 2008 to 2010 period:
- The size of the city and the fenced area would be increased to 950 and 2990 acres respectively (as shown on Figure 3).
  - The location of BRC would be alternated yearly from Site B to Site C (as shown on Map 3).
  - Access to the event on the years when Site B is used would be from the 8 Mile playa access point. Access to the event on the years when Site C is used would be from the 12 Mile playa access point.

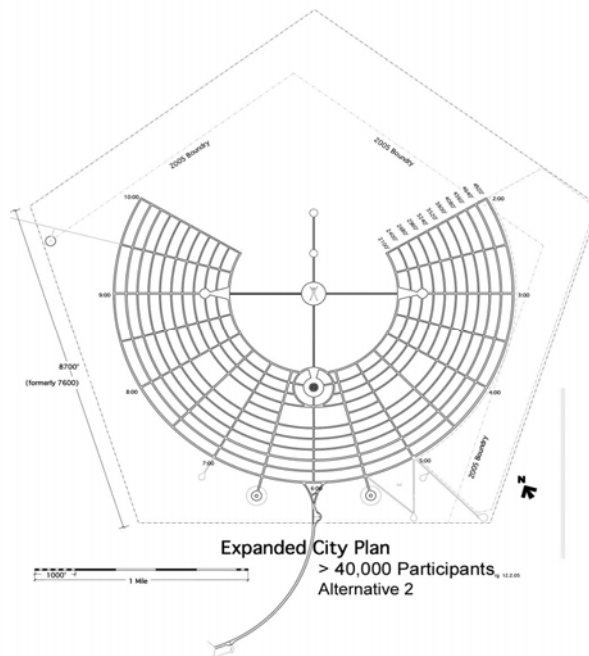


Figure 3



**Table 1: Critical Elements Considered**

Resource	Present	Affected	Unaffected	Section Reference
Air Quality	Yes	Yes		3.2.1, 4.1.1
Areas of Critical Environmental Concern	No			
Cultural Resources	Yes	Yes		3.2.2, 4.1.2
Environmental Justice	No			
Farmlands (Prime or Unique)	No			
Floodplains	No			
Migratory Birds	Yes		Yes	
Native American Concerns	Yes	Yes		3.2.3, 4.1.3
Noxious Weeds	No			
Special Status Species	No			
Waste (Hazardous or Solid)	Yes	Yes		3.2.4, 4.1.4
Water Resources and Quality	Yes	Yes		3.2.5, 4.1.5
Wetlands	No			
Wild & Scenic Rivers	No			
Wilderness	No			

**Table 2: Other Resources Considered**

Resource	Present	Affected	Unaffected	Section Reference
Playa Sediments and Vegetation	Yes	Yes		3.3.1, 4.2.1
Wildlife	Yes	Yes		3.3.2, 4.2.2
Recreation	Yes	Yes		3.3.3, 4.2.3
Socio-Economics	Yes	Yes		3.3.4, 4.2.4
Visual Resources	Yes	Yes		3.3.5, 4.2.5

### 3.1. Background

The proposed Burning Man event area is partially within the National Conservation Area (NCA). The NCA was established by legislation in 2000 (Public Law Public Law 106-554). The act includes language related to permitting of large-scale recreation events: *“The Secretary may continue to permit large-scale events in defined, low impact areas of the Black Rock Desert playa in the conservation area in accordance with the management plan...”*

The Black Rock Desert landscape consists of a large barren playa and adjacent wind-formed mounds, sheet sands, dunes, alluvial slopes, terraces, foothills and mountains. The playa encompasses about 265 square miles (169,000 acres). The Proposed Action is located in the

southwestern portion of the Black Rock Desert playa, where most recreation activity occurs.

The playa surface is a flat, non-vegetated ephemeral lakebed. Variations in surface relief develop seasonally. Wind and water changes the shape and size of dunes, sheets of silt and sand, and mounds.

## **3.2. Critical Elements**

### **3.2.1. Air Quality**

Air quality at the event location is high except during periods of localized dust storms. All areas of Humboldt and Pershing Counties are considered unclassifiable/attainment (Class II) for all pollutants (Holsher, 1998).

Air pollution associated with particulate matter in the Black Rock Desert area can come from a variety of sources including off-road vehicles, windblown dust, smoke from wildfires, and natural events. Air borne dust is the largest source of pollution. Dust events are generally short-term and do not exceed air quality standards. Dust also occurs naturally in the Black Rock Desert area associated with frontal passage and thunderstorms. The mountainous topography surrounding the playa subjects the area to intense winds that are funneled through the surrounding mountains onto the playa locally increasing the ability of the wind to create dust events on the playa surface.

### **3.2.2. Cultural Resources**

The Black Rock Desert is rich in cultural resources. Historic events within the NCA helped to mold and change the course of American History. One major driving force behind the designation of the NCA and Wilderness was the protection of the viewshed of the Applegate-Lassen Trail, one of largest intact emigrant trails left in the U.S. Several other historic trail routes cross the Black Rock Desert. The 1843-1844 John C. Fremont exploration party passed through the Black Rock Desert traveling south along the Black Rock Range to Great Boiling Springs near present-day Gerlach. Another major emigration route, the Nobles Trail, also crossed the playa. No traces of the Nobles Route remain in the vicinity of the proposed event site. During 1909, the Western Pacific Railroad built a transcontinental railroad along the southern edge of the Black Rock Desert, and the first US transcontinental telephone line also followed this route. In 1926, a portion of the silent film "The Winning of Barbara Worth" was filmed on the playa about 10 miles from the event, and features and artifacts from the early movie set still remain. During World War II and into the 1950's the Black Rock Desert served as a gunnery range for the

military. Old military bullets and cartridge casings can still be found on the playa. The 2006-2008 events would be located approximately 16.5 miles from the Applegate-Lassen Trail and adjacent to the 1852 and 1856 Nobles Routes. No artifacts are known from the proposed permit area. The event would be a temporary intrusion into the trail's viewshed and would not be an effect.

The Black Rock Desert playa is regularly disturbed by wind and water erosion as well as by vehicular traffic. Past inventories on the Black Rock Desert have demonstrated that the playa is not archeologically sensitive. Although isolated artifacts are occasionally found on the playa, these artifacts are without context due to the constant disturbance. Consequently no additional cultural resource inventories were undertaken.

### **3.2.3. Native American Concerns**

The event would occur within an area that was traditionally used and inhabited by the Northern Paiute people. The Pyramid Lake Reservation is located approximately 40 miles south of the permit area and the Summit Lake is approximately 60 miles north. Most participants to the Burning Man event travel through the Pyramid Lake Reservation on their way to and from the event. Representatives from both reservations have voiced concerns regarding potential impacts to significant sites and increased traffic during the event period. Event related trash left in the gateway communities Nixon, Wadsworth, Sutcliffe and the Summit Lake Reservation by event participants has also been a concern. The primary access roads to the event lead directly through Nixon and Wadsworth.

Several local entrepreneurs have developed outlets to provide visitor services (i.e. food and supplies) on the Pyramid Lake Reservation. BRC LLC has contributed over \$100,000 to the Pyramid Lake Tribe in community support and law enforcement fees. BRC LLC encourages their participants to take advantage of services offered by the tribe during their travels through the reservation.

### **3.2.4. Waste (Solid and Hazardous)**

The playa of the Black Rock Desert has been collecting debris associated with human uses since the first emigrant parties crossed it. The Desert was used as a military gunnery range during and after WWII and ammunition debris is still common. Evaluation of residual debris associated with the Burning Man event was initiated after the 2000 event. Debris was evaluated in three 150,000 ft<sup>2</sup> plots on a pass-fail basis estimated against a 5 ft<sup>2</sup> frame. This cleanup standard corresponded to 1.45 ft<sup>2</sup>/acre. No actual measurement or analysis was

conducted of the debris items or area covered. The sampling method changed slightly during the spring inspection following the 2001 event. The plot size was reduced to a 100,000 ft<sup>2</sup>/plot and the collected debris was sorted, measured and analyzed for debris size, number of debris items per category and debris area. In 2003 a new protocol was developed and tested using 0.1 acre circular plots. The new protocol was implemented following the 2004 event with a new cleanup standard of 1.0 ft<sup>2</sup>/acre. The new protocol allowed much more flexibility in data collection and analysis. Data from these surveys is documented in post event inspection reports (BLM 2005a, 2005b, 2005c) In addition to debris surveys associated with the Burning Man event; additional surveys were initiated in 2003 for the entire playa area to establish background debris levels.

Residual debris associated with the Burning Man event has been increasing. Figure 2 shows the trend for fall measurements of residual debris compared to playa background levels for the residential portion of BRC.

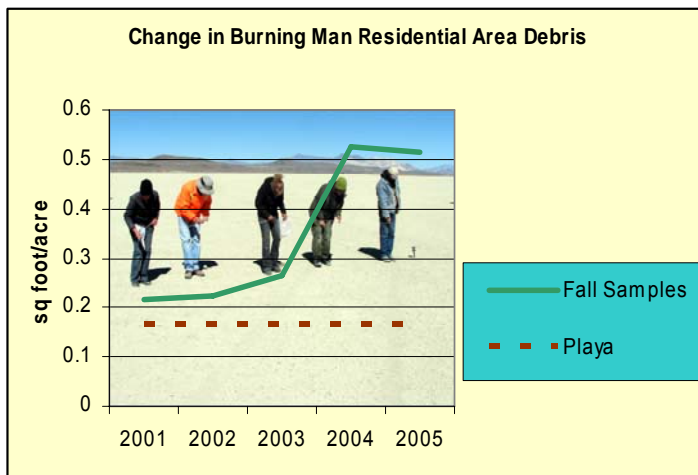


Figure 2

Regression analysis indicates that if present trends continue the standard could be exceeded in the future.

Hydrocarbon wastes are also deposited on the playa from dripping vehicles. Surveys were undertaken during the 2002-2004 events to determine how many vehicles drip oil and the type, condition and age of those vehicles (BLM 2003b, 2004b, and 2005d). Table 3 indicates the results of those surveys.

Table 3: Oil Drip Survey Results

Year	% dripping oil	Estimated # of dripping vehicles	Estimated total # of gallons
2002	16%	2,432	28.5
2003	11%	1,738	20.4
2004	5%	906	10.6

The decrease in vehicles dripping oil was attributed to two factors. During survey period the percentage of vehicles rated in “poor” condition decreased by almost 35% and the BRC LLC conducted outreach efforts prior to the event to encourage participants to maintain their vehicles or place barriers between the dripping vehicle and the playa surface. An evaluation of the fate of oil on the playa suggests that it is rapidly dispersed or broken down by sunlight (BLM 2004).

Human wastes collected from porta-potties is removed from the site by the sanitation vendor and disposed of in an approved manner. In recent years the vendor has hauled the effluent to private lands owned by BRC LLC about 10 miles north of the event, treated the wastes and injected the treated material into the soil under applicable federal, state and local permits.

### **3.2.5. Water Resources and Quality**

The Burning Man event site is located within the Black Rock Desert Hydrographic Region. The site itself is situated on the terminal lake/playa surface, which receives intermittent surface water flows from the Quinn River drainage, the Mud Meadow Creek drainage and other smaller streams. Surface flows and inundation are seasonal, normally associated with springtime snowmelt and occasional thunderstorms (Sinclair, 1963).

During high precipitation years, the playa is partially covered with standing water during the months of March into June. The extent and duration of standing water is dependent on weather conditions, annual precipitation and temperature regimes. In 2005 standing water covered most of the event site from April until June. The Burning Man event is held in late August and early September when the playa surface is dry. The playa has been classified as a discharging playa. This designation is due to the relatively shallow water table. The maximum depth to groundwater at the site is 5-10 feet. Through evaporation and capillary forces, groundwater is actively discharged to the atmosphere, resulting in a vertical hydraulic gradient. The Geological Survey tested water quality at several springs and wells throughout the Black Rock Desert, and found high concentrations of evaporate minerals leading to generally poor water quality (Sinclair 1963).

Coyote Dunes spring mound formed around a seep that is located approximately 3 miles from the event area. The spring mound is highly impacted by OHV use and other recreational use, but receives little to no use associated with Burning Man. No springs, seeps, wells, streams, or permanent lakes are located in, or adjacent to the event boundary. Several hot springs including Great Boiling Spring, Trego,

and Black Rock Hot Springs are located adjacent to the playa but more than 7 miles from the Burning Man event site.

### **3.3. Other Resources**

#### **3.3.1. Playa Sediments and Vegetation**

The Burning Man event site is on the playa of the Black Rock Desert, a miscellaneous landform. The playa is composed of silt and clay textured sediments and is highly alkaline in character. Because conditions are too harsh for vegetation, the material is not considered a soil.

The sediments of the playa surface are subject to displacement by winds when dry and disturbed. Winds that most commonly move the surface materials are associated with frontal passage or thunderstorms. Wind movement of sediment particles can cause the periodic formation of low, transient dunes. Wind erosion is a function of particle erodibility, surface roughness and weather conditions. Vehicle use and other disturbances on the playa alter the surface roughness. Increased roughness slows sediment particle movement across the surface, causing particles to accumulate on the leeward side of low features forming transient dunes. The dunes are temporary features generally less than a foot in height. The actions of wind and water over one or more winters lead to the removal of the dunes. These dunes have become increasingly common over the past several years, but have been documented prior to periods of heavy human activity on the playa surface (Neal 1970).

Compaction is an increase in the density of a material associated with rolling, tamping, or vibrating thus reducing pore space. The most important factors that influence density are: (1) moisture content; (2) particle size; (3) chemical properties (the saline/sodic nature of the playa); and (4) the timing, duration, type and degree of compacting force. The playa surface texture is silts and clays. The playa material varies in density depending upon winter temperatures and water saturation conditions. There have been no quantitative studies of compaction conducted on the playa of the Black Rock Desert. Observations by BLM during the random debris inspections provide some information about compaction (BLM, 2003). Plastic stakes used as plot centers were observed to be difficult to push into the playa surface in areas used as the main playa "roads". Away from the "roads" pushing plastic stakes into the surface was relatively easy, including Black Rock City. Compaction is usually considered an issue associated with changes in vegetation productivity. Compaction decreases vegetation productivity by decreasing infiltration of water, increasing run-off, and decreasing ability of plant roots to penetrate the



soil profile. None of these issues exist on the barren playa of the Black Rock Desert.

There is no vegetation on the playa within Black Rock City or the access roads to the City.

Lake-plain terraces adjacent to the event consist of Ragtown silty clay loam, Mazuma silt loam and Isolde fine sand soils along the fringe areas of the playa. The water erosion hazard associated with these soils is 0.37 (slight) and the wind erosion hazard is 43 (slight to moderate) (USDA NRCS, 1998).

Salt-desert shrub and salt-grass communities are the dominant vegetation types on lake-plain terraces. Vegetative cover on these sites is stable, with production and potential species composition considered healthy (BLM, undated).

### **3.3.2. Wildlife**

The playa of the Black Rock does not support resident terrestrial wildlife species. The lack of vegetation and water during much of the year create a hostile environment for large wildlife. Large, mobile species including badger, coyote, pronghorn antelope, and big horn sheep have occasionally been observed on the playa, presumably crossing from mountain ranges on either side. Shorebirds may use the playa surface as a temporary spring stop on their migrations when the temporary playa lake exists. Because of the variation in the size, location and depth of the lake this use by shorebirds is infrequent, particularly at the event site because it is on a portion of the playa where the seasonal "lake" lasts for a very short time in the winter and spring. The Nevada Division of Wildlife does not consider the playa an important stop for migrating shorebirds or waterfowl (Saake, 2000).

There are no species listed or proposed for listing under the Endangered Species Act within or nearby the permit area. A species list provided by the U.S. Fish and Wildlife Service (2000) indicates that the nearest listed species occur more than 40 miles from the playa.

The playa supports populations of aquatic invertebrates that can persist in the playa sediments until flooding allows them to hatch from eggs, grow, and reproduce. No inventory has been conducted which would confirm their abundance or diversity. In 2005 mature tadpole shrimp carapaces were observed on the playa surface following evaporation of the surface water that covered the BRC site from April until June. Periods of dry conditions are not been conducive to completion of their aquatic life cycle or allow them to be visible in the

surface water. Invertebrates found on other playa lakes in the region include several types of freshwater shrimp as well as other smaller invertebrates.

### **3.3.3. Recreation**

The Black Rock Desert Playa is a favorite recreation destination for people from surrounding communities, other areas in Nevada, and neighboring states. Recreational use on the playa can be categorized as either use associated with permitted activities or casual, dispersed recreation. There are a diversity of activities occurring within each category. The two categories of use represent near equal shares of the total recreation visitation. In 2005, there were an estimated 197,270 visits and 475,000 visitor days to the NCA, including both permitted and dispersed recreation users (BLM, RMIS 2005).

The Black Rock Desert playa is administered as a Special Recreation Management Area (SRMA) and is located in the Front Country visitor management zone. The SRMA and Front Country designation reflect the need for intensive planning and management for recreation opportunities and resource protection. The Resource Management Plan (RMP) for the NCA included specific decisions related to SRP management that allowed for continued use of the playa for large scale permitted activities.

The Burning Man event is the single largest permitted event that has occurred on the playa. There were approximately 191,300 visitor days associated with permitted activities in 2005, of which, nearly 189,000 were Burning Man participants. Other permitted activities include amateur and experimental rocket launching events, land sailing competitions, 4WD tours, land speed trials, and guided horseback trips, which make up a small percentage of overall use, but provide important recreation opportunities that are dependent on use of the playa. Conflicts between permitted users and access for other permitted uses during event periods are concerns that have been raised in the past.

Dispersed users of the playa and NCA are generally seeking solitude in the vast undeveloped region. Typical uses of the playa include camping, off highway vehicle travel, land sailing, exploring the emigrant trail, and soaking in hot springs adjacent to the playa. Access for dispersed users during event periods is also a concern that has been raised in the past.

### 3.3.4. Socio-Economics

Regional Conditions: Regional socio-economic effects from Burning Man events are realized primarily in two Nevada counties – Washoe and Pershing.

**Pershing County:** The 2004 estimated population of Pershing County is 6,405. The county contains 6,037 sq. miles (3,863,664 acres) with a population density of 603 acres per person. It is a wide open area in the heart of Nevada. Lovelock is the county seat for Pershing County and is located 92 miles east of Reno/Sparks. Lovelock was the last place where travelers could find abundant grass to feed their stock before crossing the 40-mile Desert. Lovelock was developed around the railroad, with its economy based on agriculture and mining. In Pershing County, one can enjoy the simple pleasures of a rural lifestyle and yet experience Nevada's unbeatable business climate. Home to wonderful outdoor recreation as well as numerous annual events, Pershing County offers everything one looks for in a rural setting.

Pershing County population statistics show that in 2005, 5,607 persons resided in the county. Population is projected to grow to 5,640 by 2009. Growth rates are slower than that for the State. Almost 80 percent of the population is white; the next largest population segment is Hispanic.

Most employment is found in the mining and government sectors, followed by the retail trade sector. Job growth in Pershing County is slower than the State. Per-capita income in 2000 was \$16,810 – a decline since 1990 of almost 20 percent. Over half (67%) of working-age individuals earned less than \$30,000 annually; none earned more than \$100,000. In 1999, 11 percent of individuals had income below the poverty line.

**Washoe County:** Washoe County is a growing area located along the eastern slopes of the Sierra Nevada Mountains in western Nevada. The county covers an area of 6,600 square miles in the northwest section of the State bordering California and Oregon and has a population of nearly 380,000. The county seat is the City of Reno, the second largest city in Nevada. Other communities in Washoe County are Sparks – to the east of Reno along I-80, Incline Village at Lake Tahoe, and Gerlach. Much of the land area in the county is managed by the Bureau of Land Management and therefore, characterized by open space and large vistas of public land, which many residents hold valuable.

From 1970 to 2000, Washoe County grew by 220,000 persons, a 180 percent increase. Over that time, population has grown slower than the state, generally and faster than the nation. The attendant need for housing has resulted in the transfer of BLM-managed public lands to the private sector for community expansion. Within that expansion, much land has been dedicated to recreational needs, such as parks and trails.

Job growth has followed population growth. Over the past 30 years, 175,000 new jobs have been created. Construction-related employment has accounted for 14,000 of those jobs; most new jobs were in the Services and Professional sectors. Currently, the Services and Professional sector employs the most individuals (75 percent), followed by the Government and Construction sectors, respectively. Total personal income is about \$20,000,000 for the county. Not surprising, the second fastest growth in new income was from Non-Labor sources (retirement, transfer payments, etc.), suggesting that a good portion of new income is from retirees who move to the area for a lower cost of living, open space, lack of congestion, and the like. For instance, almost 75 percent of residents were born in a different state, moving to Washoe County over the course of time.

Per capita income increased by 12 percent between 1990 and 2000. Average earnings are estimated at \$35,000 for the area. Sixty percent of county residents earn less than \$30,000 annually; three percent earn more than \$100,000.

**Direct Economic Contributions:** BRC estimates that the Burning Man 2005 event had an operating budget of approximately \$7.3 million. It is estimated that more than \$4 million of the budget was spent in northern Nevada. The regional expenditures include contracting for medical, fire, and law enforcement; services; equipment; supplies; and rental equipment (BRC, 2006b).

Over 35,500 participants attended the event in 2005, resulting in nearly 190,000 visitor days on public lands. This use represents approximately half the total visitor use to the NCA. Based upon numbers provided by BRC LLC (BRC, 2006b), visitors to the event generate at least \$10 million of economic activity in northern Nevada. BRC visitor survey indicates that about 2,000 participants return to the Black Rock Desert at other times of the year. These return visitors also contribute to local economies through expenditures such as gas, lodging and food.

In the past three years BRC contributed about \$300,000 to civic causes in Nevada including the Gerlach volunteer fire department and

the senior citizen's center, repair of the Gerlach water tower. BRC has also contributed to civic causes in Pershing County including the Lovelock Museum and the Pershing County School system (BRC 2006b).

### **Bureau of Land Management**

BRC paid BLM \$710,000 for its SRP fee in 2005. The fee is based upon a \$4 per participant per day calculation. Approximately 78% of this fee (\$553,000) was used by BLM to process the permit, assure that the permit stipulations were met and to provide law enforcement at the event. Fee proceeds above those spent to process and administer the permit are used locally to manage the NCA, support visitor services and education and for resource protection. Over the past several years a number visitor management projects and activities were conducted that were financed by permit revenues. Activities funded by the SRP fee include law enforcement patrols within the NCA, preparation and printing of a number of brochures and maps for distribution to the public, acquisition of the visitor contact trailer for the NCA, construction of campsites at Soldier Meadows, and various restoration projects in Wilderness areas and the NCA. Fees will also support a study to be initiated in 2006 to evaluate recreational impacts on the playa and its resources.

BLM management of the event also contributes to local economies. Hotel rooms, meals, gas and miscellaneous items are purchased to support event overhead and law enforcement operations. In 2005, approximately \$300,000 was spent by BLM in northern Nevada to support administration of the event.

### **Local Access and Transportation**

Visitors to the event primarily use Nevada Highway 447 between Wadsworth and Gerlach and between Cedarville, CA and Gerlach. Traffic volumes during the event period are the highest of the year on NV 447 south of Gerlach. According to Nevada Department of Transportation the highway is capable of traffic volumes well above the current use. There are seven public access points to the playa. During the event one of the seven is closed to public use.

Based on BLM random counts at the event gate indicating that vehicles are occupied by 1.9 persons on average, participant traffic is estimated at 18,600 vehicles. Factoring in the vehicles required to manage the event, up to 19,000 vehicles could be anticipated. Vehicle types range from cars and pickup trucks to larger trucks and motor homes. Numerous vehicles pull trailers. Commercial vehicle traffic is greatest before and after the event, but may also be present during the event. Generally visitor arrivals are spread over an entire week prior to

the burning of “The Man”, but departures occur over a two-day period. Therefore traffic volumes are highest on Sunday and Monday (Labor Day) with volumes of more than 6,000 thousand vehicles per day leaving the area.

### **Local Government Agencies**

The event requires coordination between two counties, NV highway patrol, NV department of transportation, and the Pyramid Lake reservation. Increased costs associated with traffic violations, indigent aid, criminal prosecution, waste removal, and public health and safety are incurred as a result of the event. Burning Man is required by permit stipulations to coordinate with local authorities to reach an agreement on the different roles and cost recovery for the various organizations.

In the past BRC LLC has directly compensated the Washoe County Sheriff's Dept., the Nevada Highway Patrol, and the Pyramid Lake Reservation for direct and indirect costs associated with impacts of the event.

### **Local Attitudes**

The Burning Man event generates a wide range of local attitudes. In 2005 there were 2,525 participants with northern NV zip codes, 31 of these participants were from the Gerlach-Empire area. Some local businesses and their employees that directly or indirectly benefit financially from the event are more likely to be neutral or supportive than local businesses and their employees that perceive direct or indirect adverse impacts to the conduct of their businesses (e.g. Empire Farms, U.S. Gypsum). Individuals that perceive activities that occur at the event to be in strong conflict with their personal values are uniformly opposed to the event.

### **3.3.5. Visual Resources**

BLM uses visual resource management (VRM) in the planning area to manage the quality of the landscape by minimizing potential impacts to visual resources resulting from development or permitted activities. The playa of the Black Rock Desert is being managed as a Visual Resource Management Class II area. Class II areas must be managed to retain their Visual Quality. Permanent changes in form, line, color or texture caused by a human related activity should not be evident in the characteristic landscape. Contrasts can be present but should not attract attention.

The Black Rock region allows for long viewing distances. One of the most dominant landscape features in the area is the playa. Viewed from it's midst, the playa appears to extend in an expansive,

boundless, manner in all directions. Very few human made features intrude the landscape, with the exception of the railroad and power line located along the southern edge of the playa. The largely unobstructed viewshed was an important element in NCA and wilderness designation and is an important resource to many users of the area.

## **4. ENVIRONMENTAL CONSEQUENCES**

### **4.1. Critical Resources**

#### **4.1.1. Air Quality**

##### **Proposed Action**

Activities associated with human uses on the playa including the Burning Man Event would increase airborne particulates as discussed in the Playa Sediment and Vegetation section above. Vehicle travel along dirt roads and the playa surface would create fugitive dust and the possibility of dust storms during dry periods of the year. It is estimated that the Burning Man event could increase total fugitive dust potential by about 10% over levels associated with all other human uses. However, these impacts would be localized in nature and would be of temporary duration. Event stipulations would require watering of heavy use areas thus reducing the potential for dust during normal wind conditions. The first wetting rains of the fall, which generally occur in September or early October, would stabilize the surface of the playa.

Temporary gaseous emissions would occur from vehicle and aircraft traffic in the area. These impacts would be of short duration and would quickly dissipate. Impacts to air quality would be minor and of short duration. Air quality standards would be met.

Other air quality impacts involve burning of synthetic materials including plastics and paints, as part of public burns. Synthetics may give off dangerous vapors but the open nature of the area and constant winds would provide for rapid dispersal of vapors. These impacts would also be minimal and short term. BRC and the BLM discourage burning of synthetics through permit stipulations, compliance inspections and participant education.

##### **Alternative 1: Remain at the Current Location Alternative**

Impacts would be the same as described for the Proposed Action.

##### **Alternative 2: Permit a Larger Event**

Impacts would be the same as described for the Proposed Action.

### **Alternative 3: No Action/No Event**

Under the No Action/No Event Alternative, impacts to air quality from dust and gaseous emissions associated would be reduced from those identified in the Proposed Action. It is estimated that opportunities for dust generation would be reduced by as much as 10 percent and vehicle emissions would be reduced by an unknown amount. Potential emissions associated with burning of synthetic materials would be minimal. If large numbers of individuals chose to hold an unauthorized event, dust levels and other emissions could approach levels identified for the Proposed Action. Air quality standards would be met.

## **4.1.2. Cultural Resources**

### **Proposed Action**

The proposed event site is approximately 16.5 miles from the Applegate-Lassen Emigrant Trail. Therefore no direct impacts to Applegate-Lassen Trail or setting of the trail are anticipated. Although no extant surface vestiges remain from the Nobles Trail, the original route from Black Rock Hot Spring is believed to be very near the proposed event site. There is a low probability that excavation of holes or pits could expose buried historic trail artifacts. The event would be a temporary intrusion into the setting and would not be considered an effect.

Visitors outside the City could collect artifacts or inadvertently disturb cultural sites. Burning Man's efforts to encourage participants to stay at the event by charging a re-entry fee and stationing a hot spring "steward" at each of the nearby hot springs to discourage participant use have been documented to decrease use at hot springs. BLM monitoring of cultural sites outside of the event and Burning Man sponsored public education efforts would minimize this potential impact.

A potential indirect impact is that increased awareness of the Black Rock Desert among the large number of participants as well as wide media coverage could lead to increased public use of the area that could impact cultural resources in the long term. Public education efforts associated with the event would help prevent these potential impacts.

### **Alternative 1: Remain at the Current Location**

Impacts would be the same as described for the Proposed Action.

### **Alternative 2: Permit a Larger Event**



Impacts would be similar to those described for the other alternatives, but could also have impacts related to upgrading or modifying the 12-mile playa access to accommodate the site. A cultural resource inventory would be required for any upgrades to the 12 Mile playa entrance, especially for the area near the playa margin. If significant resources are encountered as a result of that inventory, the entrance upgrade will need to be relocated to avoid the resource, or the resource will need to be otherwise mitigated.

### **Alternative 3: No Action/No Event**

Under the No Action/No Event Alternative, potential direct impacts to cultural resources, indirect visual impacts to historic landscapes, and other indirect impacts from increased awareness of the area would not occur. If a permit was not issued, it is anticipated an unknown number of individuals would conduct an unauthorized event. This could lead to impacts to cultural resources adjacent to the 2000-2005 location of the City.

## **4.1.3. Native American Concerns**

### **Proposed Action**

Potential impacts to local tribes could include direct impact to cultural sites in the nearby area. Over the past several years, the in-out fee BRC requires of participants who leave the event and wish to come back in has decreased the number of participants venturing out into the surrounding area on their own. Continuation of this requirement would decrease the risk of inadvertent disturbance to cultural sites and artifacts to minimal levels. BRC would also be required to notify event participants that it is illegal to collect archeological artifacts, and in the unlikely event that artifacts were found that BLM be immediately notified. The stipulations also require BRC discourage use of culturally sensitive hot spring areas. BLM rangers would patrol the sensitive areas, and BRC would place monitors at each of the nearby hot springs. BLM monitoring has shown that very little participant use of the hot springs is occurring during the event, but there is some evidence that event participants use area hot springs before and after the event. Monitoring has not shown adverse impacts from this use. This trend would be expected to continue.

The event would generate additional traffic through the Pyramid Lake Indian Reservation on NV Route 447, the primary access to the event from I-80. The additional traffic would create a need for increased law enforcement support from the Tribal Police. This traffic would increase opportunities for Native American owned businesses on the reservation to generate increased revenues from providing goods and services to event participants. A limited amount of trespass by

participants hoping to swim in Pyramid Lake would be expected. This impact would be minimal due to efforts by tribal representatives and BRC, who are coordinating efforts to educate participants and distribute permits for legal use of the reservation and Pyramid Lake.

The passage of thousands of vehicles through the Pyramid Lake Reservation could generate additional litter. This impact would be temporary, as BRC is required to clean up Highway 447 from Gerlach to Wadsworth, and Highway 445 from Gerlach to Sutcliffe.

The Summit Lake Indian Reservation could receive a few additional visitors on the dirt and gravel roads through the reservation. The event would have no traffic related impacts on the Summit Lake Reservation.

**Alternative 1: Remain at the Current Location**

Impacts would be the same as described for the Proposed Action.

**Alternative 2: Permit a Larger Event**

Impacts would be the same as described for the Proposed Action.

**Alternative 3: No Action/No Event**

Under the No Action/No Event Alternative, potential direct impacts to Native American Values would not occur. If a permit was not issued, it is anticipated an unknown number of individuals would conduct an unauthorized event. This could lead to increased traffic and littering through the Pyramid Lake Reservation. There would be no litter pickup following the unauthorized event. There would be no impacts to the Summit Lake Reservation.

**4.1.4. Waste (Solid and Hazardous)**

**Proposed Action**

Permit stipulations require that solid waste be removed from the site. The event generates tons of solid waste removed by individual participants or by BRC LLC. The majority of this waste ends up in landfills in northern Nevada, either through direct placement in dumpsters on the event or BRC placed at highway rest stops or indirectly from cleanup efforts along the access routes for the event.

The permit also requires that residual debris levels after cleanup not exceed 1.0 ft<sup>2</sup>/acre. During the 2001 to 2005 period the clean up has resulted in this standard being met. During this same time period debris levels have increased to a level slightly more than half the standard for the residential area. The annual increase has been consistent between 2002 and 2005; about 0.12 ft<sup>2</sup>/acre per year. Debris outside the residential area but within the perimeter fence is

less than those in the residential area, indicating that most of the activities that generate debris occur within the 820 acre residential area. When compared to the playa outside the event residual debris in the residential area covers more than three times the area covered by debris outside the event (BLM 2003, 2004a and b, 2005).

Assuming that the 2006-2010 cleanup efforts is similar to the 2000 through 2005 cleanups, debris on each of the 820 acre sites occupied by Black Rock City would be expected to increase by an estimated 0.10 ft<sup>2</sup>/acre each time the event site is used. Periodic flooding events as experienced in 2005 and 2006 would partially offset increases in debris area and debris items due to accelerated decomposition, incorporation into wet sediments and water/wind transport from the sites. Over the period of the permit (2006-2010) the cleanup standard of 1.0 ft<sup>2</sup>/acre would not be exceeded on either of the two alternating sites.

Debris within the residential portions of the event the surface area covered with debris would increase about 2X to 3X denser than on adjacent parts of the playa and there would be more debris items (>100) per acre inside the City compared to 38 items outside. These increases in the number of debris items and area covered by debris would occur on less than 1% of the playa surface. Even within the residential portions of the event the debris levels would remain low. The casual visitor would not perceive a major difference between average debris conditions inside the City compared to outside.

The Proposed Action would result in limited amounts liquid wastes being deposited on the playa. BLM surveys conducted from 2002 to 2004 identified oil deposition as declining even though population levels had increased during the same time period (BLM, 2003b, 2004). Assuming that oil deposition remains at the 2003-2004 average and the event population does not exceed 40,000 participants, oil deposition would remain less than 20 gallons over the 700 plus acre residential area (3.0 ounces/acres) estimated in 2003. Reports by Johnson (2000) and Tagget (2000) indicate that this material would be readily absorbed in the top layer of sediment and then volatilized, dispersed as a film in the intermittent lake surface or photo-degraded within a relatively short period of time.

A small percentage of the participants dispose of gray water on the playa. This activity is prohibited by BLM and BRC, but still infrequently occurs. The major component of gray water is likely to be soaps and detergents used in dish washing and bathing. These materials readily break down in the sunlight and pose insignificant impacts.

Portable toilets are placed within the City in large banks and anchored securely to the surface. Therefore it is unlikely that human wastes would spill or leak from these locations therefore there would be no measurable impact. Human wastes from the portable toilets is removed from the playa by the toilet vendor, treated and injected into soils on private lands under approved permits. Recently this process has occurred on private lands owned by BRC LLC. The net result of this process is the improvement of soil fertility on the areas subject to injection of the treated effluent.

Hazardous and flammable liquids are also used at the event, including fuel and paints. No documented spills occurred during the 2000 through 2005 period. Spills of volatile materials would be rapidly dispersed from the playa through evaporation. Other materials would vary in their break down pathway with active cleanup potentially required. BRC is actively managing these liquids, as part of the permitting process and the likelihood of spills of measurable quantities would be minimal.

#### **Alternative 1: Remain at the Current Location**

Impacts would be very similar to those described for the Proposed Action. The major differences would be in the accumulation of debris on the single event site. Assuming that the 2006-2010 cleanup efforts is similar to the 2000 through 2005 cleanups, debris on the single 820 acre residential area occupied by Black Rock City (Site A) would be expected to increase by about 0.1 ft<sup>2</sup>/acre every year. Based upon this projected yearly increase, the cleanup effort could fail to meet the 1.0 ft<sup>2</sup>/acre standard in four or five years (2009 or 2010) for the residential portion of the event area. This projection does not include the potential beneficial impact of periodic flooding as experienced in 2005 and 2006. Post flooding inspections reveals statistically significant reductions in residual debris levels (BLM 2005) BRC LLC has proposed an increased effort in cleanup during the permit period. If this increased effort is effective, then there is a high probability that the cleanup standard of 1.0 ft<sup>2</sup>/acre would not be exceeded during the permit period. Residual debris levels in other parts of the event area, outside the city grid, would also be expected to increase during the permit period, but would not exceed the standard (BLM 2005). Impacts related to oil, human and liquid wastes would be the same as described for the proposed action.

#### **Alternative 2: Permit a Larger Event**

Assuming that the event population increased to levels that would require a larger event footprint, the impacts would be similar to those described for the proposed action. Both city locations would be new during the permit period and debris levels at both locations would

increase over time as the two city locations are used on alternative years. Neither site would be expected to exceed the cleanup standard of 1.0 ft<sup>2</sup>/acre during the permit period. Impacts related to oil, human and liquid wastes would be the same as described for the proposed action.

### **Alternative 3: No Action/No Event**

Under the No Action/No Event Alternative, it would be anticipated that an unknown number of individuals would stage a non-permitted event at the location of the City. There would be no post-event cleanup so debris levels would be expected to increase over that observed during the past several years. Gray water dumping would be expected to exceed past levels. Human waste levels on the playa or in shallow “cat-holes” would be expected to increase substantially over levels in the recent past because no sanitation facilities would be available.

## **4.1.5. Water Resources and Quality**

### **Proposed Action**

Groundwater at the location of the City varies seasonally and is at most 5-10 feet below the surface. The upward hydraulic gradient would prevent potential contaminants from moving into the groundwater. Surveys conducted during the 2002 to 2004 events indicated that oil contamination of the playa surface from vehicles was minor (BLM, 2003, 2004). Burning Man 2006-2010 would be expected to be of similar size to the 2005 event. Further analysis indicates that contaminants would be dispersed by wind or the seasonal lake and either diluted or photo degraded to insignificant levels (Johnson, 2000; Tagget, 2000) Therefore no impacts to groundwater would result from implementation of the Burning Man event.

Potential increased human visitation to hot springs by Burning Man participants before or after the event may cause temporary adverse impacts from human use. Event monitoring indicates that minimal use occurs at hot springs near the event, primarily Trego and Garrett Ranch. BLM monitoring indicates that visitor use levels at Soldier Meadows, where rare plant and animal species are associated with hot springs, is very low during the Burning Man event and few participants visit the area before or after the event. Potential impacts to hot springs include accelerated sedimentation of hot spring pools, intentional and unintentional alteration of channel and flow characteristics, and addition of foreign substances to water sources. BRC and BLM actively discourage event participants from using the hot springs during the event through the use of a re-entry fee for participants that leave the event and wish to return. Additionally BLM and BRC LLC provide hot spring patrols and monitors during and immediately after the event,

which would minimize potential impacts on hot springs waters and the surrounding environment.

**Alternative 1: Remain at the Current Location**

Impacts would be the same as described for the Proposed Action.

**Alternative 2: Permit a Larger Event**

Impacts would be the same as described for the Proposed Action.

**Alternative 3: No Action/No Event**

The event would not be authorized, and impacts to springs would be similar to what occurs associated with current dispersed recreational use. If no permit were issued, an unknown number of individuals would be expected to participate in an unauthorized event. This could lead to a large increase in dispersed recreation use at hot springs adjacent to the 2000-2005 location of the City. Additional visitors could increase sedimentation, channel and flow alterations and pollutants of hot spring water sources. Because the participants would be unconstrained, many would be expected to visit hot springs. The impacts to hot springs water and the surrounding environment could be substantially more than those anticipated for the Proposed Action.

**4.2. Other Resources**

**4.2.1. Playa Sediments & Vegetation**

**Proposed Action**

Vehicle traffic and other disturbances would change the surface roughness and disturb the water-stabilized surface of the playa. The degree to which the surface sediments become available for wind dispersal is largely dependant upon the moisture and structure in the surface layer of the playa. Dry conditions and “fluffy” structure lead into loose playa surface layers. Disturbed surface materials can then be easily be picked up by strong winds associated with frontal passage or thunderstorms. These conditions lead to wind movement of the surface particles causing formation of transient dunes and wide dispersal of surface material in dust storms.

During the dry portions of the year, June through September, it is estimated that 5 percent (about 8,400 acres) of the playa surface would be subject to surface disturbances that allow winds to easily carry the surface sediments. Continued use by vehicles on or adjacent to 115 miles of playa “road” would disturb the surface on an additional 300 acres. The Burning Man Event would increase the amount of sediment available for movement by wind during the mid August through September period. Sediments on the entire 820 acre

residential portion of the City become available for wind dispersal as well as surface materials on one third (760 acres) of the 2,280 additional acres associated with the event. The Burning Man event would increase the surface of the playa with loosened surface sediments subject to being blown by an estimated 18%, which is less than 1% of the entire playa surface. The total area of loosened surface that is likely to contribute to dust storms on the playa from all human uses would be about 5% of the entire playa surface.

On alternating years when the City is located in the more northeastern position, access for participants and BLM administrative staff would be increased by about 1¼ miles compared to the site closer to Gerlach. This would slightly increase the surface area (by an estimated 2 acres) likely to contribute blowing dust during and after the event over the area discussed above. The increased likelihood of dust storms associated with event would be short term. Wetting rains, generally occurring in September or October, would seal the playa surface and decrease the ability of winds to move dust.

The potential increase in dust storms associated with the event only considers dust storms related to human disturbances. There are also dust storms that move large amounts of materials in and around the playa, but appear to be unrelated to human disturbance. It is common to observe dust blowing onto the playa from the Smoke Creek Desert to the west and from the East Arm of the Black Rock Desert to the east. Neither of these areas is subject to wide spread human disturbances; especially the East Arm since it is included in the Black Rock Desert Wilderness Area.

Wind erosion associated with the playa, including the Burning Man Event, varies depending upon surface moisture and the amount of strong winds that occur during the dry periods of the year. The entire playa is usually subject to wind erosion for three to four months each year. The maximum time period during which the Burning Man event would create increased potential for wind erosion would be six to eight weeks. Wetting rains can decrease this period to a few days. Wind erosion would be expected to create a very shallow depression at the location of Black Rock City. Observations of coins left on the playa surface within Black Rock City indicate wind erosion of up to five millimeters following the 2002 event. Alternating the events between Sites A and B (Map 2) would allow time for the combination of water and wind to deposit sediments in the shallow depression and partially or completely fill the depression depending on the amount of flooding each year.

Sediments moved by windstorms from the playa are primarily deposited back on the playa surface or on adjacent uplands. Increased vehicle use and other human activities yearlong alter surface roughness by creating ruts and areas of loosened sediments. Increased surface roughness decreases the distance that soil particles travel by causing playa particles to accumulate behind any vertical obstruction leading to the formation of transient dunes. During the past several years transient dunes have become common adjacent to the primary playa "roads" and also downwind of Black Rock City. No complete inventory of transient dunes has occurred but the location of transient dunes downwind of the Burning Man Event suggests that some of the transient dunes observed in the past several years are the result of disturbances associated with the event.

The actual formation of transient dunes following disturbance would depend upon the number of strong wind events that occur following disturbances and prior to wetting rains. As discussed above, disturbances associated with the event would be a fraction of the total human caused disturbances on the playa over the course of a year.

Dust storms during or immediately after the event would create sediment windrows along the perimeter fence. Dragging or grading during the cleanup phase would eliminate these windrows. Event stipulations require watering of dust areas thus reducing the amount of material potentially available for wind movement.

Alternating the event between two locations would be expected to result in a shift in transient dune fields between sites downwind of each city location. Dune fields associated with Site A would be subject to leveling and redistribution when Site B is utilized. Dune fields associated with Site B would be more likely to remain in place until winters with substantial flooding and wind to redistribute the sediments in dunes across the playa surface.

Compaction occurs when moist sediment particles are subjected to forces that decrease the pore space. Dry and saturated materials do not readily compact. Compaction on the playa occurs primarily on the 115 miles of playa "road" which are used almost yearlong by vehicles. During the spring, when the moisture is at or near the surface, repeated passage of vehicles causes compaction of these areas. The Burning Man Event would occur during the driest part of the year and on a part of the playa that dries early in the year. Event traffic would slightly increase the potential for compaction on the playa surface for both Sites A and B in areas of high traffic volume especially the entrance road. Limited observations associated with random debris plots within and near the City indicate no evidence of compaction when



compared with adjacent playa "roads". The restrictions on most traffic movement within the City including the requirement that event participants to walk or ride bicycles would reduce the potential for compaction.

The areas of vegetated soils outside Black Rock City would not be subject to impacts from the event. These areas are outside the perimeter fence. Event participants are discouraged from using these areas and the sites are patrolled on a regular basis to minimize use. Therefore there would be no impact from the event on the soils and vegetation of dunes and hummock areas adjacent to the event. Dispersed recreation use including OHV use would continue to impact a small fraction of the dune and hummock sites surrounding the entire playa.

### **Alternative 1: Remain at the Current Location**

Impacts would be very similar to those described for the Proposed Action. The only differences would be:

1. The surface area likely to generate dust would remain the same from year to year because the length of participant and administrative access to the site would not change.
2. Transient dune fields would be associated with one location and would be relatively stable. Dune repair would be dependant upon flooding events that disperse dune sediments over the entire playa.
3. The area of compaction would be smaller, since only one event site would be used.

### **Alternative 2: Permit a Larger Event**

Impacts would be similar to those described for the Proposed Action. The establishment of a larger city grid and longer access routes for both participants and administration of the event would increase the area of the playa suitable for contributing to large dust events during and after the event. Assuming that the event would immediately grow to levels that require a larger city footprint in 2008, the area likely to contribute to dust generation would increase from about 1,600 acres to 1,950 acres, an increase of 22%. The total area of loosened surface that is likely to contribute to dust storms on the playa would be about 18 % of the total area of the playa loosened by human activities or about 6% of the entire playa surface.

### **Alternative 3: No Action/No Event**

Under the No Action/No Event Alternative, impacts from dispersed recreation would continue to be associated with wind erosion, dune formation and compaction. Over 8,400 acres of surface disturbance within the 168,000-acre playa surface would continue to be subject to

accelerated erosion associated with human caused disturbance. Transient dune formation would continue near areas subject to disturbance during dry periods. Compaction associated with 115 miles of playa "road" would be expected to continue. If a permit was not issued, it is anticipated an unknown number of individuals would conduct an unauthorized event. This could lead to increases in wind erosion and transient dune formation associated with the site.

Impacts on vegetation and soils of the dune and hummock areas would be the similar to those described for the Proposed Action. The presence of an unknown number of unofficial event participants could lead camping and OHV use of dunes and hummock areas adjacent to the historic location of Black Rock City. This unauthorized, concentrated use could lead to accelerated soil erosion and localized loss of vegetation from a few hundred acres.

#### **4.2.2. Wildlife**

##### **Proposed Action**

The event would have no measurable impacts on terrestrial wildlife. There are no resident terrestrial species on the site of the event and the restrictions of the event participants effectively limit use of the adjacent dunes and hummocks.

Impacts on aquatic species are largely unknown. There is no inventory data on presence, abundance or diversity of aquatic invertebrates that are expected to occupy the playa. Invertebrates hatch from eggs in the surface sediments when the seasonal lake wets the surface of the playa. These animals complete their life cycle and lay eggs within a few weeks when adequate water is available.

Several aspects of the event could affect invertebrate eggs. Oil dripping from vehicles could directly kill eggs. An analysis of oil drip data suggests that hydrocarbons deposited onto the playa surface are not likely to contaminate surface sediments except for the immediate vicinity of the drip. This would minimally affect eggs within the event and over the entire playa. Oil deposited on the playa would be dispersed by wind and water, which would dilute or degrade the contaminant to non-measurable levels. The concentration of oil in the seasonal lake was estimated to be less than 50 parts per billion (BLM, 2003b). Hatchability of eggs of brine shrimp similar to those that may occupy the site indicate that egg hatch decreased at oil concentrations above 50 parts per million (Kuwabara et al, 1980). A concentration of 50 parts per million is 5,000 times higher than the projected concentration of 10 parts per billion. Surface disturbance could allow eggs to be blown from or into the site in dust storms (Pennak, 1989).

Observations of coins left on the surface of the playa indicate that the net movement of dust is away from the City. This would also result in a potential decrease in egg densities at the City location. It is unknown whether transport of eggs in dust storms alters their viability. Certainly eggs transported off the playa by dust storms would be unable to hatch. Assuming that all eggs deposited on disturbed portions of the City and adjacent area would be lost, potential egg abundance would decrease about 0.8 % over the entire playa. It is unknown how the rotation of the event between two sites would affect the potential for short term recovery of the “rested” site for the production of aquatic invertebrates.

**Alternative 1: Remain at the Current Location**

Impacts would be the same as described for the Proposed Action except that any potential recovery of site for the production of aquatic invertebrates would be foregone.

**Alternative 2: Permit a Larger Event**

Impacts would be similar to those described for the Proposed Action. Assuming that the population growth of the event would require the larger city layout, potential loss of habitat for aquatic invertebrate species would decrease on about 1.0% of the entire playa.

**Alternative 3: No Action/No Event**

Impacts on wildlife species, both terrestrial and aquatic, would be the essentially the same as described for the No Action/No Event Alternative. Participants at an unauthorized event would disturb an unknown number of acres at the historic Black Rock City.

**4.2.3. Recreation**

**Proposed Action**

The recreation environment and opportunities in the NCA and surrounding area are affected before, after and throughout the event period. There is potential for impacts to public access, transportation to and through the event area, competition with other permitted uses of the playa, and conflict between various user groups. Many of the potential impacts are mitigated through permit stipulations, negotiated operating procedures, and cooperation with outside agencies and interests.

Public access to the playa and the NCA would be retained during the event periods, with the exception of the 8-mile playa access and areas immediately within and adjacent to the permit area, which would be used exclusively for the Burning Man event and to ensure event security. All other access points to the playa, and the playa roads, that

do not cross through the event area, would remain open to public use. North-South access across the playa on the West side of the event would be restricted and limited to Highway 34 between the 8-mile access and the 12-mile access. Impacts to public access at the other entrance points would be minimal, since participants would be required to use the 8-mile entrance, and there would be limited use of the other playa entrances by BLM, law enforcement, and other cooperators.

Traffic congestion along the two main highways leading to and passing through the area is expected to be the greatest impact to public access. Visitors and local residences using highways 447 and 34 to access the playa and other parts of the Black Rock region, and those who are traveling through the area on these highways would be inconvenienced by traffic congestion. These impacts would be greatest during periods of ingress and egress, but increased traffic volume would also be expected before, after and throughout the event period. These users may be displaced to alternative routes, which would increase traffic volumes on those roads.

Dispersed recreation on the playa could also be affected by the proposed action. The Black Rock Desert playa is a remote area that attracts many users who are seeking solitude. During the permit period, those visitors who are searching for solitude on the playa would have to travel further north to areas away from the event. Visitor freedom of choice would also be impacted by closures to camping, the discharge of firearms, and landing of aircraft in areas immediately adjacent to the permit area. Monitoring and patrol of popular recreation sites, including the hot springs at Soldier Meadows, Double Hot Springs, Black Rock Hot Springs, and Trego Hot Springs shows that there is very little use of these areas by event participants during the event. The popular off-site areas would be patrolled by BLM and Burning Man staff to discourage use by event participants. Some participant use would be expected to occur in these areas before and after the event, which could result in competition for campsites adjacent to hot springs and conflict with other area users. An unknown number of users are displaced to other recreation sites or areas during the event. Displacement increases use in other areas and increases the potential for use related impacts in those areas.

The event has introduced thousands of people from throughout the world to the Black Rock area either through participation in the event and/or increased media coverage associated with the event, which may have long-term impacts to the recreational environment in the area. Approximately 2,000 Burning Man participants are thought to return to the Black Rock Desert outside of the event period. Resource impacts related to return visitation by event participants is thought to

be minimal because of the educational, safety, and low-impacts messages that are given to event participants. Future users that come as a result of their Burning Man experiences would be better educated about the values of the area than many other visitors to the area.

Physical disturbances, such as pitting or rutting of the area surface, or debris left from the event could leave the playa in a less than ideal condition for other uses. Having a flat playa surface is critical to land sailors and land speed record attempts. Even with cleanup after the event, small portions of the playa could be less usable for these activities until wetting rains provide moisture to stabilize and redistribute playa sediments.

The potential for conflict between other permitted uses also exists due to temporal or spatial conflicts with the Burning Man event. The RMP for the NCA identified a standard for permitted uses on the playa that would limit the number and size of permitted activities to provide opportunities for dispersed recreation and solitude during at least one-half of the primary visitor use season. Therefore, requests for other permitted events could be denied or moved to other times of the year creating potential hardship for those involved in the other events. If a concurrent event were authorized, the need for additional constraints or alternative transportation plans could be necessary. There are no known conflicts between the Burning Man event and other permitted events; therefore this potential impact is not likely to occur.

#### **Alternative 1: Remain at the Current Location**

Impacts would be the similar as described for the Proposed Action, but would be concentrated in a smaller area. The potential for long term surface defects may be greater than under the proposed action since the event site and access roads would be utilized for up to five additional and consecutive years. A greater level of surface deflation and dune development would result in conflicts with other uses that require a flat playa surface.

#### **Alternative 2: Permit a Larger Event**

Impacts would be similar as those described for the Proposed Action. Public access would be impacted differently due to the event location and proposed changes in event access routes that would utilize the 12-mile playa access instead of the 8-mile playa access. However, public access would be retained for the majority of the playa and North – South playa roads that do not cross through the event, would remain open for dispersed recreation users. Some popular campsites on the Western edge of the playa may be closed during event periods, which would impact a small number of dispersed users. The proposed location may eliminate conflicts with recreation users who are using the

playa to access Trego hot springs and other areas in the southern portion of the playa and NCA. Due to the larger event footprint, surface disturbance that impacts use by other recreation users could be greater.

**Alternative 3: No Action/No Event**

Potential conflicts with other recreation users and impacts to public access would not occur under this alternative. However, if an unauthorized event were held, the impacts to recreation could exceed those of the proposed action.

**4.2.4. Socio-Economics**

**Proposed Action**

The estimated \$4 million spent by BRC in northern Nevada would provide direct economic benefit to the area. In addition, visitors to the event would generate an estimated \$10 million of regional economic activity during the 7-10 days of the event. Any money donated by BRC directly to local organizations should improve the financial status of these organizations and their effectiveness in improving local quality of life.

The economic benefits to northern Nevada generated by Burning Man are not without direct and indirect costs and not all businesses would benefit. Some businesses could experience increases in customer numbers requiring the short term hiring of additional staff and greater operating expenditures. The influx of customers could deplete inventories and cause temporary, localized shortages of items or services desired by area residents. Other businesses, particularly those dependant upon use of Nevada 447, would be expected to at least inconvenienced during the event because of the huge increase in traffic. For safety reasons, some commercial truck transportation could be suspended during the event. This disruption of transportation could have a small, short-duration, direct economic effect on businesses that are not prepared for the increased traffic.

The event would be expected to cause traffic slowdowns on area highways especially on the Sunday and Monday after "The Man" is burned. Traffic could become slow and frustrating for local residents and event participants. Advance publicity of the event providing dates and estimated numbers of participants would minimize the potential for any adverse economic impacts.

The public derives benefit to recreational resource values and resource protection as a result of the estimated \$150,000 to \$200,000 received as the net proceeds associated with the permit fee. These funds have

been invested in public information products and facilities, campsite development, Law enforcement patrols of the NCA and wilderness, wilderness restoration projects, and cultural resource management projects. It is anticipated that similar kinds of projects would be funded in the future.

Several state and local agencies are involved in event planning, provide support for the event, or are otherwise affected by the event. Local law enforcement, road departments, and other community services are impacted before, after and during the event period. BLM permit requirements include coordinating and compensating local agencies/entities that are most impacted by the event. The increased commitment of resources during the event reduces their ability to address other problems in their communities or jurisdiction.

Many residents of Gerlach and Empire enjoy the remoteness and lack of crowding or urban influence on the area. During event periods many residents are inconvenienced by traffic, increased people in town, and other increased activities in their communities. Local gas stations, restaurants, and the convenience store commonly have long lines and exhausted supplies during and after event periods.

#### **Alternative 1: Remain at the Current Location**

Impacts would be the same as described for the Proposed Action.

#### **Alternative 2: Permit a Larger Event**

Impacts would be the largely the same as described for the Proposed Action. The only differences would be:

1. Spending by BRC LLC and participants would increase in northern Nevada.
2. A larger population would lead to greater impacts to segments of the local communities dependant upon NV 447 for the business and person needs.
3. Unknown impacts on BLM's opportunity to provide additional on-the-ground management of the area. While fees would go up with an increased event size, the support infrastructure in the Gerlach-Empire area for BLM's administration of the event would likely be exceeded. This would raise operational costs and could result in a net decrease on the net proceeds of the permit fee.

#### **Alternative 3: No Action/No Event**

The No Action alternative would deprive local communities and the surrounding region of the economic benefits of the event. If an unauthorized event were held, some economic benefit would be received, but the majority of benefit would be derived from the

organized aspects of the event. If an unauthorized event were to take place, the disruptions on local individuals, agencies and businesses associated with the event would be reduced. If a spontaneous, unpermitted event were held by former participants, some adverse impacts to the local communities and local and BLM law enforcement agencies could be expected.

#### **4.2.5. Visual Resources**

##### **Proposed Action**

The Black Rock Desert playa is managed as a Class II VRM area (BLM, 2004). Class II areas must be managed to retain their Visual Quality. There would be temporary visual impacts from the Burning Man. Lighting from the City would be visible for several miles at night. The 50-foot tall wood sculpture known as "The Man," would also be seen from long distances, especially when lighted at night. Most visual impacts from the event would be short term, limited to the southern part of the playa and would be eliminated following take down and clean up. Obvious short term contrasts in line and color, created by the temporary roads and fence lines, would be visible until winter flooding and wind redistributes playa sediments. Water and wind action during the winter season typically eliminate visual disturbances to the playa by smoothing the playa surface texture.

##### **Alternative 1: Remain at the Current Location**

Impacts would be the similar as those described for the Proposed Action. However, continued use of a single site may create visual disturbances in line and color for a greater period of time, since the same site and access roads would be used for up to five additional and consecutive years. These visual impacts would be substantially unnoticeable from the ground following winter flooding.

##### **Alternative 2: Permit a Larger Event**

Impacts would be the same as described for the Proposed Action.

##### **Alternative 3: No Action/No Event**

Under the No Action/No Event Alternative visual impacts associated with an unauthorized event at the historic location of the Event could result in short-term impacts to visual quality similar to those discussed for the Proposed Action.

#### **4.3. Potential Mitigation/Monitoring Measures**

Mitigation is defined in the Council of Environmental Quality (CEQ) regulations §40 CFR 1508.20 and includes avoiding an impact, minimizing



impacts and rectifying an impact by repairing, rehabilitation, or resting the affected environment.

- If cleanup studies indicate the cleanup standard has been or is likely to be exceeded, the permit will be suspended until the site has been cleaned up to a level not to exceed 50% of the standard and the operations plan includes reasonable measures to assure that the cleanup standard will not be exceeded during the life of the permit.
- A multi-year study of the biological and physical process of the playa is anticipated to begin in 2006. The study will be conducted by the Desert Research Institute and is designed to answer a number of unresolved questions about impacts of recreational uses, including the Burning Man event, on sediment production and transport, dune formation and repair, and ecology of aquatic invertebrates. If the results of this study indicate that aspects of the event are contributing to unacceptable changes on the physical or biological properties of the playa environment, the permit may be suspended or modified in a manner that allows recovery for the playa environment.

## 5. Cumulative Impacts

The CEQ regulations for implementing NEPA (40 CFR 1508.7) define cumulative impacts as:

*“. . . the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time”*

The following analysis identifies other past, present or reasonably foreseeable future actions which, together with the Project, may incrementally impact the environment, and addresses the potential cumulative impacts of these actions and the Project.

### 5.1. Cumulative Impacts Assessment Area

The cumulative impact assessment area for this environmental assessment is the playa of the Black Rock Desert and immediately adjacent dunes and hummocks area for all resources except socio-economics. The cumulative impact assessment area for socio-economics is Washoe and Pershing counties, Nevada.

## **5.2. Past and Present Actions**

Past and present activities within the cumulative impact assessment area consist principally of past Burning Man events, particular those held during the 2000-2005 period, dispersed recreation and leasable mineral activity (geothermal resource exploration). The cumulative impact assessment area is near the unincorporated town of Gerlach, which lies approximately 9 miles southwest of the Project. The population of Gerlach is approximately 170 persons. Gerlach has limited retail services, a motel, restaurants, several bars, and a gas station (USDI, BLM 2003).

## **5.3. Reasonable Foreseeable Future Actions**

For this analysis it is assumed that the “foreseeable future” is the five-year period for implementation of the Proposed Action. It is reasonable to assume that geothermal exploration may occur on the federal geothermal leases about 6 miles southwest of the BRC site in the foreseeable future. It is also reasonable to assume that the Granite Fox Power Plant Project would be approved and construction initiated during the permit 2006-2010 period. Actions most likely to occur in the assessment area associated with recreation would include annual Burning Man events, other special recreation permit (SRP) events such as amateur rocket launches or land speed record attempts, and continued dispersed recreational use.

There are no other actions with the potential for creating cumulative impacts either known or anticipated in the reasonably foreseeable future.

## **5.4. Cumulative Impacts for the Proposed Action**

### **5.4.1. Air Quality**

Fugitive dust would be generated from surface-disturbing activities associated with geothermal exploration, the Burning Man Event and travel on unpaved roads and the playa surface. The operation of motor vehicle engines during the event and other permitted and casual activities would also emit small quantities of criteria air pollutants (NO<sub>2</sub>, SO<sub>2</sub>, CO and PM<sub>10</sub>), criteria air pollutant precursors (VOCs) and air toxics (small quantities of diesel PM, acetaldehyde, benzene, and formaldehyde). Wildfires would also impact air quality during the summer season.

#### **5.4.2. Cultural Resources**

Increasing recreational use in the Black Rock desert before and after the event will most likely result in increased looting, vandalism, and unintentional damage to cultural resources. Opportunities to educate the Burning Man participants about the value of cultural resources have the potential to off-set some of the anticipated damage brought about by increased visitation. Impacts created by energy exploration and development would be mitigated through the Section 106 process of the National Historic Preservation Act. New roads associated with energy development or created by cross country OHV use could increase the likelihood of vandalism and illegal collecting/excavation of cultural sites. Mitigation measure(s) requiring surveys for cultural resources prior to surface disturbing activities would help reduce the potential adverse impacts to cultural resources.

#### **5.4.3. Wastes, Hazardous and Solid**

The 1600 plus acres occupied by the alternating Black Rock City locations would contain more debris than surrounding areas on the playa. However, the average debris item size is smaller than surrounding areas making observation of the debris difficult for casual observers to notice small pieces of debris on the playa surface. This impact would occur on less than 1 percent of the playa. During the 5 year permit period debris would be expected to increase to about 0.75 ft<sup>2</sup>/acre on Site A and about 0.25 ft<sup>2</sup>/acre on Site B.

In addition to the wastes associated with the Burning Man event, geothermal exploration would increase the potential for wastes including hazardous wastes on a few acres. The transportation, use, storage and disposal of hazardous materials and wastes are subject to numerous federal, state and local laws and regulations. These requirements are intended to protect the public and the environment and are applicable to each and all of these foreseeable future actions. Hazardous materials associated with geothermal exploration include petroleum hydrocarbon fuels (principally diesel fuel), hydraulic fluid, lubricants and drilling chemicals and materials.

#### **5.4.4. Water Quality (Surface and Ground) and Water Quantity**

Permitted recreation activities and geothermal exploration would not be expected to create any direct cumulative impacts to water quality. However, increasing recreation use at hot springs along the playa margin may create additional impacts to the water quality in those spring systems. The NCA RMP includes decisions to manage public use near hot springs, which would minimize long term adverse impacts to water quality in those areas.

#### **5.4.5. Playa Sediments and Vegetation**

Continuing to permit the Burning Man event at two alternating locations would be expected to result in cumulative continuing wind erosion of the surface of the playa at the location of Black Rock City (1600 plus acres). Observations of coins resting on the playa surface within the City indicate that winds are removing the surface material from the site at a rate of at least several millimeters per year. It is unknown whether or not the surface would be replaced by water borne sediments carried by runoff during dry years or dust blowing into the site from other parts of the area. This erosion would contribute to the additional potential for localized reductions in air quality associated with dust storms picking up materials from the event site.

The anticipated increase in number of visitors to the playa, including participants at permitted events, would lead to increased surface disturbance. This would lead to the potential for additional formation of transient dunes. The degree to which dune formation would actually occur is unknown but would be expected to be minor when compared to that associated with the 115 miles of existing playa "roads".

Disturbance to soils and vegetation would be expected to occur from the geothermal development activities in the dunes and hummocks adjacent to the playa on a few acres, which would be "lost" until reclaimed following completion of the projects. Mitigation measure(s) requiring the salvaging of topsoil would help reduce the potential adverse impacts.

#### **5.4.6. Recreation**

Increasing numbers of participants in permitted events and dispersed recreation users would be expected to increase the potential for conflict between different users groups (i.e. between Land Speed Record attempts and dispersed camping on the playa, Rocket Launches and golf tournaments on the playa, etc.), but for the foreseeable future these conflicts can be mitigated through the permitting process.

Geothermal exploration on a few acres would not prevent continued access by recreational users to the majority of public lands within the cumulative impact assessment area. With the exception of the small areas adjacent to the exploration sites that may need to be closed for safety purposes, public access to the playa and other areas in the assessment area would not be impacted.

Fugitive dust from vehicle traffic on unpaved roads, as well as noise and traffic from cumulative activities, could cause some recreational users to avoid those portions of the cumulative assessment area during the geothermal exploration activities. These indirect effects would be temporary and short-term.

#### **5.4.7. Socio-Economic Values**

Beneficial economic impacts would be expected from the development phase of geothermal activity and special recreation permits, although these would occur subsequent to the beneficial impacts of the Proposed Action. Some of the construction work would likely be contracted out to local contractors and builders, and some of the required supplies and construction materials could also be purchased from local merchants. Some positive impacts could also be realized from the rental of hotel rooms and purchase of meals and entertainment by construction workers and individuals involved in recreational activities in the area.

#### **5.4.8. Visual Resources**

Within the cumulative impact assessment area, public lands north and west of the railroad tracks are rated as VRM Class II. Numerous man-made features are currently visible within the cumulative impact assessment area. Future Burning Man events would contribute to short-term change in line and color of the playa surface, which in average years, would be restored to conditions that would not be evident from the ground, except by careful observation. Rotating the event from year to year may reduce the potential for permanently entrenched roads or fence line windrows that would impact visual resources for longer durations. During the exploration phase of geothermal activities, the construction of roads and drill pads would result in short-term modifications to the line, form, color, and texture of the characteristic landscape. Roads and drill pads could create strong horizontal and linear contrasts. Vegetation and soil removal could create color, textural and linear contrasts with adjacent areas that could be visible long after all the drilling and development facilities were removed.

### **5.5. Alternative 1: Remain at the Current Location**

Cumulative impacts would be the same as described for the Proposed Action.

### **5.6. Alternative 2: Permit a Larger Event**

Cumulative impacts would be same as described for the Proposed Action except for Socio-Economics.

## **5.7. The No Action Alternative**

No activities would be undertaken if the No Action Alternative were selected. There would be no cumulative effects on air quality; cultural resources; wastes (hazardous or solid); water quality (surface and ground) and water quantity; recreation; visual; economic values; and lands and realty from implementation of the No Action Alternative.

## **5.8. Irreversible and Irretrievable Commitment of Resources**

No irreversible and irretrievable commitment of resources is expected.

# **6. CONSULTATION AND COORDINATION**

## **6.1. List of Preparers and Reviewers**

Tom Crawford	Socio-Economics
Lynn Harrison	Planning and Environmental Coordinator
Roger Farschon	Ecologist
Dave Lefevre	Outdoor Recreation Planner
Mark Pirtle	NV BLM Special Agent in Charge
Erika Schumacher	NV BLM Staff Ranger
Dave Valentine	Archaeologist

## **6.2. Agencies Contacted or Consulted**

Black Rock City LLC  
Federal Aviation Administration  
Pershing County Commissioners  
Pershing County Sheriff  
Washoe County Commissioners  
Washoe County Sheriff  
Washoe County District Health Department  
Washoe County Road Department, Gerlach  
Truckee Meadows Fire Protection District  
Gerlach Volunteer Fire Department  
Gerlach Justice of the Peace  
Gerlach General Improvement District  
Gerlach Citizen's Advisory Board  
Regional Emergency Medical Services Authority (REMSA)  
Nevada Bureau of Health Protection Services  
Nevada Department of Transportation

Nevada State Historic Preservation Officer  
Summit Lake Paiute Tribe  
Pyramid Lake Paiute Tribe  
Lovelock Paiute Tribe  
McDermitt Paiute Tribe  
Black Rock City L.L.C.  
U.S. Fish & Wildlife Service (USF&WS)  
Nevada Division of Wildlife (NDOW)

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